Prof. Minh Van HUYNH
MD, PhD, FAsCC, FACC, FISH

GREETINGS TO THE 27TH ASEAN FEDERATION OF CARDIOLOGY CONGRESS

Dear friends and colleagues,

For over 2 years, conferences were held online due to the devastating COVID-19 pandemic. This year, the Vietnam Heart Association is pleased to host the AFCC 2023 on-site.

On behalf of the organizing committee, I am delighted to welcome you to the 27th Congress of the ASEAN Federation of Cardiology, which will take place in Hanoi, Vietnam, from November 2nd-5th 2023.

This year, the theme of the scientific program is "Cardiology at the Crossroads: Challenges and Opportunities." The AFCC 2023 will focus on cardiovascular disease management in the context of multiple comorbidities, based on newly advanced interventions & technology, artificial intelligence, and telemedicine, with the limited resources of ASEAN and by collaborating with other developed foreign partners/countries.

With the participation of experts from many fields involving cardiology, we hope to find new perspectives to face the upcoming challenges in cardiovascular medicine.

It is my honor to invite all of you to the AFCC 2023. I am confident that you will be extremely pleased with the hospitality and beauty of Vietnam, and the meeting will be an integrated scaffold of learning, sharing knowledge and scientific breakthrough.

See you very soon in Hanoi!

President, Vietnam National Heart Association
Overall-Chair, AFCC 2023
Prof. Minh Van HUYNH, MD, PhD, FAsCC, FACC, FISH

Prof. Rungroj Krittayaphong
MD, FESC, FACC

WELCOMING MESSAGE

Dear Congress Participants and Colleagues

It is my great privilege and pleasure to welcome you all to participate in the 27th ASEAN Federation of Cardiology Congress scheduled to take place during 2nd - 5th November 2023 in Hanoi.

The ASEAN Federation of Cardiology has main objective of improving the standard and practice of cardiology in the ASEAN region and we remain committed to do so since its inception.

This year's scientific program has been designed to capture not only the interests of the participants but also to provide them with the state-of-the-art techniques and methods in order to cope with today's challenges in the fight against cardiovascular diseases.

We strongly believe that you will be stimulated by the discussions, the exchange of opinions and experiences sharing with renowned specialists from different countries during the three days.

We are looking forward to welcoming each and everyone of you in Hanoi in November 2023.

Prof. Rungroj Krittayaphong, MD, FESC, FACC
President, ASEAN Federation of Cardiology

BRIEF HISTORY OF ASEAN FEDERATION OF CARDIOLOGY 1975 -2023
A 48 - YEAR LONG JOURNEY

Dr. Richard Ng

President, AFC (2000 - 2002) and (2016 - 2018)

Founding Director, ASEAN College of Cardiology (2006 - 2012)

2nd November 2023 Hanoi, Vietnam (27th AFC)

The ASEAN Fed of Cardiology (AFC) was founded and established 48 years ago; 1975 at Bali, Indonesia. Then the cardiologists of 5 forming ASEAN countries (include: Indonesia, Malaysia, Philippines, Singapore and Thailand met) and under the mentoring of Dr. Sukaman formed the AFC.

Foundation of ASEAN Fed of Cardiology (AFC) 1975, Bali, Indonesia

Indonesia: Dr. Sukaman, Dr. Lili Rilantono, Dr. Asikin Hanafiah

Malaysia: Dr. R.P. Pillay, Dr. Joseph Eravelly

Philippine: Dr. Yolanda Sulit, Dr. H B Calleja, Dr. Avenilo Aventura

Singapore: Dr. NCTan, Dr. Chia Boon Lock, Dr. Low Lip Ping, Dr. Lim Chin Hock, Dr. Lenny Tan, Dr. Joseph Sheares

Thailand: Dr. Chumpol Piamsomboon, Dr. Boonchob Pongspanich, Dr. Kampol Prachuabmoh

DR. SUKAMAN

- Founding President AFC 1975- 1977
- Organized first ACC in Ball - Oct 1975
- President of Indonesian Heart Association 1970-1980
- Left his legacy in 1987

AFC FIRST DECADE 1975-1983

1. Yearly ASEAN Congress in rotation within the 5 ASEAN countries
2. 3 days of scientific presentation social events including golf and tennis

AFC SECOND DECADE 1985-1995

1. Scientific series for 3 days
2. Sukaman Lecture
3. YIA award
4. Gala ASEAN night

AFC THIRD DECADE 1998-2006

Milestones added

1. ASEAN Heart Journal
2. Permanent Secretariat
3. ASEAN College of Cardiology
4. Vietnam (2006), Laos & Myanmar (2007)

AFC FORTH DECADE 2006-2016

1. Cambodia joined (2010)
2. Constitution changes
3. Elected President and President- Elect
4. Permanent PCO
5. ASEAN Heart Journal Indexed

EDITORS IN CHIEF OF ASEAN HEART JOURNAL

E.I.C.		
1	Dr. H. B. Calleja	Philippines 1992-1999
2	Dr. Mak Koon Hou	Singapore 1999-2006
3	Dr. Rungrog Krittayaphong	Thailand 2006-2012
4	Dr. Carolyn Lam	Singapore 2012-2015
5	Dr. Mark Chan	Singapore 2015 - 2017

AFC FIFTH DECADE 2017-2027

1. Brunei joined in 2013
2. Covid 19 Pandemic (2019 - 2022)
3. Annual AFCC postponed for 2020
4. 2021 & 2022 Virtual AFCC meeting from Cambodia (2021) and Philippines (2022)
5. 2024: Permanent Secretariat transferred from Malaysia to Philippines

Thailand	Malaysia
Secretary-General Dr. Prasart Lanothavorn 1996-2010	Secretary-General Dr. Ng Wai Kiat 2014-2014
Secretary General Dr. Nithi Mahanonda 2010-2014	Hon. Treasurer Dr. Lam Kai Huat 2014-2024
Hon. Treasurer Dr. Wasan Buddhari 2010-2014	Executive Secretary Mr. Sunny Chee (2014-2024) Ms. Gunavathy 2014-2024
Executive Secretary Ms. Arpaporn 1997-2014	Ms. Noor Amirah

PAST SUKAMAN LECTURES

No.	Year	Host Country	Sukaman Lecturer	Topic
6th ACC	1986	Indonesia	Dr Charles Toh	Challenges of cardiac practice in ASEAN
7th ACC	1988	Philippines	Dr Lily I Rilantono	ASEAN Cardiology: Today and Tomorrow
8th ACC	1990	Singapore	Dr Kampol Prachuabmoh	Changing Patterns of Cardiac Surgery in ASEAN Countries
9th ACC	1992	Malaysia	Dr Yolando Sulit	Development of Philippine Cardiology and Cardiology in ASEAN setting
10th ACC	1994	Thailand	Dr Nik Zainal	The Development of a Cardiac Service for a Developing Country - A Personal perspective

No.	Year	Host Country	Sukaman Lecturer	Topic
11th ACC	1997	Indonesia	Dr Richard Ng	The growth of PTCA in ASEAN
12th ACC	1998	Philippines	Dr Boede Damojo	Visit to Geriatric Cardiology
13th ACC	2000	Singapore	Dr Boonchob Pongspanich	Congenital Heart Disease in Thailand, Implications fro Future Health Burden of ASEAN Populations
14th ACC	2002	Malaysia	Dr H B Calleja	Einthoven ECG and Cardiovascular Medicine
15th ACC	2004	Thailand	Dr Joseph Eravelly	30 years of the ASEAN Federation of Cardiology, What is the Big Picture
16th ACC	2007	Indonesia	Dr Prinya Sakiyalak	Cardiology and Cardiac Surgery Training in ASEAN
17th ACC	2008	Vietnam	DrWu Dar Ching	Impact of ASEAN Common Market on the Practice of Cardiology in ASEAN Countries
18th ACC	2010	Philippines	Dr Pham Gia Khai	Confronting Changes and Challenges in Cardiology : An ASEAN Perspective
19th ACC	2012	Singapore	Dr Santoso Karo Karo	Sudden Cardiac Death in ASEAN countries: Early managements prevention
20th ACC	2014	Malaysia	Prof. Chia Boon Lock	ECGs in Acute Myocardial Infarction
21st ACC	2016	Myanmar	Dr Rosli Mohd Ali	NHAM Improving Cardiac Care
22nd	2017	Brunei	Dr. Prabart L, Thailand	AFC in the ASEAN Economic Community Era
23rd	2018	Bangkok, Thailand	Dr. Antonio s Sibilo, Philippines	Heart Failure in ASEAN: Current practices and trends
24th	2019	Jakarta, Indonesia	Prof Sok Chour, Cambodia	Trends of STEMI care
	2020	MISSED		
25th	2021	Soam Reap Cambodia, Virtual	Prof Wan Azman, Malaysia	Highlights of Malaysia National Heart Failure Registry
26th	2022	Manila, Philippines, Virtual	Dr. Arthur Tan, Singapore	The Heart of our Pandemic (Covid 19)
27th	2023	Hanoi, Vietnam	Dr. Eleanor A. Lopez, Philippines	Artificial Intelligence in Echo Cardiography

AFCC FROM 1975 TO 2023

AFCC	Year	Date	Venue	Organising Chairman	Sukaman Lecture (In 1986)/ Sukaman Memorial Lecture (1987 onwards)	Speaker	Title	No. of Fellows (FAsCC)
27th	2023	2nd - 5th Nov	Hanoi, Vietnam	Prof Minh Van Huynh	Philippines	Dr Eleanor A. Lopez	Artificial intellegence lin Echocardiography	94
26th	2022	11th - 13th Nov	Manila, Philippines (Virtual)	Dr Jude Erric L. Cinco	Singapore	Dr Arthur Tan	The heajX-of-ou-F-pandemic	33
25th	2021	13th - 14th Nov	Siam Reap, Cambodia (Virtual)	Dr Sok Chour	Malaysia	Dr Wan Azman Waiy Ahmad	Highlights of Malaysia National Heart Failure Registry(MyHF): First Prospective Observational Study of Heart Failure	53
Postponed to 2021 due to COVID-19								
24th	2019	19th - 22nd Sep	Jakarta, Indonesia	Dr Antonia Anna Lukito	Cambodia	Dr Sok Chour	Trends of STEMI care: The Cambodian Experience	81
23rd	2018	28th Sep -1 Oct	Bangkok, Thailand	Dr Chumpol Piamsomboon	Philippines	Dr Antonio s. Sibulo	Heart Failure in the ASEAN: Current practices and trends	69
22nd	2017	3rd - 5th Nov	Bandar Seri Begawan, Brunei Darussalam	Dr Sofian Johar	Thailand	Dr Prasart L	AFC in the ASEAN'Economic Community Era: What is our Future?	75
21st	2016	14th - 16th Oct	Yangon, Myanmar	Dr Khin Maung Lwin	Malaysia	Dr Rosli Mohd All	NHAM Improving Cardiac Care through CPGs, AUC, WH20, MySTEMI Network and NCVD	65
20th	2014	12th - 15th June	Kuala Lumpur, Malaysia	Dr Rosli Mohd All	Singapore	Dr Chia Boon Lock	ST Segment Elevation: New Electrocardiographic Insights in 2014	92

AFCC	Year	Date	Venue	Organising Chairman	Sukaman Lecture (In 1986)/ Sukaman Memorial Lecture (1987 onwards)	Speaker	Title	No. of Fellows (FAsCC)
19th	'2012	13th -15th July	Singapore	Dr Kenny Sin	Indonesia	Dr Santoso Karo Karo	Sudden Cardiac Death on Karo Karo ASEAN countries: Early management& prevention	80
18th	2010	1st - 3rd Dec	Cebu, Philippines	Dr Eleanor Lopez	Vietnam	Dr Pham Gia Khai	Confronting Changes and Challenges in Cardiology: An ASEAN Perspective	97
17th	2008	25th -27th Oct	Hanoi, Vietnam	Dr Pham Gia Khai	Singapore	DrWu Dar Ching	Impact of ASEAN Common Market on the Practice of Cardiology in ASEAN Countries	82
16th	2007	18th - 21st Apr	Bali, Indonesia	Dr Idris Idham	Thailand	Dr Prinya Sakiyalak	Cardiology and Cardiac Surgery Training in ASEAN	39
15th	2004		Pattaya, Thailand	Dr Supachai Chaithiraphan	Malaysia	Dr Joseph Eravelly	30 years of the ASEAN Federation of Cardiology, What is the Big Picture	
14th	2002		Kuala Lumpur, Malaysia	Dr David Quek	Philippines	DrH BCalleja	Einthoven ECG and Cardiovascular Medicine	
13th	2000		Singapore	Dr Richard Ng	Thailand	Dr Boonchob Pongspanich	Congenital Heart Disease in Thailand, Implications for Future Health Burden of ASEAN Populations	
12th	1998		Manila, Philippines	Dr Antonio Sibulo	Indonesia	Dr Boede Da mojo	Visit to Geriatric Cardiology	
11th	1996		Jakarta, Indonesia	Dr Dede Kusmana	Singapore	Dr Richard Ng	The growth of PTCA in ASEAN	

AFCC	Year	Date	Venue	Organising Chairman	Sukaman Lecture (In 1986)/ Sukaman Memorial Lecture (1987 onwards)	Speaker	Title	No. of Fellows (FAsCC)
10th	1994		Bangkok, Thailand	Dr Prinya Sakiyalak	Malaysia	Dr NikZainal	The Development of a Cardiac Service for a Developing Country - A Personal perspective	
9th	1992		Kuala Lumpur, Malaysia	Dr Kenneth Chin	Philippines	Dr Yolanda Sulit	Development of Philippine Cardiology and Cardiology in ASEAN setting	
8th	1990		Singapore	Dr Joseph Sheares	Thailand	Dr Kampol Prachuabmoh	Changing Patterns of Cardiac Surgery in ASEAN Countries	
7th	1988		Manila, Philippines	Dr Ramiro M de Guia	Indonesia	Dr Lily 1 Rilantono	ASEAN Cardiology: Today and Tomorrow	
6th	1986		Jakarta, Indonesia	Dr Uly 1. Rilantono	Singapore	Dr Charles Toh	Challenges of cardiac practice in ASEAN	
5th	1984		Bangkok, Thailand	Dr Kumpol Prachuabmo				
4th	1982		Kuala Lumpur, Malaysia	Dr JS Eapen				
3rd	1980		Singapore	Dr Tan Ngoh Chuan				
2nd	1977		Manila, Philippines	Dr Avenilo Aventura				
1st	1975		Bali, Indonesia	Dr Sukaman Sumaryono				

1st Convocation of Fellow of ASEAN College of Cardiology
16th ASEAN Congress of Cardiology
Bali - Indonesia, April 19, 2007

17th ASEAN Congress of Cardiology in Vietnam, 2008

Gala Night performance
13th ASEAN Congress of Cardiology, 2002

Gala Night performance
17th ASEAN Congress of Cardiology in Vietnam, 2008

FINAL SCIENTIFIC PROGRAMME-AT-A-GLANCE

Date	Time	Room 313 (Hall A) 500 seats	Room 307 (Room C) 350 seats	Room 309 (Room B1) 150 seats	Room 309 (Room B2) 150 seats	Room 339 (Room D) 450 seats	Room 343 (Room E) 350 seats	Room 347 (Station) 40 seats/station	Time
Thursday, 2nd November 2023	1330-1530 (120')								1330-1530 (120')
	1545-1745 (120')								1545-1745 (120')
Friday, 3rd November 2023	0730-0900 (90')		Cardiovascular Health and CVD Prevention *Symposium S03*	*SCAI ASEAN* Which 2023 LB trials changes my practice? *Symposium S23*	Advances in cardiac pacing *Symposium S33*	Advances in Heart Failure management *Symposium S43*			0730-0900 (90')
	0915-1130 (135')	**AFCC 2023 Convocation and Opening Ceremony (0915-1130)**							0915-1130 (135')
	1145-1245 (60')	*Daiichi Sankyo M01* Anticoagulation for stroke prevention in Asian AF patients	*Novartis* HFrEF management: Remaining issues *Satellite M11*	*AstraZeneca* Protecting target organs in cardiometabolic pts *Satelitte M21*	*Edwards LifeSciences* Lifetime management aortic stenosis *Satellite M31*	*Boehringer Ingelheim* Challenges from a complex clinical case *Satellite M41*		Oral Presentation *Abstract A06 1145-1345 (in Vietnamese)* *Poster Abstract PA 1145-1245 (in English)*	1145-1245 (60')
	1300-1400 (60')	Advances in AF *Symposium M02*	*Pfizer M12* Anticoagulation in AF: Improving efficacy in complex scenarios	*Abbott Laboratories* OCT-guided PCI: New standard of care *Satellite M22*	Controversies in aortic stenosis *Forum M32*	*Menarini* Beta blockers: Evidence in CV continuum *Satellite M42*			1300-1400 (60')
	1415-1530 (75')	*Chien Foundation* Demystify nonobstructive coronary artery diseases *Symposium S04*		*SCAI ASEAN* Promising devices and strategies in intervention *Symposium S24*	*German Vietnamese Association of Cardiology* Multidisciplinary approach to arrhythmias in HF pts	Latest trends and updates in cardiology *Symposium S44*		Oral Presentation *Abstract A08 1400-1600 (in Vietnamese)*	1415-1530 (75')
	1545-1700 (75')	Advances in acute cardiac care *Symposium S05*		*Chien Foundation* Imaging guided PCI or not for LM, calcified or MVD *Symposium S25*	Cardiology and Gender *Sympoisum S35*	Latest trends and updates in cardiology *Symposium S45*		Oral Presentation *Abstract A10 1615-1815 (in Vietnamese)*	1545-1700 (75')
	1715-1815 (60')	Advances in critical cardiac care *Symposium M03*		*SCAI ASEAN* The best we can do in ASEAN for interventions *Symposium M23*	Advances in cardio-oncology *Symposium M33*				1715-1815 (60')
Saturday, 4th November 2023	0730-0830 (60')	Top 5 Great Debate from ESC Congress 2023 *Symposium M04*		Rheumatic heart diseases in ASEAN *Symposium M24*	Prehospital cardiac care *Symposium M34*	Latest trends and updates in cardiology *Symposium S46*	*Merck* BB-CCB combination *Satellite M62* *(Invited only, Room 217)*	Oral Presentation *Abstract A12 (for nurses) 0730-0915 (in Vietnamese)*	0730-0830 (60')
	0845-1000 (75')	*ESC Asia @ AFCC #1* Endocarditis and CVD-DM management *Lastest guidelines - S06*		*Thailand - Vietnam* Challenges in AHF management *Symposium S26*	Different perspectives in CAD management *Symposium S36*				0830-0930 (60')
	1015-1130 (75')	*ESC Asia @ AFCC #2* 3 top relevant late-breaking trials *Hotlines - S07*		Advances in cardiology in the elderly *Symposium S27*	Different perspectives in clnica HF management *Symposium S37*	Latest trends and updates in cardiology *Symposium S47*		Oral Presentation *Abstract A14 0930-1130 (in Vietnamese)*	0935-1035 (60')
	1040-1140 (60')								1040-1140 (60')
	1145-1245 (60')	*Servier* Time to solve the issue of poor BP control *Satellite M05*	*Novartis* LDL-C control in ACS pts: Solution for Vietnam pts *Satellite M15*	*Medtronic* RDN Symplicity Spyral: Innovation for BP control *Satellite M25*	*Pfizer* Advances in venous thromboembolism *Satellite M35*	*Daiichi-Sankyo* 10yrs ENGAGE AF-TIMI48 What can we apply? *Satellite M45*	*Boehringer Ingelheim* Breakthrough in HF management regardless LVEF *(M65)*	Oral Presentation *Case Report A16 1145-1345 (in Vietnamese)*	1145-1245 (60')
	1300-1400 (60')	*Menarini* Beta blocker use in HF-DM patients *Satellite M06*	*Merck* Hypertension in practice: Can we do better? *Satellite M16*	*Medtronic* Aortic Stenosis: Let Evolut tell you! *Satellite M26*	*Boston Scientific* Atherectomy for LEAD patients in Vietnam *Satellite M36*	*Daiichi-Sankyo* Comprehensive VTE treatment & prevention *Satellite M46*	*AstraZeneca* Applying guidelines into clinical practice: CAREME *Satellite M66*		1300-1400 (60')
	1405-1505 (60')	*ESC Asia @ AFCC #1* Acute coronary syndrome & Heart failure *Lastest guidelines - S08*		Advances in management of valvulopathies *Symposium S28*	Cardiology and metabolic disorders *Symposium S38*	Latest trends and updates in cardiology *Symposium S48*		Oral Presentation *Abstract A18 1400-1600 (in Vietnamese)*	1405-1505 (60')
	1510-1610 (60')								1510-1610 (60')
	1545-1700 (75')	*ESC Asia @ AFCC #4* 3 top relevant late-breaking trials *Hotlines - S09*		CVD management in CKD patients *Symposium S29*	Updates on management of acute cardiac settings *Symposium S39*	Latest trends and updates in cardiology *Symposium S49*		Oral Presentation *Abstract A20 1615-1815 (in Vietnamese)*	1615-1715 (60')
	1715-1815 (60')	*APSC Emerging Leader* CVD burden in ASEAN: Challenges & Innovations *Forum M07*		Sport and Heart *Symposium M27*	Multimodal imaging for cardio-oncology *Symposium M37*	**CLOSING Ceremony**			1715-1815 (60')
	1900-2200 (180')	**Gala Dinner & AFC's Cultural Show**							
Sunday, 5th Nov 2023	0800-1130 (210')			*SCAI ASEAN Course* Updates on coronary interventions *CME Course C1*	*Vietnam Cardiac Nursing Association* Updates on cardiac nursing cares *CME Course C3*				0800-1200 (240')
	1130-1200			*Convocation for FSCAI in ASEAN*					

Date	Time	Room 201 (Room F) 90 seats	Room 202 (Room G) 90 seats	Room 205 (Room H) 90 seats	Room 207 (Room I) 90 seats	Room 210 (Room J) 90 seats	Room 216 (Room K) 90 seats	Room 218 (Room L) 90 seats	Time
Thursday 2nd November 2023	1330-1530 (120')	***Vietnam Atherosclerosis Society*** Emerging concepts to daily practice in atherosclerosis ***Symposium S01***	***Vietnam Heart Failure Society*** HF management in Vietnam: Challenges and opportunities ***Symposium S11***	***Vietnamese Society of Echocardiography*** Advances in diagnosis and management of cardiomyopathy ***Symposium S21***	***Vietnamese Society of Hypertension*** Advances in hypertension management ***Symposium S31***	Advances in cardiovascular surgery in adults ***Symposium S41***			1330-1530 (120')
	1545-1745 (120')	***Vietnam Interventional Cardiology Society*** Revascularization in chronic cororary syndrome:From latest evidence to daily practice ***Symposium S02***	***Vietnam Heart Rhythm Society*** Advances in management of arrhythmias & pacing ***Symposium S12***	***ASEAN Society of Echocardiography*** Multimodal imaging of valvular heart diseases ***Symposium S22***	Advances in management of acute ischemic stroke ***Symposium S32***	Complex congenital heart disease: New perspectives and directions ***Symposium S42***			1545-1745 (120')
Friday 3rd November 2023	0730-0900 (90')	Advances in management of venous diseases ***Symposium T01***	AI và Big Data: Potential technology in cardiology ***Symposium T21***	Controversies in CABG ***Abs. Forum F01***	PCI Complication Cases ***Case Discussion A01***	Multimodal imaging for congenital heart disease management ***Sympsoium F11***	Quality control for echocardiography ***Sympsoium F12***	Special Case Report ***Case Report A02***	0730-0900 (90')
				Controversies in cardiogenic shock ***Abs. Forum F02***					
	0915-1130 (135')								0915-1130 (135')
	1130-1215 (45')	ECMO for CVD patients ***Abs. Forum T03***	***Angeion Medical*** Limus coated balloon ***Training T23***	Controversies in hypertension ***Abs. Forum F03***	Dilemmas in clinical care (Intervention) ***Case Discussion A03***	CVD management in ACHD patients ***Symposium F13***	Potential technology in cardiovascular medicine ***Forum M60***	Oral Presentation ***Abstract A05*** ***1145-1345*** ***(in English)*** ***Meta-Analysis***	1145-1245 (60')
	1225-1310 (45')	Difficult to reach BP target: What's next? ***Forum T04***	***Boston Scientific T24*** Optimized PCI results for high-bleeding risk pts	Controversies in diuresis and AHF ***Abs. Forum F04***					1300-1400 (60')
	1320-1405 (45')	Intervention Cardiology Club: Useful Tips & tricks ***Forum T05***	***Biotronik T25*** Latest technology for vessel intervention	Controverises in Long QT & Torsades de points ***Abs. Forum F05***	Dilemmas in cardiac care (Clinical) ***Case Discussion A04***		***AFC Council Meeting*** ***1330-1500*** ***Room 217***		
	1415-1500 (45')	***Menarini*** Debate on ACEi in MI ***Training T06***	***Daiichi-Sankyo T26*** P2Y12 for high ischemic risk: DM & complex PCI	Controversies in endocarditis ***Abs. Forum F06***		Updates on pulmonary artery hypertension ***Clinical Forum F16***		Oral Presentation ***Abstract A07*** ***1400-1600*** ***(in English)***	1415-1530 (75')
	1510-1555 (45')	***Menarini*** Debate on ACEi in HTN ***Training T07***	***Servier T27*** Optimize CCS management	Controversies on acute pulmonary embolism ***Abs. Forum F07***		Left Heart Anomalies: Diagnosis and Management ***Imaging Forum F17***			1545-1700 (75')
	1605-1650 (45')	PVC management ***Forum T08***	Further prevention in CAD patients ***Forum T28***	Controversies in venous thrombosis ***Abs. Forum F08***	***ASEAN Federation Cardiology (AFC)*** Young Investigator Award ***YIA***			Oral Presentation ***Abstract A09*** ***1615-1815*** ***(in English)***	
	1700-1745 (45')	Brief introduction of cardiac rehabilitation ***Forum T09***	Cardiomyopathies in daily practice ***Abs. Forum T29***	Epidemiological data on CVD and CVD risk factors ***Abs. Forum F09***		Mitral valve prolapse annualar disjunction ***Imaging Forum F19***	***VNHA Council Meeting*** ***1715-1830***		1715-1815 (60')
Saturday 4th November 2023	0730-0830 (60')	How to write a medical manuscript ***Forum T10***	***Family Medicine*** Team approach for CVD from FM perspective ***Forum T30***	***ASEAN Alliance Health*** Burnout issues of healthcare workers ***Forum M54***	Intervention with low contrast and zero fluoroscopy ***Forum F30***	Prenatal echocardiography ***CME Course C6#1*** ***0800-1155***	Diagnostic workup of cryptogenic stroke ***Imaging Forum F20***	CVD management in pregnant women ***Symposium M63***	0730-0830 (60')
	0845-0930 (45')	***Bayer T11*** Stroke in AF patients: Prevention-Management	***Sanofi T31*** Update on DAPT and ASelerate app	Cardiac rehabilitation: multidisciplinary team ***CME Course C5#1***	***SCAI ASEAN*** Tips & tricks for vascular entry access ***(F31)***		Echo for athletes and restricted cardiomyopathy ***Imaging Forum F21***		0830-0930 (60')
	0940-1025 (45')	***Boehringer Ingelheim*** Approach to Cardio-Renal-Metabolic patients ***T12***	***Daiichi-Sankyo T32*** ESC'23 guidelines on ACS Practical application		***SCAI ASEAN*** Tips & tricks for lesion assessment ***(F32)***		Echo for pericarditis and oncology patients ***Imaging Forum F22***	Oral Presentation ***Abstract A13*** ***(for nurses)*** ***0930-1130*** ***(in English)***	0935-1035 (60')
	1035-1120 (45')	***Boehringer Ingelheim*** Optimal management AF and HF patients ***T13***	***Medtronic*** Cardiac pacing evolution ***Training T33***	Exercise component in cardiac rehabilitation ***CME Course C5#2***	***SCAI ASEAN*** Tips & trick for lesion preparation ***(F33)***		Stress echo for moderate valvular heart diseases ***Imaging Forum F23***		1040-1140 (60')
	1130-1215 (45')	***Astrazeneca T14*** Reduction of CAD burden: Controversies issues	Cardiovascular care for TAVI patients ***Training T34***	***VCNA*** Reality of team approach in cardiac nursing care ***Forum S58*** ***1145-1330***	***SCAI ASEAN*** Tips & tricks for bifurcation lesions ***(F34)***		Intracavitary cardiac mass: Tumor or Thrombus? ***Imaging Forum F24***	Oral Presentation ***Case Report A15*** ***1145-1345*** ***(in English)***	1145-1245 (60')
	1225-1310 (45')	***Novarits T15*** Advances in HF treatment in special population			***SCAI ASEAN*** Tips & tricks for primary PCI ***(F35)***	Cardio-OB & Gyn: Emerging concepts ***Symposium M64***			1300-1400 (60')
	1320-1405 (45')	***Abbott Laboratories T16*** Optimize Endovascular Interventions	New technology for ablation of arrhythmias ***Training T36***		***SCAI ASEAN*** Tips & trick to manage complications ***(F36)***	Prenatal echocardiography ***CME Course C6#2*** ***1300-1745***	Chronic venous disease ***Imaging Forum F26***		
	1415-1500 (45')	Management of acute episodes of AF ***Forum T17***	***Pfizer T37*** Clinical question of anticoagulation therapy	***VCNA*** Teamwork approach in cardiac nursing care ***Sympsoium S59*** ***1345-1545***	***SCAI ASEAN*** Complications cases ***Forum F37***		Acute limb ischemia ***Imaging Forum F27***	Oral Presentation ***Abstract A17*** ***1400-1600*** ***(in English)***	1405-1505 (60')
	1510-1555 (45')	Sudden cardiac death and Brugada syndrome ***Forum T18***	Management of CVD risk factors at primary care ***Forum T38***		***SCAI ASEAN*** PCI and TAVI ***Forum 38***		Hemodialysis access ***Imaging Forum F28***		1510-1610 (60')
	1605-1650 (45')	Difficult to reach LDL-C target: What's next? ***Forum T19***	Tips and tricks for TEVAR/EVAR ***Forum T39***	***Vietnam Cardiac Nursing Association*** How to improve quality of cardiac nursing cares ***Symposium M57*** ***1600-1800***	***SCAI ASEAN (F39)*** Tips & trick for Instent restenosis management		Point of Care Ultrasonography (POCUS) in Emergent care ***Imaging Forum F29***		1615-1715 (60')
	1700-1745 (45')	Anticoagulation dilemmas in stroke prevention ***Forum T20***	Femoral-popliteal PTA ***Forum T40***		***SCAI ASEAN*** Tips & tricks for Imaging-guided PCI ***(F40)***				1715-1815 (60')
	1900-2200 (180')	**Gala Dinner & AFC's Cultural Show**							
Sunday 5th Nov 2023	0800-1200 (240')						***Vietnam National Heart Association*** Tips and Pitfalls of Echocardiography ***CME Course C4***		0800-1200 (240')

A055

Asymptomatic severe aortic stenosis with preserved left ventricular systolic function: Early aortic valve replacement versus watchful waiting strategy: a meta-analysis

Elrey Inocian[1], Jonald Lucero[2]
[1]Perpetual Succour Hospital, [2]Perpetual Succour Hospital

BACKGROUND Conservative care has been the conventional treatment paradigm in asymptomatic severe aortic stenosis (AS) with preserved left ventricular systolic function (LVSF). However, this watchful waiting strategy was recently debated with the results of recent randomized controlled trials showing advantages of early aortic valve replacement (AVR) in asymptomatic severe AS with preserved LVSF. Hence, a meta-analysis is imperative.

METHODS PubMed, Cochrane and Embase databases were systematically searched for studies from inception until 31 December 2022. The search key terms were 'asymptomatic', 'severe aortic stenosis', and 'aortic valve replacement'. Two independent reviewers appraised the eligible studies using a well-defined criteria. The main outcomes of interest were all-cause mortality, cardiovascular mortality, and hospitalization for heart failure. Random-effects model was used to derive pooled estimates.

RESULTS The search yielded 6 studies comprised of 2 randomized controlled trials and 4 observational studies. The total number of patients included was 1,744 (early AVR= 765; watchful waiting= 979). Our pooled estimates showed that early AVR as compared to a watchful waiting strategy in asymptomatic severe AS with preserved LVSF was associated with lower all-cause mortality (OR -0.11, 95% CI -0.19- 0.04, p <0.005, I2= 0%), cardiovascular mortality (OR 0.05, 95% CI 0.01- 0.26, p <0.004, I2= 0%), and hospitalization for heart failure (OR 0.13, 95% CI 0.04- 0.42, p <0.0006, I2= 0%).

CONCLUSION Early AVR was associated with better outcomes compared to a watchful waiting strategy in asymptomatic severe aortic stenosis with preserved left ventricular systolic function.

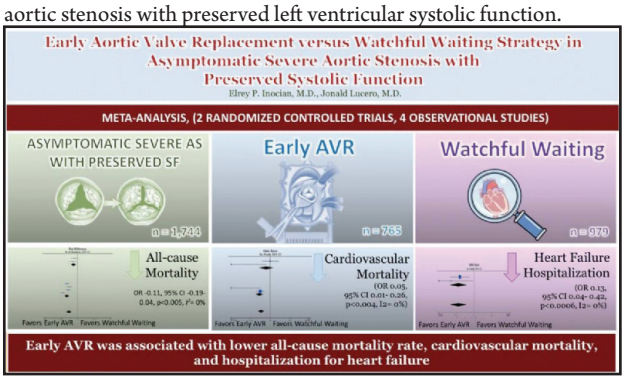


Figure 1. Visual Abstract. Early AVR in asymptomatic severe AS with preserved LV systolic function was associated with lower all-cause mortality rate, cardiovascular mortality, and hospitalization for heart failure

F011

Coronary artery bypass grafting (CABG) with Concomitant mitral valve surgery versus Isolated CABG in moderate ischemic mitral valve regurgitation: A meta-analysis

Louis Marie William B. Paday[1]
[1]Perpetual Succour Hospital

BACKGROUND Ischemic Mitral Regurgitation (IMR) is associated with increased risks of mortality and heart failure. Unfortunately, the optimal management of moderate ischemic MR remains controversial. Thus, we conducted a meta-analysis to appraise whether moderate IMR should be corrected concomitantly during coronary artery bypass graft (CABG).

METHODS We searched PubMed, Medline and Cochrane Library from its inception until December 31, 2022 for studies that assessed CABG with mitral valve surgery versus CABG alone in patients with moderate ischemic mitral regurgitation. Key terms used were "moderate" + "ischemic or functional" + "mitral regurgitation", "coronary artery bypass graft" or "CABG" or "revascularization", "mitral valve surgery (MVS)" or "mitral valve repair (MVr)" or "mitral valve annuloplasty". The Primary outcome was operative mortality.

RESULTS Four randomized controlled trials including 507 patients assessing CABG alone (n = 260) versus CABG with mitral valve surgery (n = 247) were included. There was no significant increase in operative mortality (RR, 0.91, 95% CI, 0.31-2.65; p = 0.87), stroke (RR, 2.23; 95% CI, 0.73-6.78; p = 0.16) and perioperative renal failure (RR, 1.32; 95% CI, 0.56-3.10; p = 0.53)in the concomitant MV surgery group. During follow-up, concomitant MV surgery was significantly associated with reduced rates of residual MR (RR, 0.29; 95% CI, 0.17-0.47; p = <0.00001) and NYHA III-IV (RR, 0.51; 95% CI, 0.31-0.85; p = 0.01).

CONCLUSION This study suggests that the addition of the MV surgery to CABG as treatment for moderate ischemic mitral valve regurgitation provides more benefit over performing CABG alone, in terms of rate reduction of moderate MR and NYHA class III-IV at follow-up. It was determined that there was no significant risk of perioperative stroke and renal failure in performing concomitant MVR to CABG, however, this single-stage combined procedure did not translate to a reduction in operative mortality.

PA-25

The Art of Survival: A tale of two univentricular hearts who reached adulthood without surgery

Maria Roussell Nennette Tunacao-Sandalo[1], Jonald Lucero[2], Marivic Vestal[3]
[1]Perpetual Succour Hospital, [2]Cardiology, [3]Cardiology

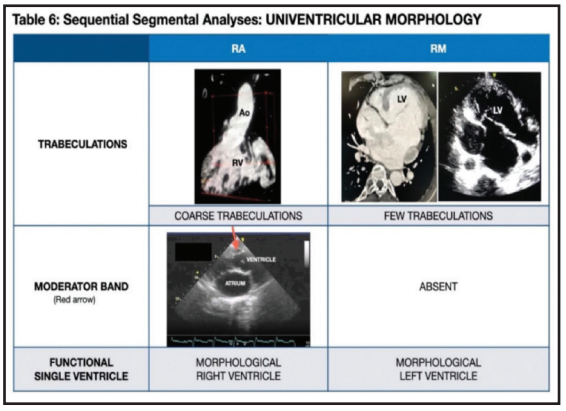
BACKGROUND Univentricular hearts are rare and their morphological heterogeneity has sparked interests on its embryology, nomenclature, physiology and hemodynamics. The prognosis of uncorrected univentricular hearts is poor with patients rarely reaching adulthood and succumbing early to heart failure and sudden death.

OBJECTIVES We aim to present two cases to demonstrate the diversity of univentricular heart presentations and delve into the lessons of the hemodynamic and physiologic adaptations that contributed to their survival to the third decade of life without surgery.

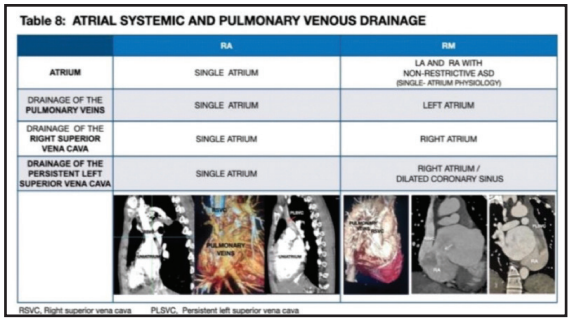
CASE Sequential segmental analyses disclosed RA to have situs ambiguous-heterotaxy syndrome-left isomerism while RM has situs solitus. RA has single atrium and single right ventricle while RM a "single atrium physiology" (tricuspid atresia and non-restrictive ASD secundum) and a single left ventricle. Both have a single inlet atrioventricular connection and concordant (RM) and double outlet (RA) ventriculo-arterial connections. RM has a subpulmonic stenosis while RA has a narrowed RV outflow tract. Both have a persistent left SVC.

DISCUSSION The admixing of oxygenated pulmonary venous return and oxygen replete blood from systemic circulation at the atrial level, the protective right outflow tract obstruction preventing pulmonary over circulation and just the right amount of major aorto-pulmonary collaterals as alternative sources of pulmonary flow provided hemodynamic and physiologic adaptations for survival.

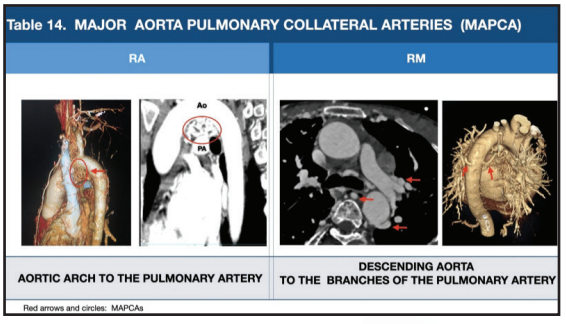
CONCLUSION Herein we report two cases that epitomize the diversity and complexity of univentricular hearts. Maintenance of a "balanced physiology" enable a minority of them to survive despite the unfavorable hemodynamics of a univentricular heart.



Sequential segmental analysis: univenteicular morphology



Sequential segmental analysis



MAPCA

A078

Feasibility of a multisensor patch in frail patients discharged from tertiary cardiology centre

Leong Lai Kuan
Sarawak Heart Centre

BACKGROUND Frailty is associated with adverse clinical outcomes. Patients who are frail have increased cardiovascular morbidity and mortality. Hospital discharge is a vulnerable phase and results in frequent readmissions. In conditions such as acute myocardial infarction (AMI), ventricular extrasystoles do occur, and persist up to 48 hours after hospital discharge. Continuous monitoring and care are provided in the hospital setting, but not readily available post-discharge. Thus, we explored the feasibility of a multisensor patch in frail patients discharged from a tertiary centre.

METHODS We conducted this pilot study at Sarawak Heart Centre. Patients aged >65 years, with a clinical frailty scale of 4-7 were enrolled. The primary endpoint was the feasibility of health monitoring in this patient group and patients' acceptance. Patients were equipped with a smartphone Samsung A01 and the Vivalnk patch. The wireless, water-resistant multi-sensor IoT-based ECG patch is applied to the left upper chest. Data was collected over 72 hour period. The application recorded motion sensor data (multiaxis acceleration), respiratory rate and electrocardiogram, which was automatically connected to the smartphone via Bluetooth. We analysed patients' acceptance of activity monitoring, perceptions, and comfort using quantitative questionnaires and qualitative interviews.

RESULTS 19 patients fulfilled the study inclusion criteria and consented to participate. The mean age of participants was 75.2 years old. We were able to capture ventricular tachycardia in a patient which led to his collapse and he was sent immediately to the hospital via ambulance. All participants stated that they appreciated the monitoring and would recommend it to other patients.

CONCLUSION Our study demonstrates that continuous health monitoring using a multisensor patch was feasible over a period of 72 hours in frail cardiology patients in ambulatory setting. This is the first pilot study that successfully assessed the usability and acceptability of a multisensor patch in elderly frail patients.

VV330

Samsung A01 phone

Age;years (Mean ± SD)	75.2 ± 8.39
Gender : male; n (%)	11 (57.9%)
Race; n(%)	
Malay	7 (36.8)
Chinese	8 (42.1)
Non-Malay indigenous	4 (21.1)
Frailty index; n(%)	
4	7 (36.8)
5	2 (10.5)
6	10 (52.7)
Hypertension; n(%)	14 (73.7)
Chronic Heart Failure; n(%)	5 (26.3)
Diabetes Mellitus; n(%)	13 (68.4)
Dyslipidemia; n(%)	11 (57.9)
Ischemic heart disease; n(%)	6 (31.6)
Valvular heart disease; n(%)	3 (15.8)
Prior stroke; n(%)	1 (5.3)
Atrial fibrillation; n(%)	7 (36.9)
Chronic kidney disease; n(%)	3 (15.8)

Demographics (n=19)

A042

Kounis syndrome: Simply forgotten but never forgotten!

Leong Lai Kuan
Sarawak Heart Centre

BACKGROUND Kounis syndrome (KS) was first described in 1999 by Kounis and Zavras. It is an acute coronary syndrome with a hypersensitivity reaction. It was also called "allergic angina." Allergic myocardial infarction occurs when allergic angina becomes acute. Mast cells are mostly found in artery intima and myocardial fibres in the heart. Mast cells abound in atherosclerotic plaques. Mast cell activation causes KS coronary artery vasospasm and atheromatous plaque erosion or rupture.

METHODS There are three variants of KS (1, 2). In type I, allergic reactions cause coronary artery spasm in patients with normal or nearly normal arteries. Troponins and cardiac enzymes may be elevated. Microvascular angina and endothelial dysfunction may be involved. Type II includes atherosclerotic patients. Acute allergic reactions cause plaque erosion or rupture, resulting in acute myocardial infarction in symptomatic or quiescent patients. Type III includes allergic coronary artery stent thrombosis.

RESULTS We reported type 1 KS. A 60-year-old man with no known cardiovascular risk factors or allergies was bitten by insects on the scalp and right wrist. Five minutes later, he had dizziness, chest discomfort, and syncope. He regained consciousness at the hospital. The ECG showed ST elevation in leads II, III, and aVF and ST depression in leads I and aVL. Hydrocortisone and parenteral anticoagulation were administered. There were no dynamic ECG changes or elevated cardiac biomarkers. He had mild coronary artery disease and a normal echocardiogram. The diagnosis of vasospastic angina was made secondary to an insect bite. He was well discharged.

CONCLUSION It is essential to recognize these types of KS in order to provide appropriate care and management. The diagnosis and management of KS can be rather difficult, requiring concurrent attention to cardiac and anaphylactic pathogenesis. The major focus of treatment for KS should be on addressing the allergic insult and removing the offending allergens. Thus, patients admitted with chest pain and electrocardiographic abnormalities should be interrogated for any history of recent exposure to any allergic insult, especially those with an underlying allergy, who should be evaluated for a more probable diagnosis of Kounis syndrome.

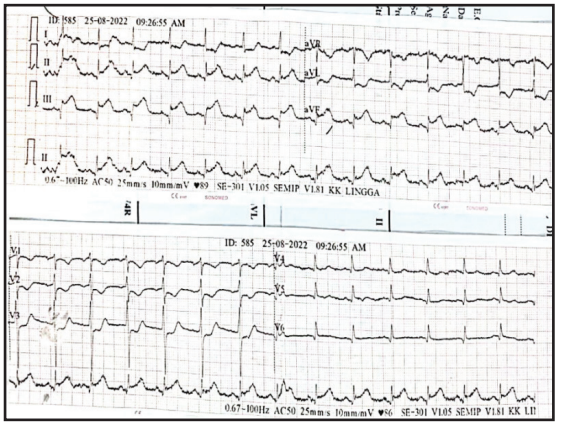


Figure 1. Electrocardiogram showing ST elevation.

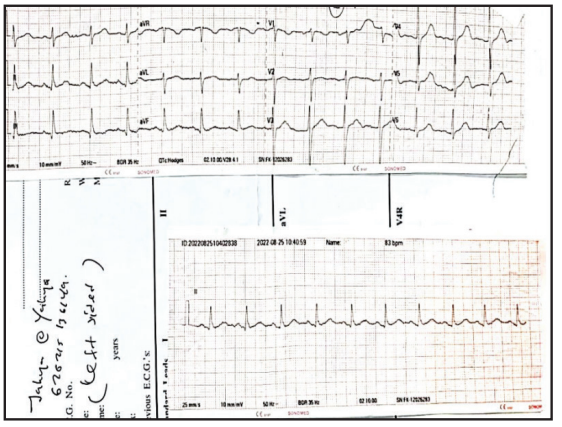


Figure 2. Electrocardiogram showing spontaneous resolution of ST elevation

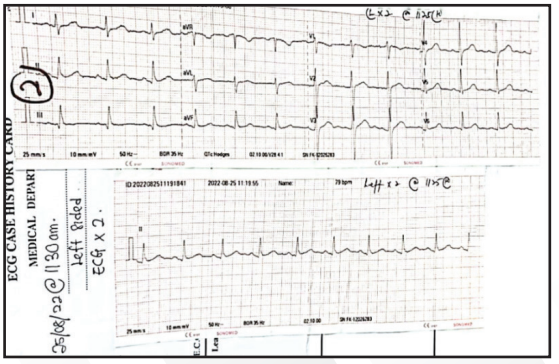


Figure 3. Electrocardiogram showing spontaneous resolution of ST elevation

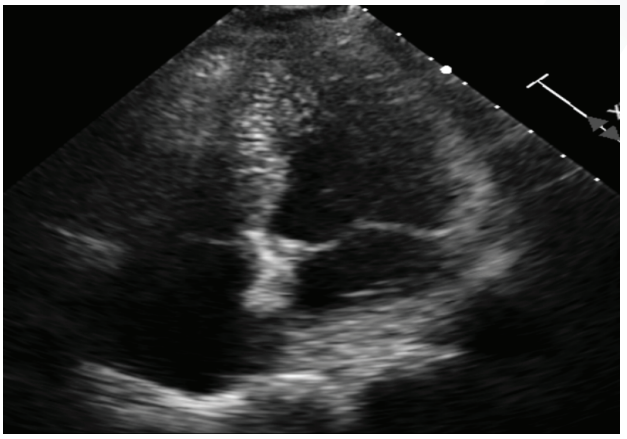


Figure 4. Normal echocardiogram

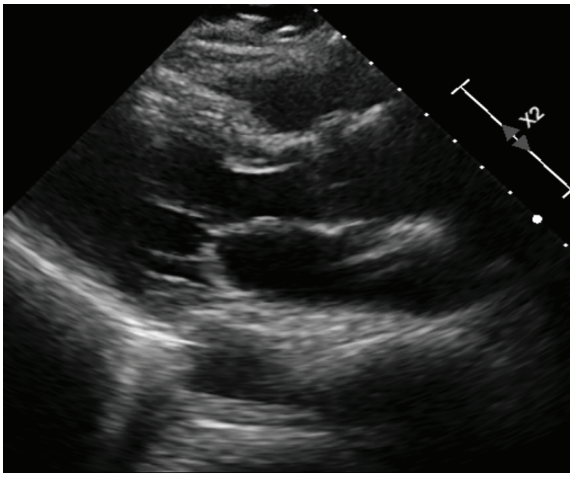


Figure 5. Normal echocardiogram

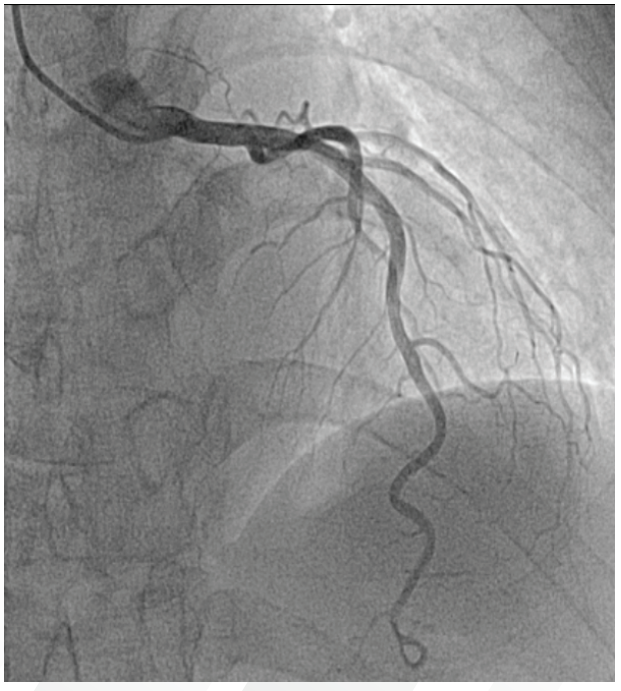


Figure 6. Minor coronary artery disease

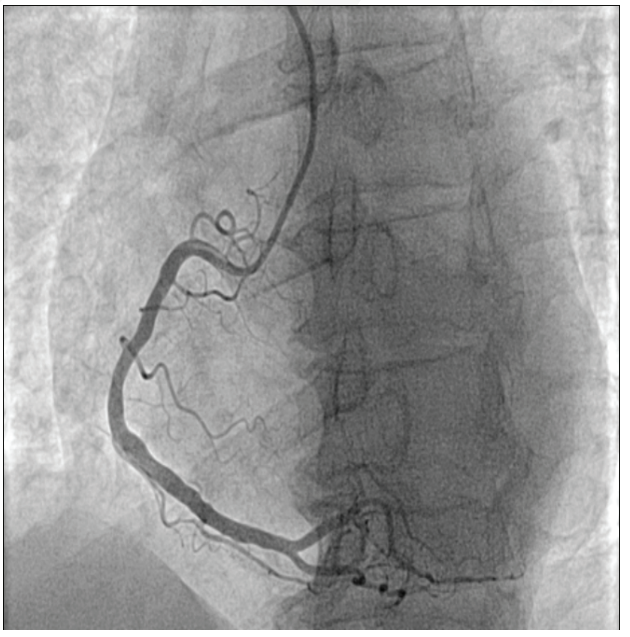


Figure 7. Minor coronary artery disease

PA-04

Prevalence and Clinical Characteristics of Rheumatic Heart Disease in Moh. Zyn Regional Public Hospital of Sampang, Madura, East Java, Indonesia

Aliyyudestrina Windya Nerdenaesti[1], Amelia Ina Sadiati[2]
[1]Mohammad Zyn Regional Hospital of Sampang, East Java, Indonesia,
[2]Mohammad Zyn Regional Hospital of Sampang, East Java, Indonesia

BACKGROUND Rheumatic heart disease (RHD) is characterized by permanent damage to the valves of the heart that develops as a severe consequence of repeated episodes of acute rheumatic fever (ARF). Heart valve damage can cause various complications such as congestive heart failure, arrhythmias, pulmonary hypertension, atrial fibrillation, endocarditis, which can cause death.

METHODS The study intends to prove the preferences of age, sex, the number of valve lesions, and RHD severity. The study was an analytic observational with a cross-sectional design of 43 patients with definite RHD from January 2022 to April 2023 in Moh. Zyn Regional General Hospital Sampang, Madura

RESULTS The study with a sample of 43 people showed that patients were dominated by women totaling 33 patients (76.7%), with the broadest age range at the age of 31-40 years (34%), then multivalvular lesions of as many as 25 patients (58.1%) and the degree of severity resulted in 34 patients (79.1%) in the degree of severity

CONCLUSION The data results showed that the number of valve lesion were associated with RHD severity (p=0.044) whereas age and sex has no statistical difference.

A056

Robotic catheter ablation versus manually assisted catheter ablation for AF patients: A systemic review

Zakaria Rashid[1], Aaron Rahman[2], Haasan Pathan[3], Juned Islam[4]
[1]Kings College London, [2]Kings College London, [3]Kings College London, [4]University College London Hospitals NHS Foundation Trust

BACKGROUND Catheter ablation is an interventional technique used in the treatment of arrhythmias, including atrial fibrillation (AF), a condition where there is disordered electrical activity and ineffectual atrial contraction, leading to a supraventricular tachyarrhythmia. Robotic catheter systems (RCS) are a valid option for use within clinical practice due to their potential capacity to reduce complication rate, improve fluoroscopy times and improve success rates when compared with manual procedures.

OBJECTIVE To determine if RCS are a viable or better alternative to manual catheter ablation therapy for use within clinical practice for patients suffering from AF.

METHODS We conducted a systematic review into the literature on this topic up to the 10th December 2021. EMBASE, MEDLINE, Cochrane Library CENTRAL and SCOPUS were the databases searched to identify relevant studies to this topic. Keywords searched included "robotic", "catheter" or "ablation" annexed with "atrial fibrillation", "arrhythmia" or "supraventricular". Grey literature and smaller journals were not assessed, nor were journals that had no English language full-text, abstract or title available. Figure 4 illustrates our inclusion and exclusion criteria.

RESULTS A total of 14 studies were found that included 5052 patients in total. Studies were of varying quality; however, all studies included a comparison between RCS and manual ablation. Most of the studies analysed found a statistically significant improvement in one of our outcome measures when comparing RCS to manual ablation. The outcome measures assessed included fluoroscopy time, success rates, complication rates, contact force, procedure time and radiation dose.

CONCLUSIONS RCS are a viable alternative to manual ablation when treating AF due to reduced fluoroscopy times, increased or equal success rates and noninferiority with complication rates when compared to manual ablation. There were some studies that showed improvements in RCS when assessing radiation dose and catheter contact force. Procedural times were increased in RCS when compared to manual ablation. These findings are promising for the future integration of RCS into clinical practice.

T212

Predict heart failure by using machine learning: A comparative analysis of models

Nguyen Duy Khue[1], Tran Viet An[2], Nguyen Duy Khuong[3], Huynh Tuan An[4]
[1]Can tho University of Medicine and Pharmacy, [2]Can Tho University of Medicine and Pharmacy, [3]Can Tho University of Medicine and Pharmacy, [4]Can Tho University of Medicine and Pharmacy

BACKGROUND This paper presents a comprehensive study on the application of machine learning techniques for predicting heart failure. The objective of the study is to improve the accuracy of heart failure prediction and enhance patient outcomes. The research begins with an introduction, highlighting the significance of heart failure as a public health issue and the potential benefits of machine learning in predicting this condition. A thorough review of existing literature on heart failure prediction using machine learning is conducted, emphasizing the strengths and limitations of previous approaches.

The study utilizes a carefully curated dataset, describing its source, size, and variables collected. Rigorous data preprocessing techniques are employed, including handling missing values, outlier detection, and feature selection. Feature engineering is conducted by selecting and engineering features relevant to heart failure prediction, incorporating domain knowledge and medical insights.

METHODS The experimental setup involves partitioning the data into training and testing sets. Evaluation metrics such as accuracy, precision, recall, F1-score, and area under the ROC curve are used to assess model performance. Logistic regression, random forests, and XGBoost are among the machine learning models considered, with the training process, hyperparameter tuning, and cross-validation techniques explained.

RESULTS The results of model evaluation demonstrate the predictive capabilities of the machine learning models. The strengths, weaknesses, and trade-offs of each model are discussed, highlighting their performance and potential implications in clinical practice. The most promising models for heart failure prediction are identified based on the findings.

The study also explores the importance of different features in predicting heart failure and provides insights into their clinical relevance. Limitations of the study, such as dataset size, data quality, and generalizability, are acknowledged. Future research directions are suggested, including the incorporation of additional data sources and exploration of advanced modeling techniques.

CONCLUSION In conclusion, this study showcases the potential of machine learning in predicting heart failure and improving patient outcomes. The findings emphasize the need for accurate risk assessment and early intervention strategies. By leveraging machine learning models and relevant features, healthcare professionals can make informed decisions and personalize management strategies for individuals at risk of heart failure. Further research and collaborations are encouraged to advance the field and make a meaningful impact on patient care.

F061

Clinical audit on the appropriateness of management for infective endocarditis in a tertiary heart centre in Malaysia

Ho Yik Hon[1], Caryn Lim Tsujean[2], Chelfi Chua Zhi Fei[3], Chow Han Bing[4], Chua Hock Hin[5], Ong Tiong Kiam[6]
[1]Sarawak Heart Centre, [2]Sarawak Heart Centre, [3]Sarawak Heart Centre, [4]Universiti Malaysia Sarawak, [5]Sarawak General Hospital, 6Sarawak Heart Centre

BACKGROUND Infective endocarditis (IE) mostly affects the younger age group population in developing countries. It is a disease associated

with a high incidence of mortality and morbidity. Little is known about the true incidence of IE in Malaysia. This clinical audit is aimed to evaluate adherence to IE management by the national guideline.

METHODS Data were collected retrospectively using a standardized audit form. Initial investigations, antibiotic therapy and surgical indications for IE were among the data collected. The adherence to IE management was then assessed by referring to the national guideline '2017 Clinical Practice Guideline for the Prevention, Diagnosis & Management of Infective Endocarditis'.

RESULTS Thirty-seven patients were recruited. The majority of the parameters audited did not achieve the expected standard of the national guideline. These include parameters such as blood culture taking, incubation period of the blood cultures taken, appropriateness of empirical and culture-guided antibiotics; as well as follow-up blood culture, echocardiogram and patients' education. None of the patients audited had undergone surgery despite clinically indicated in some of the cases. The positive points from this audit include echocardiograms being performed within 24 hours of presentation, repeat trans-oesophageal echocardiograms for indicated patients, and patients with complicated IE being referred to a specialised centre for management.

CONCLUSION The compliance with the national guideline on IE management in our hospital was suboptimal. There is ample room for improvement in the process of blood culture taking, antibiotics and surgical management to provide better care for patients with IE.

No	Criteria	Expected Standard	Compliance
1	At least 3 sets of blood cultures are taken.	100%	64.9%
2	Blood cultures are taken at least 30 minutes apart.	100%	3.0%
3	Each set of blood cultures includes paired aerobic and anaerobic blood culture bottles.	100%	51.4%
4	Each bottle contains 10mL of blood (Adult).	100%	0.0%
5	Blood samples are obtained from the peripheral veins, rather than from the central venous catheter.	100%	43.2%
6	The incubation period of the blood cultures is at least 5 days.	100%	63.9%
7	Blood cultures are repeated 3-4 days after the commencement of treatment.	100%	48.6%
8	Echocardiography (TTE/TOE) is performed during the initial 24 hours of presentation.	100%	100.0%
9	TTE/TOE is repeated within a week if there is a high suspicion of IE despite initial negative TTE/TOE findings.	100%	80.0%
10	TOE is performed if the initial TTE images are negative or inadequate for patients with persistent suspicion of IE.	100%	100.0%
11	TOE is performed in cases with prosthetic valves, prosthetic cardiac material or cases with high-risk features.	100%	100.0%
12	Echocardiographic measurement of the vegetation size is done based on the longest diameter and reported.	100%	54.1%
13	The window in which the measurement is done is documented.	100%	0.0%
14	TTE is performed if there is a change in the patient's clinical condition.	100%	33.3%
15	A pre-discharge echocardiogram is performed.	100%	100.0%
16	ESR and CRP are monitored daily during the acute period.	100%	0.0%
17	ESR and CRP are monitored twice a week when the patient is more stable.	100%	2.9%
18	A cardiothoracic team referral is made if indicated.	100%	60.6%
19	Complicated IE is referred to a specialist centre.	100%	100.0%
20	The use of antibiotic therapy for empirical treatment is appropriate.	100%	5.9%
21	The use of antibiotic therapy for culture-guided therapy is appropriate.	100%	52.4%
22	Surgery is performed if indicated.	100%	0.0%
23	Education on recognizing relapses, complications, and the importance of dental and cutaneous hygiene is done before discharge.	100%	0.0%

CRP: C-reactive protein. ESR: erythrocyte sedimentation rate. HPE: histopathological examination. TOE: transoesophageal echocardiogram. TTE: transthoracic echocardiogram.

Full compliance	Partial compliance	Minimal compliance
x ³ 95 (or 100)	70% £ x < 94 (or 99) %	x < 69%

Audit result on the diagnosis and management of infective endocarditis.

F021

Total Ischaemic Time and Cardiac Mortality among STEMI Patients in Sarawak Heart Centre, Malaysia

Caryn Lim Tsujean[1], Ho Yik Hon[2], Alan Fong Yean Yip[3], Ong Tiong Kiam[4]
[1]Sarawak Heart Centre, [2]Sarawak Heart Centre, [3]Sarawak Heart Centre, [4]Sarawak Heart Centre

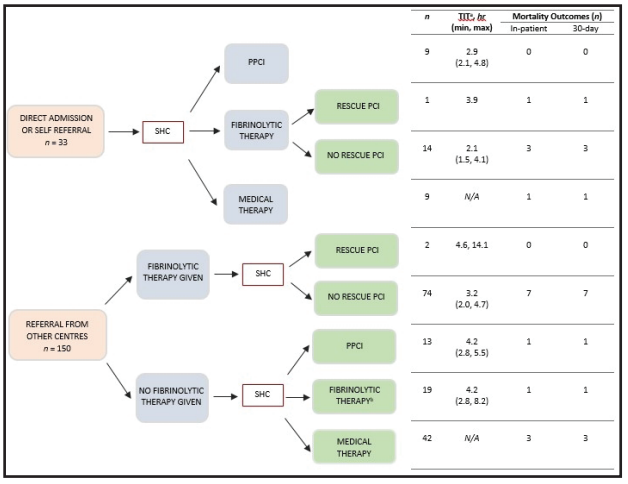
BACKGROUND Earlier revascularisation was shown to confer better survival outcomes which encourage the effort to reduce the total ischaemic time (TIT). The objective of this study is to evaluate the

association of TIT with in-hospital and 30-day mortalities among STEMI patients and to provide insight into the local geographical distribution of STEMI patients at symptom onset.

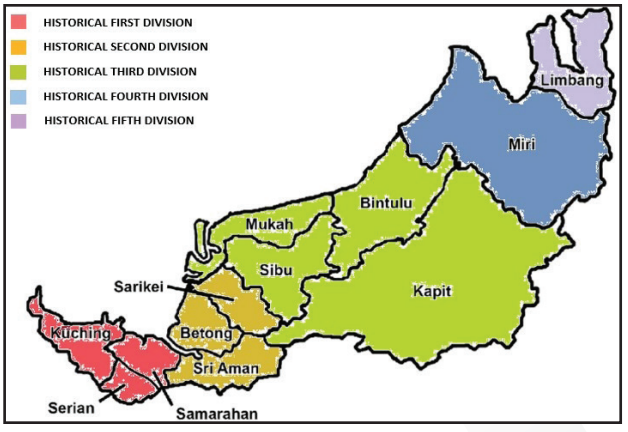
METHODS All STEMI patients who presented to or were referred to Sarawak Heart Centre from 1st July 2022 – 31st December 2022 were recruited. We examined the clinical characteristics of the patients, factors that contributed to TIT, the geographical distribution of patients, and survival outcomes. Multivariate logistic regression was used to analyse the association between TIT and mortality outcomes.

RESULTS The sample comprised a total of 183 patients. The odds of mortality from TIT of >6 hours were 2.6 times higher than those with TIT of ≤6 hours although the association was not significant. Killip class was a stronger independent predictor of survival outcomes. However, the sizably large odds ratio of TIT with mortality cannot be overlooked.

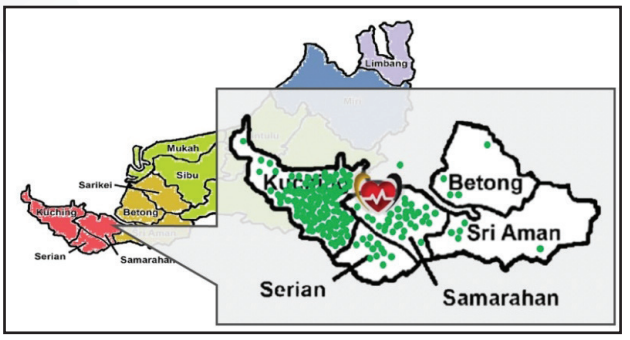
CONCLUSION The higher odds of mortality for patients with prolonged TIT encourage the effort to set up a local STEMI network to reduce the pre-hospital delay.



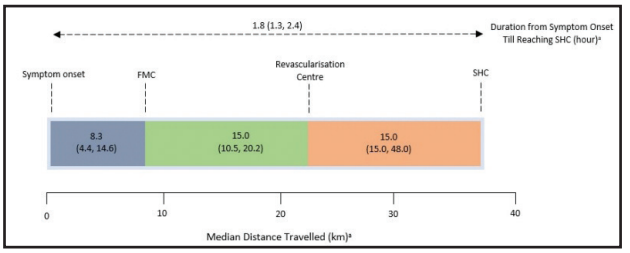
Flow diagram showing the different methods of presentation with treatment received and mortality outcomes. N/A: not applicable. PCI: percutaneous coronary intervention. PPCI: primary percutaneous coro



Historical and current administrative divisions of the state of Sarawak, Malaysia



Locations of symptom onset during acute STEMI



Distance travelled from symptom-to-door and duration from symptom onset till reaching SHC. FMC: first medical contact. SHC: Sarawak Heart Centre aData presented in 1st, 3rd

Characteristics	n (%)	(min, max)
Age (years)[a]	55.6 (12.3)	25.0, 82.0
Age <50-year-old	61 (33.3)	
Age ≥50-year-old	122 (66.7)	
Sex		
Male	160 (87.4)	
Female	92 (12.6)	
Ethnicity		
Malay	76 (41.5)	
Chinese	44 (24.0)	
Indian	1 (0.5)	
Indigenous	60 (32.8)	
Foreigner	2 (1.1)	
Marital status		
Married	151 (83.9)	
Single	12 (6.7)	
Divorced	11 (6.1)	
Widowed	6 (3.3)	
Risk factors		
Hypertension	87 (47.5)	
Diabetes mellitus	46 (25.1)	
Dyslipidaemia	67 (36.6)	
Family history of ischaemic heart disease	37 (20.6)	
Personal history of previous ischaemic heart disease	18 (9.8)	
Smoking	118 (65.2)	
Alcohol consumer	41 (22.9)	
Mode of revascularisation		
PPCI	22 (12.0)	
Fibrinolytic therapy	110 (60.1)	
Medical therapy	51 (27.9)	

Characteristics	n (%)	(min, max)
Choice of fibrinolytic agent Tenecteplase Streptokinase	 18 (16.4) 92 (83.6)	
Revascularisation outcome Successful Failed	 129 (97.7) 3 (2.3)	
Rescue PCI	3 (2.8)	
Door-to-needle time (minutes)[b] ≤30 minutes[c]	37.0 (22.0, 76.0) 41 (38.3)	5.0, 567.0
Door-to-balloon time (minutes)[b] ≤90 minutes if presented to PCI capable centre or ≤120 minutes from FMC to wire-crossing if transferred from non-PCI capable centres	55.0 (49.8, 77.3) 19 (86.4)	41.0, 184.0
Duration from symptom onset to first medical contact (hour)[b]	2.3 (1.2, 5.2)	0.2, 150.5
Duration from first medical contact to revascularisation centre (hour)[b]	1.8 (1.3, 2.4)	0.7, 4.5
Duration of symptom onset to revascularisation centre <3 hours 3 -12 hours >12 hours	 104 (57.5) 52 (28.7) 25 (13.8)	
Adherence to CPG for mode of revascularisation	102 (77.3)	
Total ischaemic time (hours)[b] ≤6 hours >6 hours	3.3 (2.1,5.0) 107 (81.7) 24 (18.3)	0.5,55.1
Location during symptom onset Home Workplace Outdoor	 137 (75.3) 14 (7.7) 31 (17.0)	
TIMI score[b]	3.0 (2.0,6.0)	0.0,12.0
TIMI categories Low TIMI risk score Moderate to high TIMI risk score	 133 (73.5) 48 (26.5)	
Killip score[b]	1.0 (1.0,2.0)	1.0,4.0
Killip categories Killip I-II Killip III-IV	 146 (80.7) 35 (19.3)	
In-hospital cardiac mortality outcome Alive Dead	 166 (90.7) 17 (9.3)	
30-day cardiac mortality outcome Alive Dead	 166 (90.7) 17 (9.3)	

CPG: Clinical Practice Guideline. FMC: first medical contact. PPCI: primary percutaneous coronary intervention. TIMI: thrombolysis in myocardial infarction.

[a]Presented in mean and standard deviation

[b]Presented in median and 1st, 3rd

Characteristics of Patients with Myocardial Infarction and Survival Outcomes

Factors	Outcomes[a]		P-value
	Alive n (%)	Dead n (%)	
Age Age <50 years old Age ≥50 years old	 57 (34.3) 109 (65.7)	 4 (23.5) 13 (76.5)	0.368
Gender Male Female	 146 (88.0) 20 (12.0)	 14 (82.4) 3 (17.6)	0.507
Ethnics Malay Chinese Indian Indigenous Foreigner	 71 (42.8) 38 (22.9) 1 (0.6) 54 (32.5) 2 (1.2)	 5 (29.4) 6 (35.3) 0 (0.0) 6 (35.3) 0 (0.0)	0.737
Marital status Married Single Divorced Widowed	 141 (84.9) 9 (5.4) 10 (6.0) 6 (3.6)	 10 (71.4) 3 (21.4) 1 (7.1) 0 (0.0)	0.123
Smoker Yes No	 108 (65.5) 57 (34.5)	 10 (62.5) 6 (37.5)	0.813
Alcohol Yes No	 39 (23.6) 126 (76.4)	 2 (14.3) 12 (85.7)	0.424
Family history of ischaemic heart disease Yes No	 32 (19.3) 134 (80.7)	 5 (35.7) 9 (64.3)	0.144
Hypertension Yes No	 76 (45.8) 90 (54.2)	 11 (64.7) 6 (35.3)	0.137
Diabetes mellitus Yes No	 40 (24.1) 126 (75.9)	 6 (35.3) 11 (64.7)	0.311
Dyslipidaemia Yes No	 61 (36.7) 105 (63.3)	 6 (35.3) 11 (64.7)	0.906
Personal history of ischaemic heart disease Yes No	 15 (9.0) 151 (91.0)	 3 (17.6) 14 (82.4)	0.256
Location of onset Home Workplace Outdoor Others	 122 (73.5) 14 (8.4) 29 (17.5) 1 (0.6)	 15 (93.8) 0 (0.0) 1 (6.3) 0 (0.0)	0.340
Types of centre upon presentation PCI capable centre Non-PCI capable centre	 28 (16.9) 138 (83.1)	 5 (29.4) 12 (70.6)	0.200

Factors	Outcomes[a]		P-value
	Alive n (%)	Dead n (%)	
Duration from symptom onset to arrival at revascularisation centre			
<3 hours	93 (56.7)	11 (64.7)	0.598
3-12 hours	47 (28.7)	5 (29.5)	
>12 hours	24 (14.6)	1 (5.9)	
Mode of revascularisation			
PPCI	21 (12.7)	1 (5.9)	
Fibrinolytic therapy	98 (59.0)	12 (70.6)	0.590
Medical therapy	47 (28.3)	4 (23.5)	
Adherence to CPG for mode of revascularisation			
Yes	92 (77.3)	10 (76.9)	0.856
No	27 (22.7)	3 (23.1)	
Choice of fibrinolytic agent			
Tenecteplase	16 (16.3)	2 (16.7)	0.976
Streptokinase	82 (83.7)	10 (83.3)	
Door-to-needle time			
≤30 minutes	40 (41.7)	1 (9.1)	**0.035**
>30 minutes	56 (58.3)	10 (90.9)	
Door-to-balloon time			
≤90 minutes if presented to PCI capable centre or ≤120 minutes from FMC to wire-crossing if transferred from non-PCI capable centres	18 (85.7) 3 (14.3)	1 (100.0) 0 (0.0)	0.684
Total ischaemic time			
≤6 hours	99 (83.9)	8 (61.5)	**0.048**
>6 hours	19 (16.1)	5 (38.5)	
Revascularisation outcome			
Successful	116 (98.3)	12 (92.3)	0.170
Failed	2 (1.7)	1 (7.7)	
Number of transits prior to reaching revascularisation centre			
Nil	83 (69.2)	11 (84.6)	0.493
One	35 (29.2)	2 (15.4)	
Two	2 (1.7)	0 (0.0)	
Number of transits prior to reaching heart centre			
Nil	29 (17.6)	5 (29.4)	0.257
One	121 (73.3)	12 (70.6)	
Two	15 (9.1)	0 (0.0)	
TIMI categories			
Low TIMI risk score	130 (79.3)	3 (17.6)	**<0.001**
Moderate to high TIMI risk score	34 (20.7)	14 (82.4)	
Killip categories			
Killip I-II	140 (85.4)	6 (35.3)	**<0.001**
Killip III-IV	24 (14.6)	11 (64.7)	

CPG: Clinical Practice Guideline. FMC: first medical contact. PPCI: primary percutaneous coronary intervention. TIMI: thrombolysis in myocardial infarction

[a]*Both in-hospital and 30-day cardiac mortality outcomes were identical.*

Factors associated with in-hospital and 30-day cardiac mortality outcomesa.

Variables	Odds Ratio	95% CI	P-value
TIT			
<6 hours	Reference group		
≥6 hours	2.6	0.7, 10.0	0.160
Killip Class			
Killip I-II	Reference group		
Killip III-IV	10.2	2.8, 36.9	<0.001

TIT: total ischaemic time

Multivariate analysis of in-hospital and 30-day cardiac mortalities among STEMI patients.

A097

Factors associated with in-hospital mortality among infective endocarditis patients

Ho Yik Hon[1], Chua Hock Hin[2], Caryn Lim Tsujean[3], Chelfi Chua Zhi Fei[4], Chow Han Bing[5], Alan Fong Yean Yip[6]

[1]Sarawak Heart Centre, [2]Sarawak General Hospital, [3]Sarawak Heart Centre, [4]Sarawak Heart Centre, [5]Universiti Malaysia Sarawak, [6]Sarawak Heart Centre

BACKGROUND Despite recent advancements in the diagnosis and management of infective endocarditis (IE), it is associated with substantial morbidity and mortality. Our study objective is to determine the factors associated with in-hospital mortality in IE patients among the local population.

METHODS All IE patients who were diagnosed with definite or possible IE and were treated at Sarawak Heart Centre from 1st January 2020 to 31st December 2020 were recruited. We examined the demographic features of the subjects and the factors that contributed to in-hospital mortality. Multivariate logistic regression was used to analyze the associated factors and in-hospital mortality.

RESULTS Our study population comprised a total of 37 patients with a mean age of 46.4 years and male predominance. The in-hospital mortality rate of IE in this study was 44.4%. Haemodynamic instability and anaemia were found to be strong predictors of IE survival outcome, with sizeable odds ratios of 51.5 and 35.7 respectively. Patients with vascular phenomenon and heart failure were at 10.5 and 6.0 times higher risk of dying, however, these 2 associations were found to be not statistically significant.

CONCLUSION The in-hospital mortality due to IE in our study was among the highest in developing countries. Factors of hypotension and optimal response to individual hemodynamic parameters may confer lower mortality. While anaemia is demonstrable as a risk factor for inpatient mortality, a target has yet to be reasonably established.

Characteristics	n (%)
Age (years)[a]	46.4 (17.0)
Gender	
Male	28 (75.7)
Female	9 (24.3)

Characteristics	n (%)
Ethnicity	
Malay	9 (23.7)
Chinese	12 (31.6)
Indigenous	16 (42.1)
Presenting Hospitals	
SHC	10 (27.0)
Others	27 (73.0)
Risk factors	
Cardiopathy	3 (8.1)
Diabetes mellitus	6 (16.2)
Cancer	0 (0.0)
Chronic kidney disease	9 (24.3)
CRHD	5 (13.5)
non-CRHD valvulopathy	3 (8.1)
Valve prosthesis	5 (13.5)
CIED	1 (2.7)
Past history of IE	2 (5.4)
Intraveneous drug user	2 (10.0)
Alcohol	4 (19.0)
Invasive procedure	2 (5.4)
Drug allergy	2 (5.7)
Recent antibiotic use	4 (10.5)
Signs and symptoms	
Fever	19 (52.8)
Weight loss	5 (13.9)
Appetite loss	8 (22.2)
Fatigue	11 (30.6)
Dyspnoea	15 (41.7)
Arthralgia	1 (2.8)
Vascular phenomenon	10 (27.0)
Immunologic phenomenon	1 (2.7)
Investigations	
Anaemia	23 (63.9)
Creatinine clearance[b]	50.7 (26.0, 58.0)
Three sets of blood cultures	26 (70.3)
Echocardiogram	37 (100.0)
Culture-positive	21 (56.8)
Methicillin-sensitive *Staphylococcus aureus*	7 (33.3)
Streptococci	7 (33.3)
Enterococci	2 (9.5)
Haemophilus	1 (4.8)
Others	4 (19.0)
Echocardiogram	
Transthoracic	26 (70.3)
Transoesophageal	2 (5.4)
Both	9 (24.3)
Topography	
Aortic valve	10 (27.0)
Mitral valve	16 (43.2)
Aortic and mitral valves	4 (10.8)
Other valves	6 (16.2)
CIED	1 (2.7)

Characteristics	n (%)
Type of IE	
Native	32 (86.5)
Prosthetic, early	1 (2.7)
Prosthetic, late	2 (5.4)
CIED, early	1 (2.7)
CIED, late	0 (0.0)
Native and prosthetic	1 (2.7)
Classification of IE	
Definite	12 (32.4)
Possible	25 (67.6)
Empirical antibiotic	
Benzyl penicillin or ampicillin plus gentamicin	8 (21.6)
Ceftriaxone	25 (67.6)
Others	4 (10.8)
Appropriateness of antibiotic	
Empirical	2 (5.9)
Culture-guided	11 (52.4)
Surgery	
Indicated for surgery	35 (94.6)
Referral to cardiothoracic team for surgery	20 (60.6)
Surgery performed	0 (0.0)
Referral to infectious disease physician	10 (27.0)
Complications	29 (78.4)
Haemodynamic instability (Requiring ICU admission and/or intubation)	18 (48.6)
Heart failure	15 (40.5)
Embolic Stroke	9 (24.3)
Non-cerebral embolic localisation	6 (16.2)
Acute kidney injury	17 (45.9)
Transaminitis	8 (21.6)
Adverse drug reaction	2 (5.4)
In-hospital mortality outcome	
Alive	20 (55.6)
Dead	16 (44.4)
Alive	
With complication(s)	6 (30.0)
Without complication	14 (70.0)

CIED: cardiac implantatable electronic device. CRHD: chronic rheumatic heart disease. ICU: intensive care unit. IE: infective endocarditis. SHC: Sarawak Heart Centre

[a]*Presented in mean and standard deviation*

[b]*Presented in median and 1st, 3rd*

Socio-demographic and Clinical Characteristics of the Study Population (n=37)

Factors	Outcomesa		P-value
	Alive n (%)	Dead n (%)	
Age			
Age <50 years old	10 (55.6)	8 (44.4)	1.000
Age ≥50 years old	10 (55.6)	8 (44.4)	
Gender			
Male	14 (51.9)	13 (48.1)	0.439
Female	6 (66.7)	3 (33.3)	

Factors	Outcomesa		P-value
	Alive n (%)	Dead n (%)	
Ethnics			
Malay	4 (50.0)	4 (50.0)	
Chinese	8 (66.7)	4 (33.3)	0.638
Indigenous	8 (50.0)	8 (50.0)	
Presenting Hospital			
SHC	5 (50.0)	5 (50.0)	0.677
Others	15 (57.7)	11 (42.3)	
Cardiopathy			
Yes	2 (66.7)	1 (33.3)	0.686
No	18 (54.5)	15 (45.5)	
Diabetes mellitus			
Yes	3 (50.0)	3 (50.0)	0.764
No	17 (56.7)	13 (43.3)	
CKD			
Yes	3 (33.3)	6 (66.7)	0.121
No	17 (63.0)	10 (37.0)	
CRHD			
Yes	2 (40.0)	3 (60.0)	0.451
No	18 (58.1)	13 (41.9)	
non-CRHD valvulopathy			
Yes	2 (66.7)	1 (33.3)	0.686
No	18 (54.5)	15 (45.5)	
Valve prosthesis			
Yes	2 (40.0)	3 (60.0)	0.451
No	18 (58.1)	13 (41.9)	
CIED			
Yes	1 (100.0)	0 (0.0)	0.364
No	19 (54.3)	16 (45.7)	
Past history of IE			
Yes	0 (0.0)	2 (100.0)	0.340
No	20 (58.8)	14 (41.2)	
IVDU			
Yes	0 (0.0)	2 (100.0)	0.080
No	11 (64.7)	6 (35.3)	
Alcohol			
Yes	2 (50.0)	2 (50.0)	0.648
No	10 (62.5)	6 (37.5)	
Invasive procedure			
Yes	1 (50.0)	1 (50.0)	0.871
No	19 (55.9)	15 (44.1)	
Drug allergy			
Yes	2 (100.0)	0 (0.0)	0.169
No	16 (50.0)	16 (50.0)	
Fever			
Yes	13 (72.2)	5 (27.8)	0.064
No	7 (41.2)	10 (58.8)	
Weight loss			
Yes	3 (60.0)	2 (40.0)	0.889
No	17 (56.7)	13 (43.3)	
Appetite loss			
Yes	4 (57.1)	3 (42.9)	1.000
No	16 (57.1)	12 (42.9)	
Fatigue			
Yes	5 (45.5)	6 (54.5)	0.344
No	15 (62.5)	9 (37.5)	

Factors	Outcomesa		P-value
	Alive n (%)	Dead n (%)	
Dyspnoea			
Yes	6 (40.0)	9 (60.0)	0.076
No	14 (70.0)	6 (30.0)	
Arthralgia			
Yes	0 (0.0)	1 (100.0)	0.241
No	20 (58.8)	14 (41.2)	
Anaemia			
Yes	10 (43.5)	13 (56.5)	**0.024**
No	10 (83.3)	2 (16.7)	
Vascular phenomenon			
Yes	2 (22.2)	7 (77.8)	**0.020**
No	18 (66.7)	9 (33.3)	
Immunologic phenomenon			
Yes	1 (100.0)	0 (0.0)	0.364
No	19 (54.3)	16 (45.7)	
Classification of IE			
Definite	3 (27.3)	8 (72.7)	**0.028**
Possible	17 (68.0)	8 (32.0)	
Culture-positive			
Yes	9 (45.0)	11 (55.0)	0.154
No	11 (68.8)	5 (31.3)	
Organism cultured			
Methicillin-sensitive	3 (42.9)	4 (57.1)	
Staphylococcus aureus			
Streptococci	3 (42.9)	4 (57.1)	0.904
Enterococci	1 (50.0)	1 (50.0)	
Others	2 (66.7)	1 (33.3)	
Choice of empirical antibiotic			
Benzyl penicillin or ampicillin plus gentamicin	4 (50.0)	4 (50.0)	0.353
Ceftriaxone	15 (62.5)	9 (37.5)	
Others	1 (25.0)	3 (75.0)	
Appropriateness of empirical antibiotic	0 (0.0)	2 (100.0)	0.133
Yes	17 (54.8)	14 (45.2)	
No			
Appropriateness of culture-guided antibiotic			0.653
Yes	4 (40.0)	6 (60.0)	
No	5 (50.0)	5 (50.0)	
Referral to cardiothoracic surgeon	8 (42.1)	11 (57.9)	0.280
Yes	8 (61.5)	5 (38.5)	
No			
Referral to infectious disease physician			
Yes	6 (60.0)	4 (40.0)	0.739
No	14 (53.8)	12 (46.2)	
Complications			
Yes	12 (42.9)	16 (57.1)	**0.004**
No	8 (100.0)	0 (0.0)	
Haemodynamic instability (Requiring ICU admission and/or intubation)			
Yes	3 (17.6)	14 (82.4)	**< 0.001**
No	17 (89.5)	2 (10.5)	

Factors	Outcomesa		P-value
	Alive n (%)	Dead n (%)	
Heart failure			
Yes	5 (33.3)	10 (66.7)	**0.023**
No	15 (71.4)	6 (28.6)	
Stroke secondary to vegetation embolism			
Yes	2 (25.0)	6 (75.0)	**0.049**
No	18 (64.3)	10 (35.7)	
Non-cerebral embolic localisation			
Yes	2 (33.3)	4 (66.7)	0.230
No	18 (60.0)	12 (40.0)	
Acute kidney injury			
Yes	6 (37.5)	10 (62.5)	0.051
No	14 (70.0)	6 (30.0)	
Transaminitis			
Yes	3 (37.5)	5 (62.5)	0.244
No	17 (60.7)	11 (39.3)	

CIED: cardiac implantatable electronic device. CRHD: chronic rheumatic heart disease. ICU: intensive care unit. IE: infective endocarditis. SHC: Sarawak Heart Centre

Table 2. Factors associated with in-hospital mortality. (n=37)

Variables	Odds Ratio	95% CI	P-value
Anaemia			
Yes	35.7	1.1, 1203.1	**0.046**
No	Reference group		
Vascular phenomenon			
Yes	6.0	0.2, 147.6	0.274
No	Reference group		
Haemodynamic instability			
Yes	51.5	3.1, 853.3	**0.006**
No	Reference group		
Heart failure			
Yes	10.5	0.7, 168.5	0.097
No	Reference group		

IE: infective endocarditis

Table 3. Multivariate analysis of in-hospital mortality among IE patients. (n=37)

A025

Successful repair of a rare case of congenital low lying secundum atrial septal defect with unroofed coronary sinus

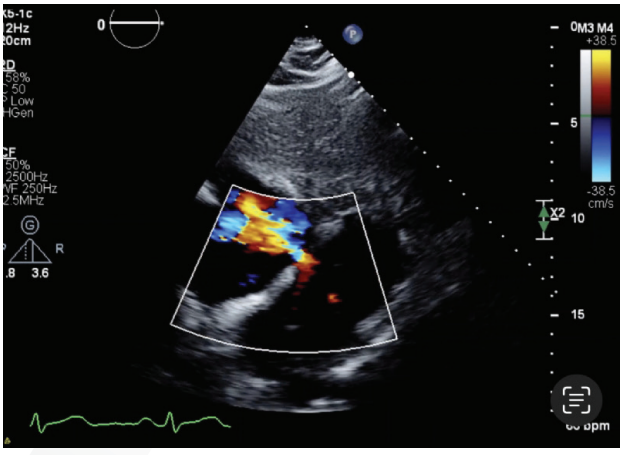
Gwen Marcellana[1], Donald C. Cristobal[2], Jose Jonas Del Rosario[3]
[1]St. Lukes Medical Center Global City, [2]St. Lukes Medical Center Global City, [3]St. Lukes Medical Center Global City

BACKGROUND Congenital low lying atrial septal defect (ASD) with unroofed coronary sinus is an extremely rare condition, with an estimated incidence of less than 1% among all congenital heart defects. Repairing unroofed coronary sinus in adult patients presents unique challenges due to the complexity of the defect and limited data on optimal management. This unique case report emphasizes the rarity of this condition, the infrequency of its surgical repair in adults, and the challenges encountered in the repair process, particularly in the Philippine setting

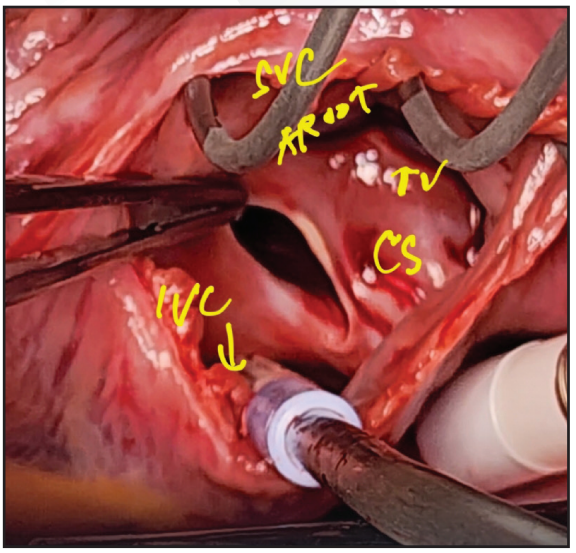
METHODS We present a case of a 54-year-old Filipino male, non-hypertensive, diabetic, and dyslipidemic who was incidentally diagnosed with paroxysmal atrial fibrillation and an ASD with an unroofed coronary sinus. Following thorough evaluation, including pre-operative transesophageal echocardiography (TEE) findings, the decision to proceed with open heart surgery for ASD repair was made. Post-operative TEE findings were also assessed to evaluate the surgical outcome.

RESULTS The decision to proceed with surgical repair was based on the patient's symptoms of easy fatigability and palpitations on exertion, along with the pre-operative TEE findings. The TEE revealed a low lying atrial septal defect measuring 1.6 cm in diameter and an area of 1.51 cm2, consistent with predominantly left-to-right shunting. Additionally, the presence of an unroofed coronary sinus was confirmed, posing unique challenges in the repair process. The decision to proceed with surgery was further supported by post-operative TEE findings, which showed successful closure of the defect with no residual shunting or complications.

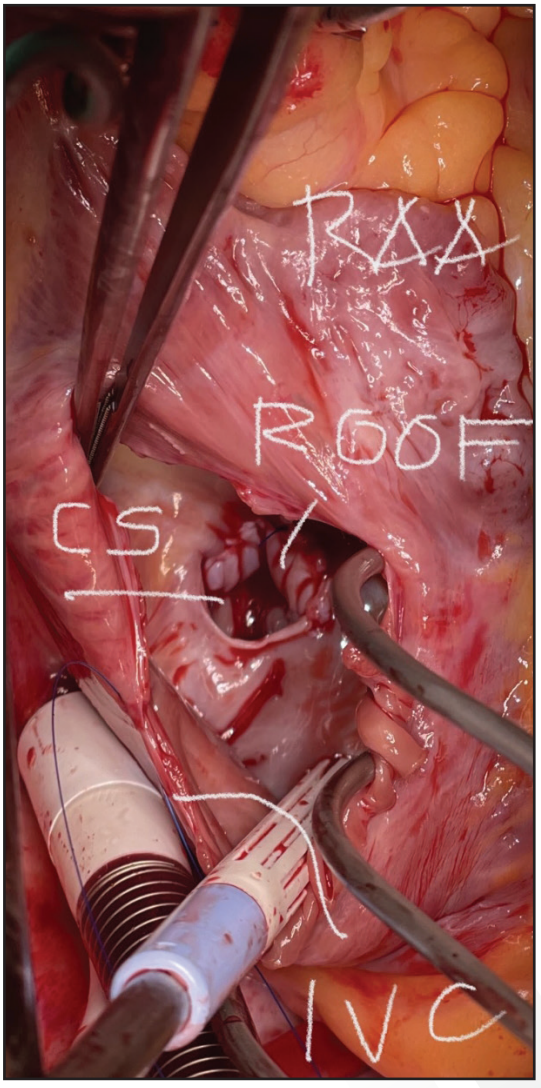
CONCLUSION The presented case report describes a unique instance of congenital low lying ASD with unroofed coronary sinus, emphasizing its rarity in adults and the successful surgical repair in a Filipino patient. The incorporation of pre-operative and post-operative TEE findings in the decision-making process strengthens the assessment of the patient's cardiac anatomy and guides the surgical repair strategy. This report sheds light on the challenges encountered in repairing unroofed coronary sinus in adult patients, highlighting the need for further research and collaborative efforts to improve the management of similar cases, particularly in the Philippine healthcare setting.



Low lying atrial septal defect with left-to-right shunt (Qp:Qs of 2.2:1)



Intra-operative image during reconstruction of unroofed coronary sinus



Intra-operative image during reconstruction of unroofed coronary sinus

PA-05

Awarness of cardiovascular disease and risk factors among Jordanian women

Abdelhakeem Okour[1], Rami Saadeh[2]
[1]Jordan University of Science and Technology, [2]Jordan University of Science and Technology

BACKGROUND Women's awareness of chronic diseases, including cardiovascular diseases, is the cornerstone in promoting women's health. Objectives: To examine the relationship of awareness levels about cardiovascular diseases and their related risk factors with demographic information of Jordanian women.

METHODS A cross-sectional study of 18 years and older women. Scores of awareness were computed for each individual and were divided into 4 quartiles. Logistic regression analysis was used to examine the association of demographic information of participants with mean scores of quartiles. ANOVA analysis was used to compare the mean scores of quartiles.

RESULTS A total of 514 women completed the questionnaire, with a mean age of 35.46 (±12.53). Current smokers were 6.2%, and 34.6% had a family history of heart disease. The proportion of diabetes, hypertension, hypercholesterolemia, and overweight/obesity were 15.6%, 19.3%, 14.4%, & 21.6% respectively. The mean score for awareness was 12.87 (+ 3.26). Women who had lower income and who were at younger age were more likely to score low in awareness.

CONCLUSION Women illustrated a fair level of awareness of CVD and its related risk factors. Increasing women awareness of CVD through educational programs, targeted toward women at risk, assists in disease prevention and help to improve treatment plans.

A040

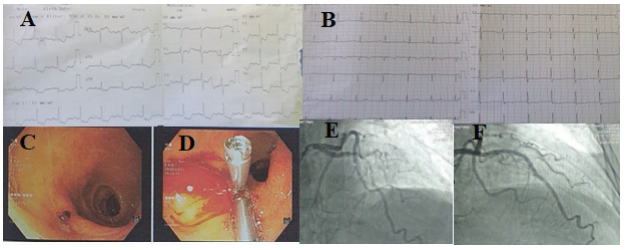
Coexisting upper gastrointestinal bleeding and myocardial infarction: Two Case Reports

Nam Huu Huynh[1], Phuoc Ho Van[2], Trung Doan Hieu[3]
[1]Da Nang Hospital, [2]Da Nang Hospital, [3]Da Nang Hospital

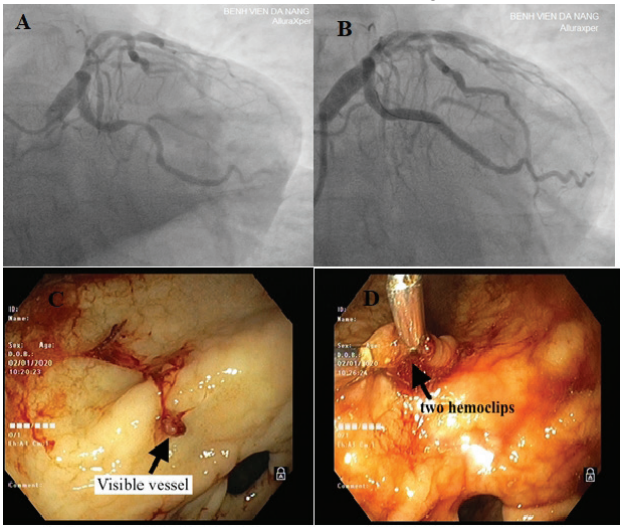
BACKGROUND Patients presenting with both upper gastrointestinal bleeding (UGIB) and acute myocardial infarction (AMI) have a higher mortality rate compared to those with either condition alone. Currently, there is no official guideline addressing the management of this challenging situation. The optimal approach, whether it should be gastrointestinal endoscopy (GIE) or coronary artery revascularization (CAR) is controversial.

RESULTS In the first case, a 55-year-old female patient experienced severe upper gastrointestinal bleeding along with non-ST elevation myocardial infarction. The priority strategy involved performing endoscopy, which led to successful treatment, with the patient remaining stable during the 18-month follow-up period. In the second case, a 45-year-old male patient presented with ST elevation myocardial infarction and concurrent upper gastrointestinal bleeding. The priority strategy in this case was coronary artery revascularization, which resulted in successful treatment, with the patient remaining stable during the 32-month follow-up period

CONCLUSION Optimal management of patients with simultaneous UGIB and AMI requires a multidisciplinary team approach involving cardiologists, gastroenterologists, and anesthesiologists. Individualized treatment plans should be developed, carefully weighing the risks and benefits based on the specific timing and type of acute myocardial infarction. Gastrointestinal endoscopy can be safely prioritized in cases where immediate coronary revascularization is not mandatory. However, further research is needed to establish an optimal management strategy for this complex scenario.



A: ECG on admission; B. ECG after transfusion; C: Endoscopy showes Forrest IIa bleeding ulcer in duodenum; D: Endoscopy hemostasis was applied by two hemoclips at ulcer to stop bleeding. E: Severe ste



A. Severe circumflex artery stenosis at proximal segment (arrow); B: Successful revascularization by drug eluting stent; C. Forrest IIa ulcer in antrum; D. Hemostasis of ulcer was done by two hemoclip

Signs and symptoms	Cardiogenic shock	Hemorrhagic shock
Respiratory crepitations	+++	-
S3, S4 gallop rhythm	+++	-
Echocardiography	Diminished contractility and ejection fraction	Ventricular chamber obliteration
	IVC dilatation	IVC collapse
	Valvular diseases, cardiac tamponade	No
Chest X-ray	Large heart, pulmonary edema	No

Table 1. Differentiation of cardiogenic shock and hemorrhagic shock [12],[13]

A151

Sociodemographic, risk factor, etiological and clinical profile of chronic heart failure patients attending in a heart failure clinic in Bangladesh

Md Abdul Kader Akanda
Lab Aid Specialized Hospital

BACKGROUND Heart failure (HF) is a global health concern with significant regional and ethnic variations in prevalence, incidence, and mortality rates. In Bangladesh, a low and middle-income country, data on HF is scarce, necessitating a comprehensive investigation into the characteristics of HF patients.

METHODS We conducted a cross-sectional study using data from the patient registry of the Heart failure research foundation, Dhaka, Bangladesh. The study included 225 chronic HF patients and analyzed their sociodemographic, risk factors, etiological, and clinical profiles.

RESULTS Most patients had heart failure with reduced ejection fraction (95.11%). Ischemic heart disease was the main cause of HF (89.19%). Most patients were male (65.18%), around 60 years old, and had a low socioeconomic status. Prevalent health conditions included diabetes mellitus, hypertension, and smoking. Most patients were treated with diuretics, mineralocorticoid receptor antagonists, beta-blockers, and ACEI/ARB.

CONCLUSION The findings highlight the need for targeted interventions to address the high prevalence of risk factors and improve the management of HF in Bangladesh. Future research should focus on developing interventions to improve HF outcomes in low-resource settings.

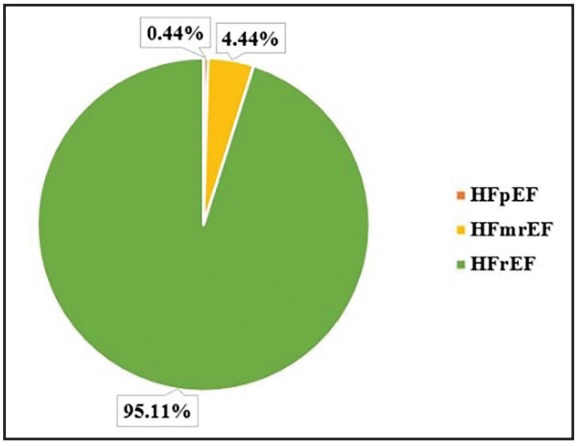


Figure 1. Distribytion of patients according to heart failure types (n=225) [HFrEF: Heart Failure with reduced Ejection; HFmrEF: Heart Failure with mid range Ejection Fraction; Heart Failure with preserved Ejection Fraction]

Distribution of patients according to heart failure types (n=225) [HFrEF: Heart Failure with reduced Ejection Fraction; HFmrEF: Heart Failure with mid range Ejection Fraction; Heart Failure with prese

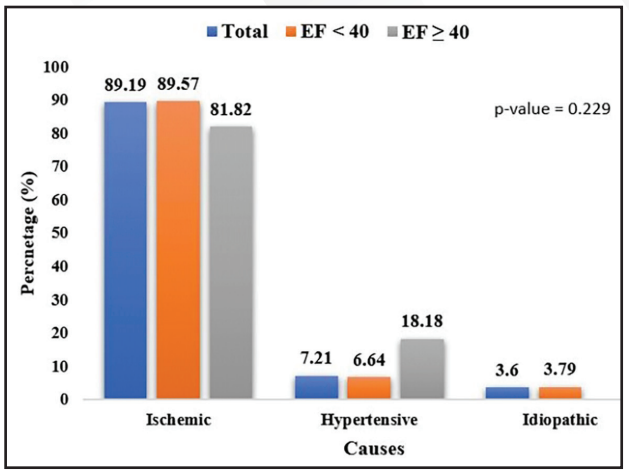


Figure 2. Causes of heart failure in ralation to ejection fraction (EF). [p-value was determined by Fisher's exact test.

Causes of heart failure in relation to ejection fraction (EF). [p-value was determined by Fisher's exact test.

Characteristics	Total	EF (<40%)	EF (≥40%)	p-value
Sociodemographic profile				
Age (years)	60.02 ±11.53	60.31 ±11.54	54.7 ±8.84	0.132
Sex				
Male	146 (65.18)	140 (65.73)	6 (54.55)	0.448
Female	78 (34.82)	73 (34.27)	5 (45.45)	
Education				
Illiterate	114 (52.78)	110 (53.66)	4 (36.36)	0.263
Literate	102 (47.22)	95 (46.34)	7 (63.64)	
Monthly Family Income (BDT)				
< 30000	186 (91.18)	180 (92.31)	6 (66.67)	**0.035**
≥ 30000	18 (8.82)	15 (7.69)	3 (33.33)	
Risk factors				
Physical Activity				
Sedentary	182 (84.26)	173 (83.98)	9 (90.0)	1.000
Active worker	34 (15.74)	33 (16.02)	1 (10.0)	
Body Mass Index (kg/m2)				
Underweight (<18.5)	43 (21.50)	41 (21.69)	2 (18.18)	0.662
Normal weight (18.5 – 22.9)	82 (41.00)	77 (40.74)	5 (45.45)	
Overweight (23.0 – 24.9)	25 (12.50)	25 (13.23)	0 (0.00)	
Obese (>25.0)	50 (25.00)	46 (24.34)	4 (36.36)	
Diabetes Mellitus				
Present	73 (32.44)	68 (31.78)	5 (45.45)	0.345
Absent	152 (67.56)	146 (68.22)	6 (54.55)	
Hypertension				
Present	84 (37.33)	77 (35.98)	7 (63.64)	0.106
Absent	141 (62.67)	137 (64.02)	4 (36.36)	
Dyslipidemia				
Present	10 (4.44)	10 (4.67)	0	1.000
Absent	215 (95.56)	204 (95.33)	11 (100.00)	
Smoking				
Smoker	94 (41.78)	90 (42.06)	4 (36.36)	0.765
Non-smoker	131 (58.22)	124 (57.94)	7 (63.64)	
Drinks alcohol				
Yes	1 (0.44)	1 (0.47)	0	1.000
No	224 (99.56)	213 (95.09)	21 (4.91)	
Family history of ischemic heart disease				
Present	8 (3.56)	8 (3.74)	0	0.514
Absent	217 (96.44)	206 (96.26)	11 (100.00)	

Sociodemographic profile and risk factors of heart failure among patients in relation to ejection fraction

Characteristics	Total	EF (<40%)	EF (≥40%)	p-value
Clinical characteristics				
NYHA stage				
Stage II	20 (8.97)	19 (8.96)	1 (9.09)	0.109
Stage III	182 (81.61)	175 (82.55)	7 (63.64)	
Stage IV	21 (9.42)	18 (8.49)	3 (27.27)	
LVIDD (mm)	61.76 ±7.17	62.12 ±7.09	55.36 ±5.54	0.002
Ejection Fraction (%)	30.07 ±5.83	29.41 ±5.01	42.82 ±5.79	<0.001
Hemoglobin (%)	11.15 ±2.41	11.16 ± 2.41	11.18 ±2.80	0.985
Random Blood Sugar (mmol/l)	8.40 ±3.65	8.52 ±3.72	6.33 ±0.85	0.316
Comorbidities				
Bronchial asthma				
Present	11 (4.89)	9 (4.21)	2 (18.18)	0.094
Absent	214 (95.11)	205 (95.79)	9 (81.82)	
Stroke				
Present	5 (2.22)	5 (2.34)	0	0.608
Absent	220 (97.78)	209 (97.66)	11 (100.0)	
Chronic Liver Disease				
Present	1 (0.44)	1 (0.47)	0	1.000
Absent	224 (99.56)	213 (99.53)	11 (100.00)	
Cancer				
Present	1 (0.44)	1 (0.47)	0	1.000
Absent	224 (99.56)	213 (99.53)	11 (100.00)	
Valvular Heart Disease				
Present	2 (0.89)	2 (0.93)	0	1.000
Absent	223 (99.11)	212 (99.07)	11 (100.00)	
Chronic Renal Failure				
Present	28 (12.44)	26 (12.15)	2 (18.18)	0.632
Absent	197 (87.56)	188 (87.85)	9 (81.82)	
Hypothyroidism				
Present	6 (2.67)	5 (2.34)	1 (9.09)	0.262
Absent	219 (97.33)	209 (97.66)	10 (90.91)	

Clinical characteristics and comorbidities among patients in relation to ejection fraction A case of a 66 year-old Female with Coronary

A026

A case of a 66 year-old female with coronary artery disease, coronary artery aneurysms, mitral valve prolapse with severe mitral regurgitation, and supravalvar aortic stenosis

Jerahmeel Aleson L. Mapili[1], John Christopher A. Pilapil[2], Marc Denver A. Tiongson[3]
[1]Philippine General Hospital, [2]Philippine General Hospital, [3]Philippine General Hospital

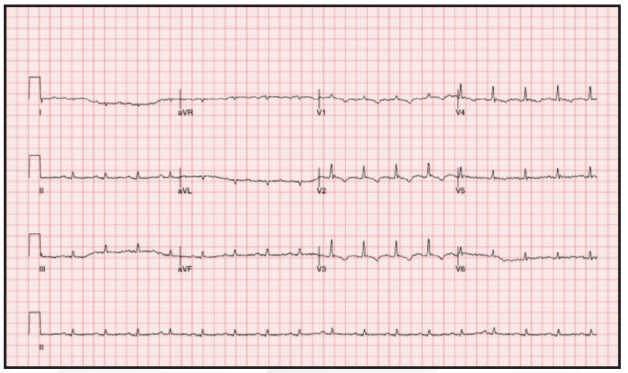
BACKGROUND Supravalvar aortic stenosis (SVAS) is rare and is usually associated with Williams-Beuren syndrome, a developmental disorder. Non-syndromic SVAS has been associated with atherosclerotic cardiovascular disease (ASCVD) but has not been associated with rheumatic heart disease (RHD)

METHODS This study is a case report which defines and describes a clinical case and reviews the available diagnostic and management options

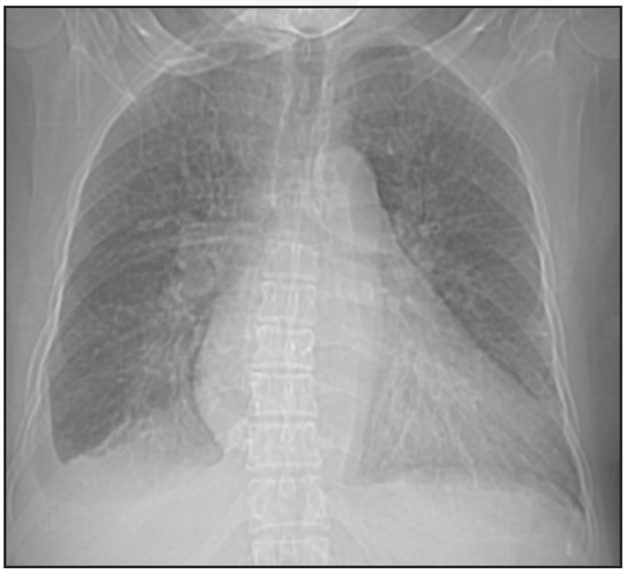
RESULTS A 66 year-old diabetic female, with history of RHD, presents with a 3 month history of angina and progressive heart failure symptoms. On physical exam, she was hemodynamically stable with a grade 4/6 systolic murmur at the left parasternal border and a grade 3/6 holosystolic murmur at the apex. Her LDL and NTproBNP was elevated. ECG and Chest XRay was supportive of chamber enlargement. 2D Echo showed concentric LVH with systolic anterior motion of anterior mitral leaflet suggestive of HOCM, posterior mitral leaflet prolapse, and moderate MR with dilated LA. Angiogram showed 2-vessel coronary artery disease with coronary artery aneurysms involving the left main coronary artery. A selective aortogram showed suspicious stenosis above the aortic root. Hemodynamic studies showed an LV-aorta and intra-LV pressure gradient. A cMR confirmed the presence of hourglass SVAS at the STJ, with no typical findings of HOCM. She is scheduled for mitral valve replacement, coronary artery bypass grafting with coronary aneurysmectomy, and patch aortoplasty.

CONCLUSION This is the first reported case of a patient with concomitant CAD, CAA, SVAS, and severe MR with MVP. The surgical plan is a mitral valve replacement, coronary artery bypass grafting with aneurysmectomy, and ascending aorta patch aortoplasty.

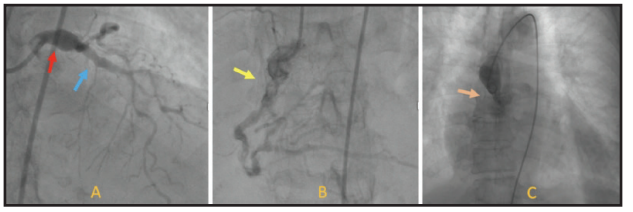
Atherosclerotic cardiovascular disease and rheumatic heart disease remains a significant cause of morbidity and mortality in the Philippines. Recognition of these diseases warrants adequate treatment and primary prevention in order to mitigate possible complications. Here we present a case of a 66 year old female with rare complications of these two conditions.



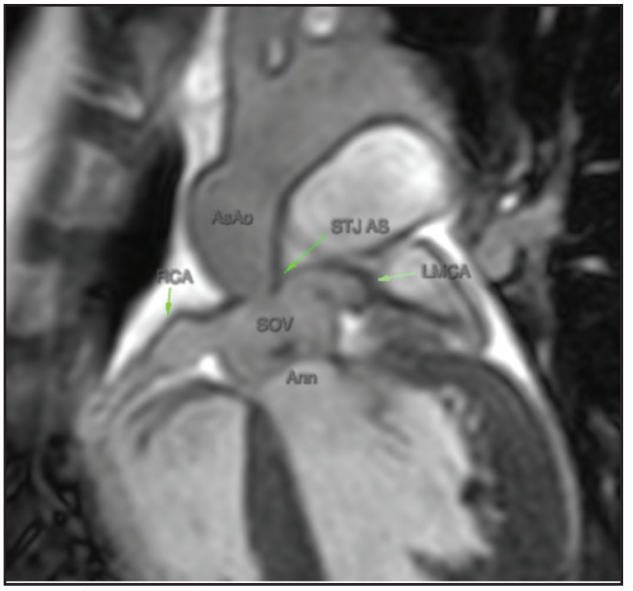
12 Lead Electrocardiogram



Chest X-Ray



Representative Coronary Angiogram Clips. A (LAD AP Cranial), B (RCX AP Cranial), C (Selective Aortogram). Red arrow " LMCA aneurysm; Blue arrow " LAD aneurysm; Yellow " RCA aneurysm; Orange



Cardiac MRI representative image. STJ AS â€“ shows the supravalvar AS. Seen in view are the proximal RCA and LMCA both with aneurysmal dilatation

A058

Efficacy and safety of triple antithrombotic therapy among patients with recent ACS without AF: An updated meta-analysis

Jerahmeel Aleson L. Mapili[1], John Christopher A. Pilapil[2], Lauro L. Abrahan Iv[3]

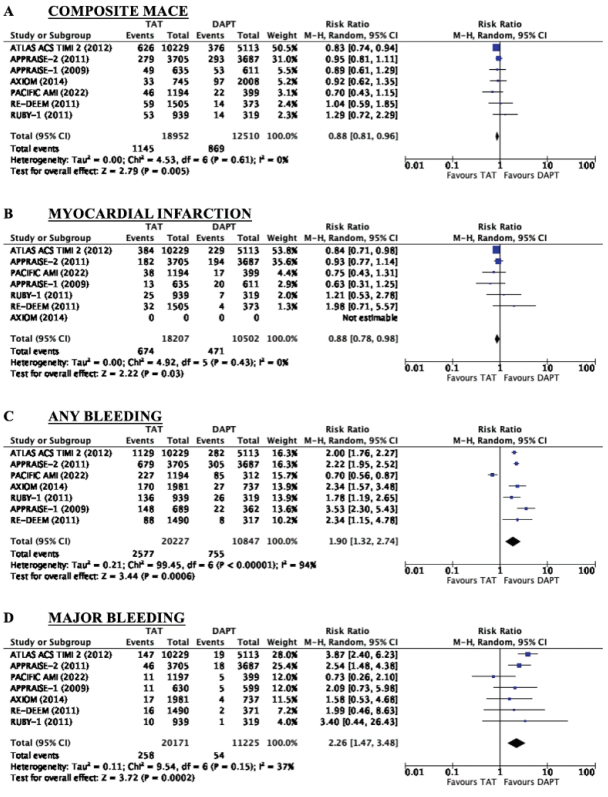
[1]Philippine General Hospital, [2]Philippine General Hospital, [3]Philippine General Hospital

BACKGROUND Acute Coronary Syndrome (ACS) remains to be a leading cause of morbidity and mortality. Several randomized clinical trials have shown the efficacy of triple antithrombotic therapy (TAT), DAPT plus DOAC, among patients with recent ACS but with increased bleeding. However, there have been newer studies which showed lower risk for bleeding. Hence, this meta-analysis will look into the efficacy and safety of TAT among patients with recent ACS without atrial fibrillation (AF).

METHODS This study used a random-effects meta-analysis using RevMan 5.4. The risk of bias was assessed using Cochrane RoB2 and the certainty of evidence was assessed using GRADE.

RESULTS This meta-analysis showed that TAT reduced the risk of composite MACE (RR 0.88) and myocardial infarction (MI) (RR 0.88) with a significant risk for any (RR 1.9) and major (RR 2.26) bleeding. When analyzed using the lowest dose, TAT had no significant risk reduction of composite MACE (RR 0.90) and MI (RR 0.93) but still poses significant risk for any (RR 1.57) and major (RR=2.28) bleeding.

CONCLUSION Among patients with recent ACS without AF, TAT at best modestly reduces the risk for composite MACE and MI but poses a significant risk for bleeding when compared to DAPT. Further studies have to be made to ascertain the use of TAT in ACS without AF.



Forrest Plots for Outcomes (Total Population)

PA-11

Aorto-Ventricular Strain Patterns in Ageing Asian Older Adults

Jie Jun Wong[1], Hongzhou Zhang[2], Fei Gao[3], Shuang Leng[4], Ru-san Tan[5], Xiaodan Zhao[6], Kieran Tan[7], Liang Zhong[8], Angela S. Koh[9]

[1]National Heart Centre Singapore, [2]First Affiliated Hospital of Gannan Medical University, [3]National Heart Centre Singapore, [4]National Heart Centre Singapore, [5]National Heart Centre Singapore, [6]National Heart Centre Singapore, [7]National Heart Centre Singapore, [8]National Heart Centre Singapore, [9]National Heart Centre Singapore Duke-NUS Medical School

BACKGROUND Since the ascending aorta is just distal to the left ventricle, ascending aorta stiffness and ventriculoarterial coupling both have significant implications on cardiac strain and pressure transmission to downstream end-organs. We novelize a method using cardiac MRI (CMR) to quantify aortic global longitudinal strain (AoGLS), pulse wave velocity (AAPWV), and ventriculoarterial coupling (VAC) to characterize strain patterns in ageing adults.

METHODS Community adults without CVD at baseline underwent CMR. AoGLS was the maximal absolute Lagrangian strain tracking the phasic distance between brachiocephalic artery origin and aortic annulus (Figure 1). VAC was calculated as AAPWV divided by LVGLS. Sex-specific Framingham-based (FRS) 10-year risk (TYR) were computed.

RESULTS Of 202 participants (46.0% women), mean ages between women and men were similar (69.70 years vs 70.69 years, p=0.433). Compared with men, women had better aortic compliance as indicated by lower mean pulse wave velocity (8.408m/s vs 9.131m/s, adjusted-p=0.020) and higher aortic global longitudinal strain (6.164% vs 5.210% adjusted-p=0.030) which remained significant after adjusting for diastolic blood pressure, body surface area, and smoking status (β=0.838 95%CI 0.080, 1.596 adjusted p=0.030). Ventriculoarterial coupling was better (less negative) in women than men (-0.392 m/s·% vs -0.471 m/s·%, adjusted p=0.006) but the strength of association between VAC and sex was negligible. Among women, the correlations between AoGLS and 10-Year Risk (r=-0.400 95%CI -0.558,-0.213 p=0.0001) and Heart/Vascular Age (r=-0.621 95%CI -0.732,-0.478 p<0.0001) were low and moderate negative, respectively; whereas among men, these correlations were both low negative (10-Year Risk r=-0.365 95%CI -0.518,-0.190 p=0.0001; Heart/Vascular Age r=-0.354 95%CI -0.508,-0.178 p=0.0002).

CONCLUSION We characterized a central marker of aortic ageing and its anatomical relationship to ventriculoarterial coupling that is novel and non-invasive. Aorto-ventricular strain and coupling in Asian older adults correlated with 10-year CVD risk. Future work will assess the incremental value of using advanced aortic function to define CV aging in Asian cohorts.

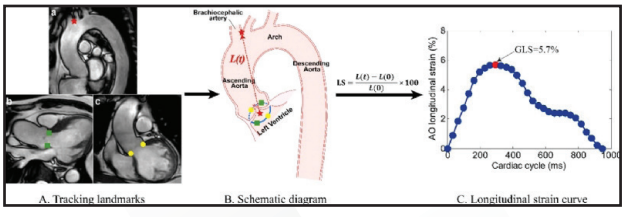


Figure 1: Measurement method of Ascending aorta (AO) global longitudinal strain (GLS). A. Tracking the landmarks aorta (a, red star). B. Schematic diagram of feature tracking. The trajectory of the centroid (red star) derived from four aortic annular points was calculated. C. Longitudinal strain.

Cardiac variables	Female, n=93	Male, n=109	p-value	*adjusted p-value
RVEDVI, ml/m2	62.347 (11.536)	70.348 (15.299)	<0.001	0.025
RVESVI, ml/m2	22.698 (7.079)	28.366 (9.495)	<0.001	0.017
RVSVI, ml/m2	39.548 (6.914)	42.045 (8.005)	0.0183	0.166
RVEF, %	64.096 (7.115)	60.486 (6.868)	0.0003	0.110
RVGLS, %	-32.766 (4.999)	-29.930 (5.657)	0.0002	0.020
LVGLS, %	-21.927 (2.585)	-20.056 (2.794)	<0.001	0.021
AA-PWV, m/s	8.408 (2.728)	9.131 (3.182)	0.0837	0.020
VAC (AA-PWV/ LVGLS), m/s·%	-0.392 (0.150)	-0.471 (0.206)	0.0021	0.006
Aorta GLS, %	6.164 (2.437)	5.210 (1.742)	0.0019	0.030

Table A. Values are in mean (SD) or n (%). p-values are two-tailed. AA-PWV = aortic pulse wave velocity; CMR = cardiac magnetic resonance imaging; LVGLS = left ventricle global longitudinal strain; RVEDVI = right ventricle end-diastolic volume indexed; RVEF = right ventricle ejection fraction; RVESVI = right ventricle end-systolic volume indexed; RVGLS = right ventricle global longitudinal strain; RVSVI = right ventricle stroke volume indexed. *Adjustments were made for baseline clinical variables with statistically significant gender differences p≤0.05 (i.e., smoking, diastolic blood pressure, body surface area).

Table A. Aortic and ventriculo-arterial characteristics.

F053

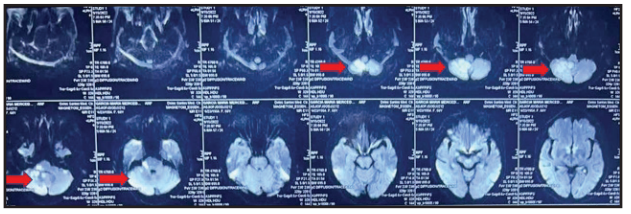
A rare case of QTc interval prolongation after a cerebellar infarct: A case report

Michael A. Bonilla[1], Milagros Yamamoto[2]
[1]University of Santo Tomas Hospital Manila Philippines, [2]University of Santo Tomas Hospital Manila Philippines

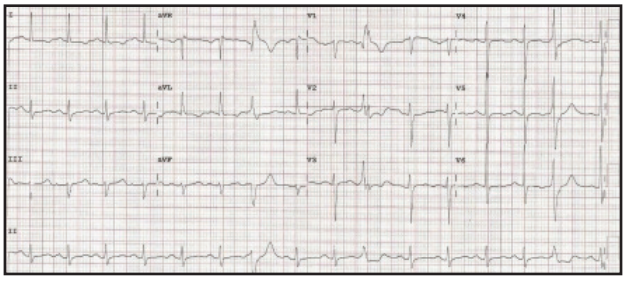
INTRODUCTION Significant electrocardiographic (ECG) findings are frequently observed in ischemic stroke, and they are noticed gradually by clinicians. The association between heart-rate corrected QT (QTc) interval and cardiovascular morbidity and mortality is well established. Little is known, about the connection between this simple electrocardiographic (ECG) marker and stroke especially on the cerebellar area.

CASE A 68-year-old female presented to the emergency department with sudden onset rotatory dizziness accompanied with episodes of non – projectile vomiting and transient loss of consciousness. Neurologic Examination showed; shallow right nasolabial fold and nystagmus. Investigation revealed the presence of Acute Ischemic Infarct at the Right Inferior Cerebellar Region and Right Side of the Vermis with Mass Effect. Over the next few days of confinement electrocardiogram showed prolongation of QTc and multifocal premature ventricular complexes. Medications, electrolyte imbalance, thyroid disease, and structural heart disease were ruled out as the cause of arrhythmia. After 2 weeks of hospitalization the patient was stable, no recurrence of arrhythmia and no new neurologic deficit. She was maintained on stroke regimen and was subsequently discharged improved.

CONCLUSION This is the first reported case of QTc prolongation after a cerebellar infarct. Patients with acute ischemic stroke may have prolonged QTc interval and has a higher incidence of electrocardiographic abnormalities. Measurement of QTc may provide a significant information in morbidity and mortality of stroke patients



Cranial MRI Image showing large areas of restricted diffusion in the right inferior cerebellum and right cerebellar peduncle signifying an acute infarct (red arrows)



12 Lead ECG taken at Emergency Department showing Sinus Rhythm Multifocal Premature Ventricular Complexes and Prolonged QTc (O.50sec/0.47sec by Bazetts and Fridericias Formula)

PA-02

Effect of right ventricular pacing lead on right heart fuction after permanent pacemaker Implantation

Toe Wai Wai Naing[1]
[1]Government Hospital

BACKGROUND There is a discrepancy in incidence of tricuspid regurgitation (TR) ranging from 7 to 39 % after PPM implantation. It has been well known that chronic moderate or severe TR can lead to right ventricular (RV) failure. The aim of this study was to assess the effect of right ventricular pacing lead on right heart function after PPM implantation.

METHODS It was hospital based pre and post, interventional study, including a total of 88 patients who underwent PPM implantation at the Department of Cardiology, Yangon General Hospital, from April 2019 to November 2021. Effect of right ventricular pacing lead was assessed by echocardiographic measurement of TR, right heart structure and right ventricular systolic function at 1 day before PPM implantation and 1 month, 6 months and 12 months after PPM implantation. Within group analysis was calculated by repeated ANOVA test and multiple comparisons were done by Sidek test.

RESULTS Mean age of this study was 66.9±12.4 years and there was female preponderance (62.5%). There was significant increase in tricuspid regurgitation before and 12 months after PPM implantation (mean PISA from 0.12 cm to 0.21 cm, p < 0.001). Increasing dimensions of right heart (mean RA length from 38.34 mm to 42.54 mm, mean RA diameter from 29.53mm to 33.59 mm, mean RV1 from 29.97 to 33.42 mm, mean RV2 from 25.81mm to 29.08 mm, mean RV3 from 55.1 6mm to 60.12mm) were observed before and 12 months after PPM implantation. Those values were statistically significant in each group (p < 0.001). However, RV function was not reduced until 12 months (mean TAPSE from 25.81mm to 26.03 mm, p = 0.539 and mean RV S' from 14.52 cm/s to 14.52 cm/s, p = 0.892).

CONCLUSION Although dilatation of right heart structure and progression of TR were observed after insertion of right ventricular pacing leads, right ventricular function was maintained at 12 months in this study.

Variable		Before PPM n (%)	After 1 month n (%)	After 6 months n (%)	After 12 months n (%)
TAPSE (mm)	<17	-	-	1 (1.1)	1 (1.1)
	≥17	88 (100.0)	88 (100.0)	87 (98.9)	87 (98.9)
RV S' (cm/s)	<10	-	-	-	-
	≥10	88 (100.0)	88 (100.0)	88 (100.0)	88 (100.0)
LVEF (%)	≤45	-	1 (1.1)	1 (1.1)	1 (1.1)
	>45	88 (100.0)	87 (98.9)	87 (98.9)	87 (98.9)

Distribution of TAPSE, RV S' and LVEF for systolic function of the study population

A076

Accuracy of global longitudinal strain in prediction of left ventricular remodeling after primary PCI

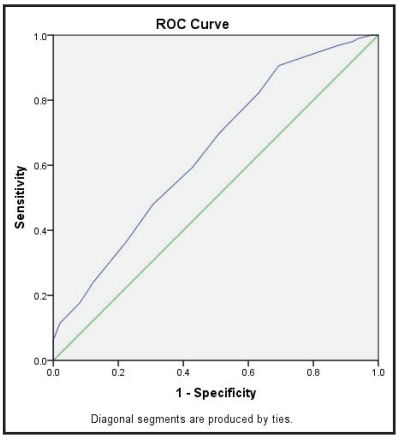
Ei Ei Min[1], Ei Ei Min[2]
[1]Yangon General Hospital, [2]yangon general hospital

BACKGROUND Left ventricular (LV) remodeling after acute myocardial infarction treated by primary percutaneous coronary intervention is an important precursor for the development of heart failure and important predictor of mortality. The early identification of the patients at risk of LV remodeling after acute myocardial infarction has prognostic and therapeutic implications. The global longitudinal strain (GLS) has been shown to be accurate in predicting LV remodeling after primary PCI and is a sensitive marker to identify the patients at risk of adverse LV remodeling. The study was carried out to determine the accuracy of GLS in prediction of LV remodeling after primary PCI.

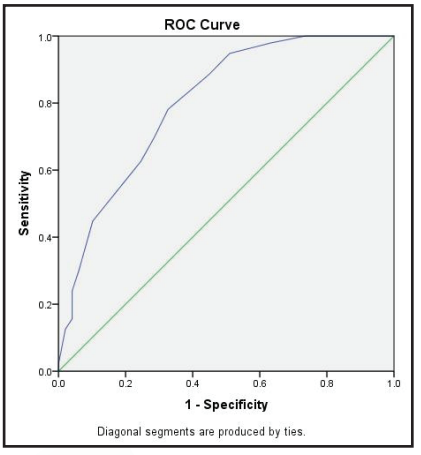
METHODS The hospital based prospective analytical study including 145 patients who underwent primary percutaneous coronary intervention was conducted at Department of Cardiology, Yangon General Hospital from April 2019 to November 2021. Echocardiographic assessment of global longitudinal strain (GLS), left ventricular dimensions (LVEDV, LEVSD) were carried out within 24 hours and 3 months after primary PCI. The LV remodeling is defined as >20% increase in left ventricular end diastolic volume (LVEDV) after 3 months of acute myocardial infarction.

RESULTS The LV remodeling occurred in 33.8% of the study population. The baseline GLS measured within 24 hours after primary PCI predicted LV remodeling at 3 months with -8.5% cutoff value, 91% sensitivity, 31% specificity and 70% accuracy. The GLS measured 3 months after primary PCI detected LV remodeling at 3 months with -12.5% cutoff value, 78% sensitivity, 67% specificity and 74% accuracy.

CONCLUSION It was found that the baseline GLS measured 24 hours after primary PCI was a sensitive marker to predict left ventricular remodeling at 3 months. It can be concluded that the baseline GLS is a useful predictor of adverse left ventricular remodeling after primary PCI.



ROC curve for LV remodeling at 3 months using GLS measured within 24 hours (baseline) after primary PCI



ROC curve for LV remodeling at 3 months using GLS measured 3 months after primary PCI

List of Tables:

Area	Std. Error	P value	Asymptotic 95% Confidence Interval	
			Lower Limit	Upper Limit
0.64	0.05	0.005	0.55	0.74

Area under the curve for ROC using GLS (within 24 hours)

Area	Std. Error	P value	Asymptotic 95% Confidence Interval	
			Lower Limit	Upper Limit
0.80	0.04	<0.001	0.72	0.88

Area under the curve for ROC using GLS (after 3 months)

A071

Patterns of estimated vascular age versus chronological age on pulse wave velocity in older adults

Gayathri Basker[1], Jie Jun Wong[2], Kieran Tan[3], Keerthana Thangaraja[4], Fei Gao[5], Louis Ly Teo[6], See Hooi Ewe[7], Ru-san Tan[8], Angela Koh[9]
[1]National University of Singapore, [2]National Heart Centre Singapore, [3]National Heart Centre Singapore, [4]National University of Singapore, [5]National Heart Centre Singapore, [6]National Heart Centre Singapore, [7]National Heart Centre Singapore, [8]National Heart Centre Singapore, [9]National Heart Centre Singapore

BACKGROUND As an objective assessment of arterial stiffness, pulse wave velocity (PWV) is frequently used to define arterial stiffness in ageing. However, the extent to which calculated estimates of vascular age correlate with PWV, in the presence of chronological ageing, is unknown. Using PWV, a centrally obtained measure of arterial stiffness, we investigated patterns between Framingham-derived estimates of vascular age and chronological age.

METHODS Participants without cardiovascular disease (CVD) from a community-based cohort had their clinical risk factors collected prospectively, which derived estimates of Framingham-derived vascular age. PWV (m/s) was measured using a cuff-based oscillometric pulse wave analysis machine.

RESULTS This analysis consisted of n=202 participants (46.0% women). The mean chronological age of the participants were 70.2 ± 8.8 years, while mean estimated vascular age was 80.6±11.35 years. mean PWV was 9.86±2.61. Determinants of PWV in this cohort were chronological age (β =0.087, 95% CI 0.041-0.134, p<0.001) and diabetes mellitus (β =1.14, 95% CI 0.049-2.233, p=0.041). Estimated vascular age was associated with PWV (β =0.061, 95% CI 0.02-0.102, p=0.004, adjusted for diabetes mellitus. Although chronological age correlated with estimated vascular age (r=0.842, p<0.001) (Figure 1a), estimated vascular age overestimated chronological age in some participants. However, despite significant associations between chronological age, estimated vascular age and PWV, chronological age in this cohort were represented across a spread of PWV values (Figure 1b). Participants with low to moderate PWV values were over-estimated by vascular age (Figure 1c).

CONCLUSION While chronological age and pulse wave velocity may be associated, advancing age is not synonymous with higher arterial stiffness. Estimated vascular age may overestimate chronological age and pulse wave velocity.

A150

Ivabradine As An Adjuvant Treatment Of Cardiogenic Shock In A Young Woman With Acute Myocarditis: A Case Report

Fatwiadi Apulita Ginting Munte[1], Dian Zamroni[2], Vienna Rossimarina[3], Isman Firdaus[4], Dafsah Arifa Juzar[5], Shinta Chamarelza[6]
[1]National Cardiovascular Center Harapan Kita, [2]National Cardiovascular Center Harapan Kita, [3]National Cardiovascular Center Harapan Kita, [4]National Cardiovascular Center Harapan Kita, [5]National Cardiovascular Center Harapan Kita, [6]Faculty of Medicine, University of Andalas

BACKGROUND Myocarditis is an inflammatory disease involving the myocardium that can manifest as a fatal cardiogenic shock. Inotropes used in cardiogenic shock can induce tachycardia and subsequently increased myocardial oxygen consumption and arrhythmogenic risk. Ivabradine is thought to control tachycardia and improve hemodynamic.

METHODS A 24-year-old woman came with a chief complaint of worsening shortness of breath in the last 24 hours. In the preceding days, she had intermittent fever accompanied with severe headache, nausea and vomiting. She had hypotension and tachycardia at admission. Blood tests showed elevated cardiac enzymes, NT-pro BNP and lactate levels. Echocardiography showed reduced left ventricular systolic function, reduced right ventricular contractility, global ventricular wall hypokinesis and low cardiac output state.

RESULTS The patient was diagnosed as cardiogenic shock due to acute myocarditis. Dobutamine was given to augment cardiac contractility with a subsequent tachycardia effect. We then used ivabradine to reduce the heart rate and found significant hemodynamic improvement. She was discharged home with good clinical condition and improved echocardiography parameters.

CONCLUSION Use of ivabradine as an adjuvant therapy of cardiogenic shock may be beneficial in acute myocarditis settings.

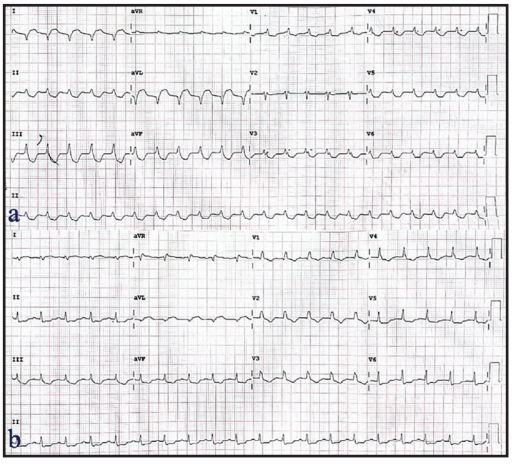


Fig. 1 ECG at admission: a. Episodes of atypical AVNRT, b. Sinus tachycardia with right bundle branch block

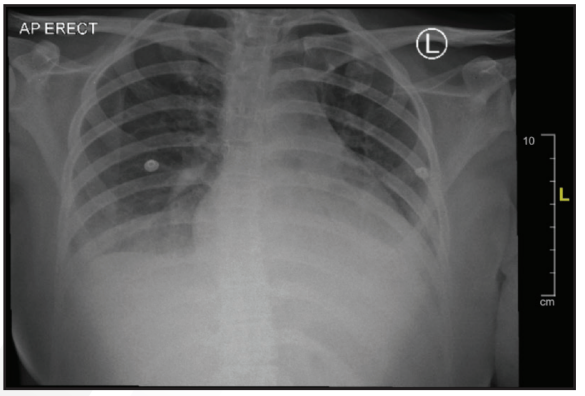


Fig. 2 Chest x-ray showed slight cardiomegaly, congestion and pleural effusion

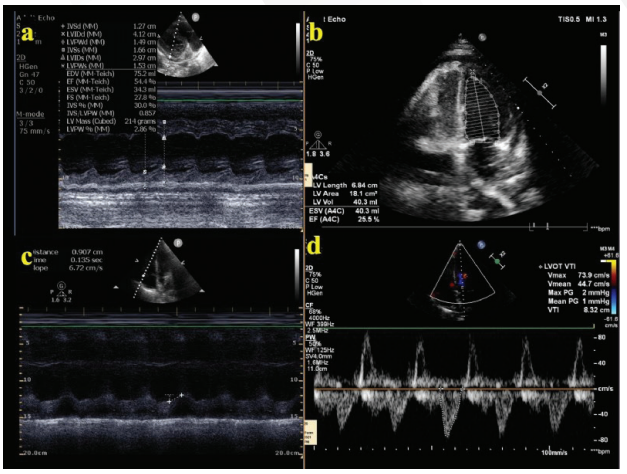


Fig. 3 Bedside echocardiography at admission showed: a. non dilated LV; b. reduced LVEF of 26%; c. reduced TAPSE of 9 mm; d. reduced stroke volume with LVOT VTI of 9 cm

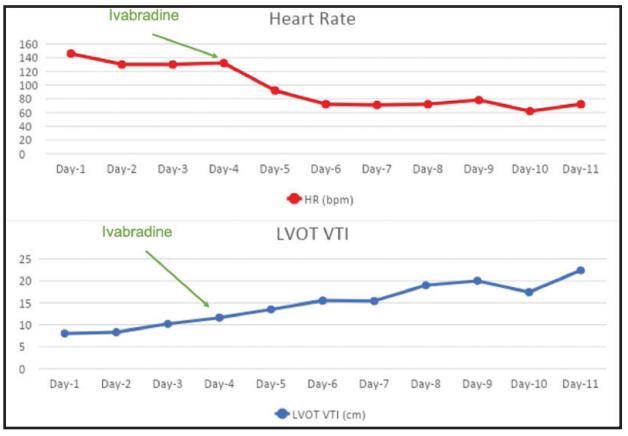


Fig. 4 Graphic of HR and LVOT VTI of the patient

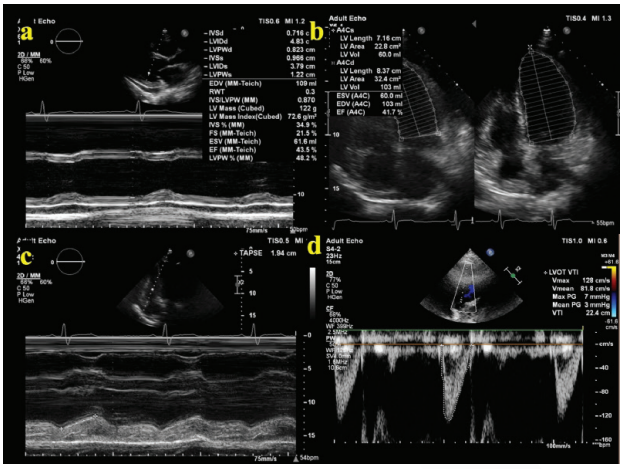


Fig. 5 Echocardiography evaluation on day-11 showed: a. non dilated LV; b. improved LVEF of 42%; c. improved TAPSE of 19 mm; d. improved stroke volume with LVOT VTI of 22 cm

List of Tables:

Parameters	Day-1	Day-2	Day-3	Day-4	Day-5	Day-6	Day-7	Day-8	Day-9	Day-10	Day-11
MAP (mmHg)	55	50	63	72	83	81	65	68	76	69	66
HR (bpm)	146	130	130	132	92	72	71	72	78	62	72
LVOT VTI (cm)	8	8.3	10.2	11.6	13.5	15.5	15.4	19	20	17.4	22.4
CO (liters/minute)	3.7	3.5	4	4.8	3.5	3.5	3.4	4.3	4.9	3.4	5.1
SVR (dynes.sec.cm-5)	1016	1188	1100	1066	1714	1668	1341	1135	1110	1135	909
IVC (mm)	22/14	19/15	20/12	21/16	19/14	17/10	18/16	18/8	18/8	16/9	19/11
Urine output (ml/24 hr)	2000	1900	3350	3100	2700	1600	1950	3850	2300	3400	1800
Diuresis (ml/kg/hr)	1.38	1.32	2.32	2.15	1.88	1.11	1.35	2.67	1.60	2.36	1.25
Balance (ml/24 hr)	-1250	-287	-1519	-1091	-1100	+393	+57	-1375	-525	-1755	-300
Dobutamine (ml/kg/hr)	3	5	5	5	5	3	3	2	1	-	-
Furosemide (mg/24 hr)	80	80	120	120	120	120	80	80	80	80	80
Ivabradine (mg)	-	-	-	2x2.5	2x2.5	2x2.5	2x2.5	2x2.5	2x2.5	2x2.5	2x2.5

Table 1 Hemodynamic parameters and therapy of the patient

F135

20 years experience of Fontan Surgery in Malaysia

Siti Syuhada Ab Rahman[1], Mohd Rizal Mohd Zain[2], Marhisham Che Mood[3], Najib Majdi[4], Noraida Ramli[5], Jannah Ambak[6]

[1]Hospital University Science Malaysia, [2]Hospital University Science Malaysia, [3]National Heart Institute Malaysia, [4]Hospital University Science Malaysia, [5]Hospital University Science Malaysia, [6]Hospital University Science Malaysia

BACKGROUND Univentricular heart disease is a complex congenital heart disease with only one functional ventricle and is linked to significant mortality and morbidity. The emergence of Fontan surgery has improved the outcome of this condition. This study examines post-Fontan outcomes in a single-ventricle population at Malaysia's

primary cardiac centre, National Heart Institute Malaysia.

METHODS We performed a retrospective review of medical data for all children with functionally univentricular hearts who were part of the National Heart Institute follow-up from January 1st, 2000 to December 31st, 2022. Of 854 univentricle patients, 429 of them underwent Fontan surgery and their diagnoses, methods of operation and outcomes wererecorded. The primary outcome was mortality.

RESULTS Among 429 post-Fontan patients, Tricuspid atresia, 123 (28.7%), double inlet left ventricle, 196 (21.7%), and imbalanced AVSD, 64 (14.9%) were the most prevalent group diagnoses for univentricular hearts. The majority type of Fontan surgery was extracardiac Fontan, performed on 383 patients (89.2%) followed by intra-extracardiac which was 30 patients (7%). The mean age at the time of Fontan's surgery was 6.5 years. Among the 429 patients, 41 (9.5%) deaths were recorded with the mean duration of death from Fontan surgery being 2.6 years and the mean age for death being 11 years old. The commonest cause of death was myocardial failure 15 (36.5%), Fontan failure 10 (24.4%) followed by intracranial haemorrhage 5 (12.2%). In comparison, the non-Fontan univentricular heart patients recorded 239 (56.2%) deaths out of 425 patients with a mean age of death of 3years old.

CONCLUSION Univentricular hearts with Fontan surgery have better outcomes with significantly lower mortality rates. However, the cardiac cause of mortality in post-Fontan patients remains substantial. Further study should be done to identify predictors for post-Fontan mortality. Univentricular hearts with Fontan surgery have better outcomes with significantly lower mortality rates. However, the cardiac cause of mortality in post-Fontan patients remains substantial. Further study should be done to identify predictors for post-Fontan mortality.

A075

A cross-sectional study on triglyceride-glucose index as predictor of in-hospital mortality in ACS-MI patients

Pamela Christa B. Tongco[1], Renelene A. Macabeo[2]
[1]Internal Medicine, Our Lady of Lourdes Hospital, Philippines
[2]Cardiology and Peripheral Vascular Medicine, Our Lady of Lourdes Hospital, Philippines

OBJECTIVE Insulin resistance, linked to hyperglycemia, dyslipidemia, and hypertension, significantly contributes to cardiovascular diseases. The gold-standard method to measure insulin sensitivity in vivo is invasive and labor-intensive. The Triglyceride-glucose index (TGI) has been proposed as a simple, low-cost and reliable marker of insulin resistance. Hence, this study aims to determine the association of Triglyceride-Glucose Index to in-hospital mortality among ACS-MI patients admitted at a tertiary hospital

METHODOLOGY This is a two-year single-center cross-sectional study of 132 ACS-MI patients. TGI was computed as

$$\text{Ln}[\text{fasting triglycerides(mg/dL)} \times \text{fasting glucose(mg/dL)}/2]$$

The population was grouped into quartiles based on TGI. Multinomial Logistic Regression Analysis determined the hazard risk ratio of TGI to mortality. Three models were compared using Log-rank statistics: (1) TGI alone, (2) adjusted for age and sex, (3) adjusted for age, sex, comorbidities, use of medications.

RESULTS The FBS and Triglyceride levels increased as the TGI increased. Diabetic patients (p=0.024) had higher TGI quartiles, while those with use of Lipid Lowering Drugs (p=0.030) showed a lower TGI. TGI alone (Model 1), was not significantly associated with mortality. But when adjusted for other factors (Model 2 and 3), TGI was significantly associated with all-cause mortality. Quartile 2 (TGI>8.52-8.88) was 90% less likely at risk of mortality (RR 0.10, 95%CI) compared to those in Quartile 4 (TGI>9.32-11.06). Quartile 3 (TGI>8.88-9.32) was 55% less likely at risk of mortality (RR 0.45, 95%CI) compared to those in Quartile 4.

CONCLUSION A lower TGI was significantly less at risk of all-cause mortality. Taking into account the patient population's age, sex, medical history, and pre-hospital medications, the use of Triglyceride-Glucose Index proved a significant association to all-cause mortality, and not just limited to cardiovascular mortality, suggesting that TGI may be a possible marker for risk stratification and prognosis. This may provide a framework for evidence-based treatment plans in the management of cardiovascular risk factors.

A059

Efficacy and safety of Ivabradine in management of ACS-STEMI: A systematic review and meta-analysis

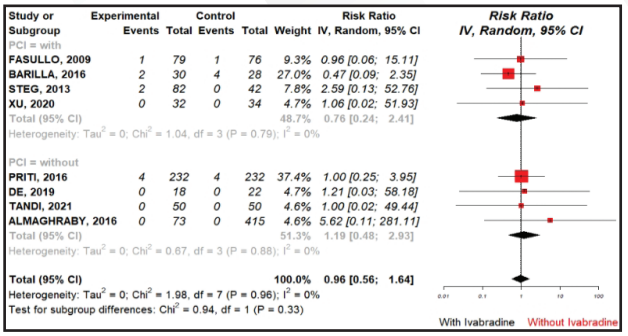
Raymond S. Banquirigo[1], Raymond S. Banquirigo[2]
[1,2]Cardinal Santos Medical Center

BACKGROUND Acute coronary syndrome remains one of the most important causes of morbidity and mortality worldwide. Modern therapies have been extensively studied to address this condition including ivabradine. Ivabradine is a drug that effectively lowers heart rate through selective and specific inhibition of If (funny) current. However, the potential of ivabradine in treating acute ischemic events has yet to be fully understood.

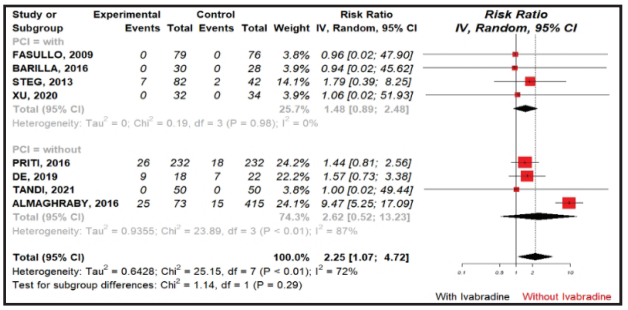
MATERIALS AND METHODS A systematic review and meta-analysis were conducted to evaluate ivabradine's efficacy. The controlled group are those who received ivabradine therapy. The included randomized clinical trials were divided into two subgroups based on whether patients underwent percutaneous coronary intervention. Clinical endpoints were assessed, including all-cause mortality, major adverse cardiac events, heart rate control, and left ventricular function.

RESULTS There was no significant association between the studies regarding all-cause mortality (p-value 0.96). The controlled group showed a significant reduction in arrhythmia events in both subgroups, either with or without PCI (Chi-squared = 1.14, df = 1, P = 0.29). There was no significant difference between the two subgroups regarding heart failure (Chi-squared = 1.87, df = 1, P = 0.17). There was a significant difference between the two subgroups regarding ischemic events (Chi-squared = 8.05, df = 1, P <0.01). Both subgroups showed a significant reduction in heart rate when ivabradine was added (Chi-squared = 0.15, df = 1, P = 0.70). Lastly, neither group had any difference in left ventricular function (Chi-squared = 0.03, df = 1, P = 0.8).

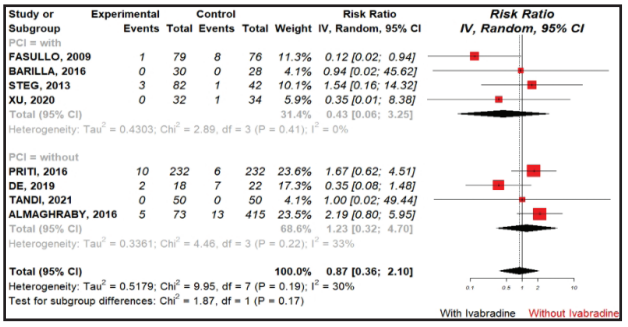
CONCLUSION The use of ivabradine effectively controlled heart rate and reduced the incidence of ischemic events. There was no significant association between ivabradine use and all-cause mortality, but there was an increased incidence of atrial fibrillation. There are potential safety concerns with ivabradine, including the risk of bradycardia, AV blocks, and rhythm instability.



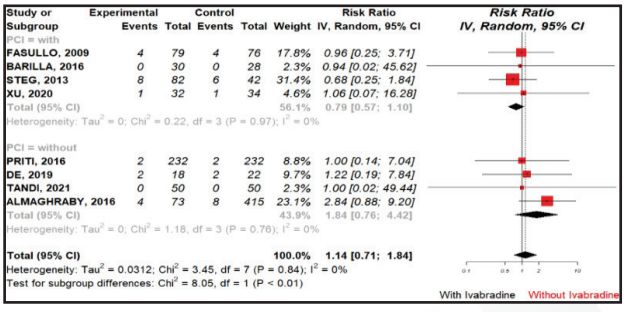
Forest Plot of All-cause Mortality classified with and without PCI THis figure shows that the studies were all not significant in both those who underwent PCI and those who did not, hence, their s



The controlled group (without Ivabradine) samples showed a significant reduction in arrhythmia events on patients [Z = 1.19, p = 1.00; 95% CI (1.05 to 1.36); df = 7] in both subgroups (with and without



This figure shows no evidence of heterogeneity across studies with PCI (Tau-squared = 0.4303, Chi-squared(2.89, df = 3, P=0.41; I-squared = 0%). However, there is a low percentage of heterogeneity amo



This figure shows that studies with PCI favored ivabradine while those that did not undergo PCI favored without ivabradine. The risk of having an ischemic event in a subgroup with PCI is lesser if the

A095

Could direct supervision and clinical practice guidelines inhibit disruptions of cardiology residency training due to COVID-19 crisis

Ricardo Adrian Nugraha[1], Bagus Putra Dharma Khrisna[1], Tony Santoso Putra[1], I Gde Rurus Suryawan[1], Andrianto[1]

[1] Department of Cardiology and Vascular Medicine, Faculty of Medicine Universitas Airlangga - Dr. Soetomo General Hospital, Surabaya 60285, Indonesia

BACKGROUND There are several biggest challenges as an academic hospital for cardiology residency during COVID-19 pandemic. We try to compare the Clinical Practice Guidelines (CPG) and direct supervision to control negative impact of COVID-19 crisis on clinical and financial outcomes in our cardiology ward.

METHODS We conducted retrospective cohort study. We compared the situation during COVID-19 crisis (from March 1, 2020, to February 29, 2022) to before (from 1 March 2018 to 29 February 2020). This study collected with omnibus survey and observational study from cardiology residency training programs. The results were investigated using SPSS 25.0 and Smart-PLS.

RESULTS There were 41.4% decreasing in cardiology inpatient, increase 0.44 years in the average inpatient age (P=0.000), increase of medical cases by proportion (0.9%) and decrease by number (7005 cases) (P=0.045), increase 2.62 % of CPG availability (P=0.000), decrease 3.99% direct supervision and decrease 7.46% availability of supervisors (P=0.000), increase supervision by consultant (1.34%) (P=0.000), decrease 21.9% adequacy of nurses (P=0.000), increase 0.4% 30days readmission (P=0.000), increase 0.31% in-hospital mortality (P=0.000). This study's structural model effectively predicted clinical outcomes (Q2= 0.238) and financial outcomes (Q2 =0.413).

CONCLUSION Undoubtedly, COVID-19 crisis has affected cardiology resident training. Direct supervision may inhibited the negative impact of the COVID-19 crisis on both clinical and financial outcomes, while CPG only inhibited the negative impact on financial outcomes.

A090

Survival Improvement of Human Adipocyte Mesenchymal Stem Cell by Hypoxic Preconditioning

Ricardo Adrian Nugraha[1], I Gde Rurus Suryawan[2], Budi Susetyo Pikir[3], Fedik Abdul Rantam[4], Anudya Kartika Ratri[5]

[1]Universitas Airlangga, [2]Department of Cardiology and Vascular Medicine, Universitas Airlangga, [3]Department of Cardiology and Vascular Medicine, Universitas Airlangga, [4]Department of Virology and Immunology, Faculty of Veterinary Medicine, Universitas Airlangga, [5]Department of Cardiology and Vascular Medicine, Universitas Airlangga

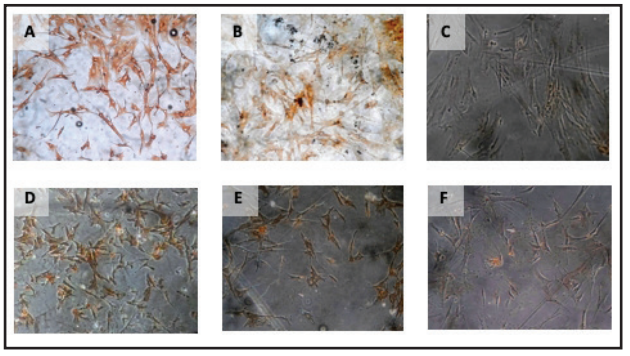
BACKGROUND Contributing factors for improved survival of human adipocytes mesenchymal stem cells (h-AMSCs) cultured through hypoxia preconditioning, in example apoptosis inhibition involving BCL2 and HSP27 expression, trigger signal expression (VEGF), SCF expression, OCT-4 expression, and CD44+ expression. Objective: to explain the mechanism and role of hypoxic preconditioning and the optimal duration of hypoxic preconditioning exposure to improve survival of h-AMSCs so that could it could be used as a benchmark for h-AMSCs culture strategy before transplantation.

METHODS This study was an experimental laboratory explorative study (in vitro study) with hypoxic preconditioning in human-adipose mesenchymal

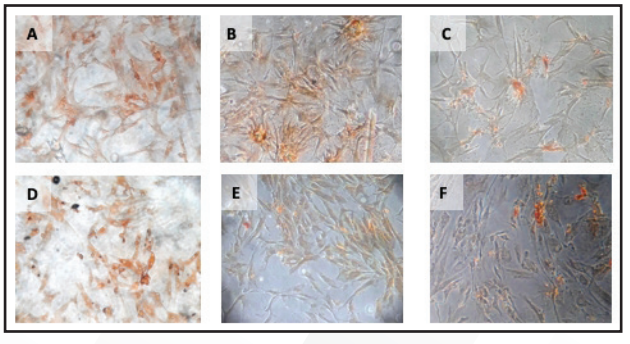
stem cells (h-AMSCs) cultures. This research was conducted through 4 stages. First, Isolation and h-AMSCs culture from adipose tissue of patient (human). Second is the characterization of h-AMSCs from adipose tissue by phenotype (Flowcytometry) through CD44+, CD90+ and CD45- expression before being pre-conditioned for hypoxic treatment. Third, the hypoxic preconditioning in h-AMSCs culture (in vitro) was performed with an oxygen concentration of 1% for 24, 48 and 72 hours. Fourth, observation of survival from h-AMSCs culture was tested on the role of CD44 +, VEGF, SCF, OCT-4, BCL2, HSP27 with Flowcytometry method and apoptotic inhibition by Tunnel Assay method.

RESULTS The result of regression test showed that time difference had an effect on VEGF expression (p=0,000;β=-0,482) and hypoxia condition also influenced VEGF expression (p= 0,000; β=0,774). The result of path analysis showed that SCF had an effect on OCT-4 expression (p=0,000; β=0,985). The regression test results showed that time effects on HSP27 expression (p=0.000; β=0.398) and hypoxia precondition also affects HSP27 expression (p=0.000; β=0.847). Pathway analysis showed that BCL2 expression inhibited apoptosis (p=0.030; β=-0.442) and HSP27 expression also inhibited apoptosis (p=0,000; β=-0.487).

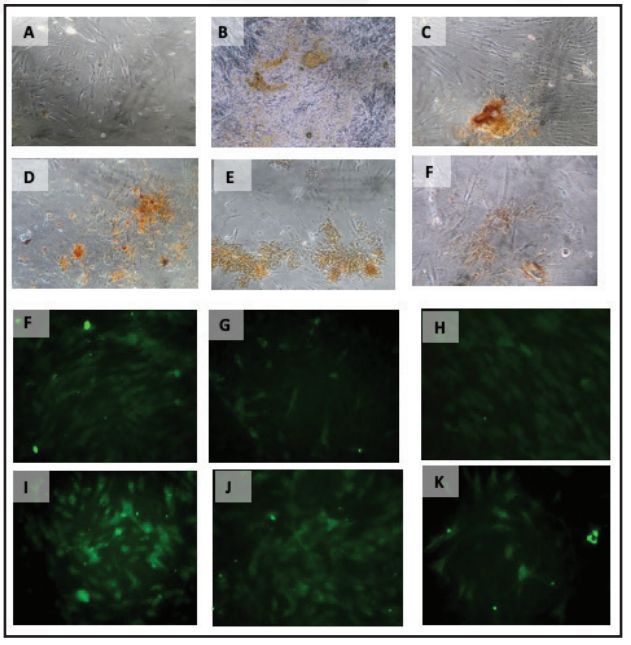
CONCLUSION In conclusion, hypoxic preconditioning of h-AMSC culture has proven to increase the expression of VEGF, SCF, OCT-4, and BCL2 and HSP27. This study demonstrated and explained the existence of a new mechanism of increased h-AMSC survival in cultures with hypoxic preconditioning (O2 1%) via VEGF, SCF, OCT-4, BCL2, and HSP 27. But CD 44+ did not play a role in the mechanism of survival improvement of human AMSC survival.



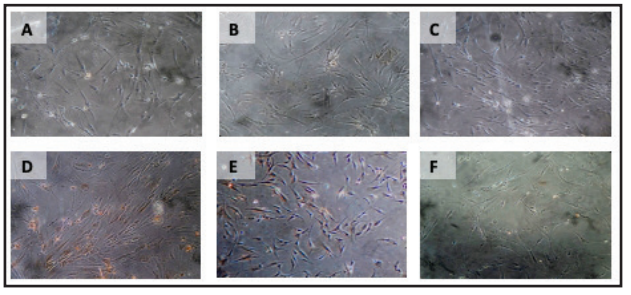
Immunohistochemical Characteristic of h-AMSCs based on VEGF expression at: a) normoxic condition for 24 hours; b) normoxic condition for 48 hours; c) normoxic condition for 72 hours; d) hypoxic condit



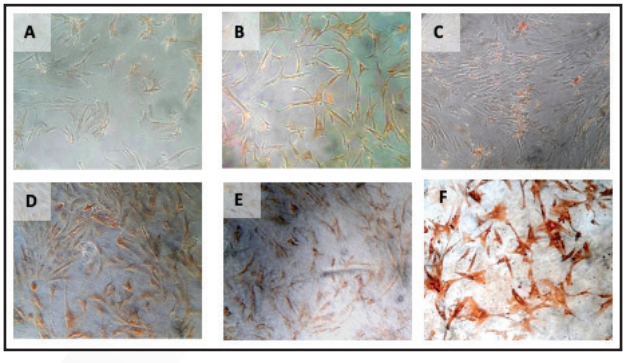
Immunohistochemical Characteristic of h-AMSCs based on SCF expression at: a) normoxic condition for 24 hours; b) normoxic condition for 48 hours; c) normoxic condition for 72 hours; d) hypoxic conditi



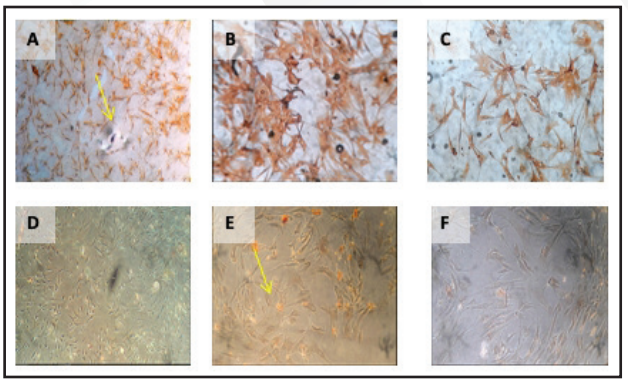
Immunohistochemical Characteristic of h-AMSCs based on OCT-4 expression at: a) normoxic condition for 24 hours; b) normoxic condition for 48 hours; c) normoxic condition for 72 hours; d) hypoxic condi



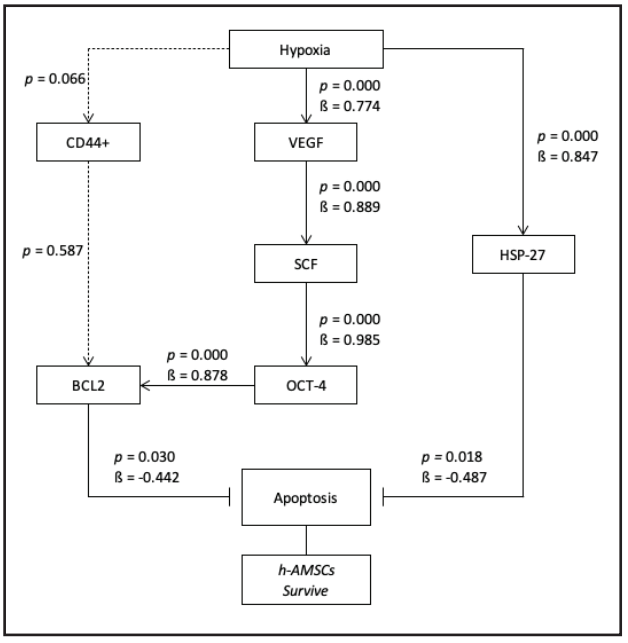
Immunohistochemical Characteristic of h-AMSCs based on BCL2 expression at: a) normoxic condition for 24 hours; b) normoxic condition for 48 hours; c) normoxic condition for 72 hours; d) hypoxic condit



Immunohistochemical Characteristic of h-AMSCs based on HSP27 expression at: a) normoxic condition for 24 hours; b) normoxic condition for 48 hours; c) normoxic condition for 72 hours; d) hypoxic condi



Immunohistochemical Characteristic of h-AMSCs based on number of apoptotic cell amount at: a) normoxic condition for 24 hours; b) normoxic condition for 48 hours; c) normoxic condition for 72 hours; d



Path analysis with MANOVA and multiple linear regression analysis for hypoxic preconditioning in h-AMSCs survive

Time (hour)	Experimental group	Mean ± SD	p
24	Normoxia	72.07 ± 2.985	0.149
	Hypoxia	82.42 ± 12.14	
48	Normoxia	67.61 ± 3.158	0.370
	Hypoxia	69.48 ± 2.203	
72	Normoxia	65.85 ± 1.321	0.446
	Hypoxia	67.64 ± 4.184	

Table 1. Results on CD44+ expression

Time (hour)	Experimental group	Mean ± SD	p
24	Normoxia	0.175 ± 0.074	0.000
	Hypoxia	0.766 ± 0.123	
48	Normoxia	0.103 ± 0.018	0.000
	Hypoxia	0.425 ± 0.036	
72	Normoxia	0.075 ± 0.014	0.000
	Hypoxia	0.291 ± 0.033	

Table 2. Results on VEGF expression

Time (hour)	Experimental group	Mean ± SD	p
24	Normoxia	0.084 ± 0.019	0.000
	Hypoxia	0.990 ± 0.013	
48	Normoxia	0.093 ± 0.014	0.000
	Hypoxia	0.901 ± 0.082	
72	Normoxia	0.075 ± 0.024	0.000
	Hypoxia	0.596 ± 0.087	

Table 3. Results on SCF expression

Time (hour)	Experimental group	Mean ± SD	p
24	Normoxia	0.148 ± 0.018	0.000
	Hypoxia	0.793 ± 0.034	
48	Normoxia	0.110 ± 0.007	0.000
	Hypoxia	0.673 ± 0.047	
72	Normoxia	0.099 ± 0.025	0.000
	Hypoxia	0.457 ± 0.151	

Table 4. Results on OCT4 expression

Time (hour)	Experimental group	Mean ± SD	p
24	Normoxia	0.100 ± 0.010	0.000
	Hypoxia	0.714 ± 0.073	
48	Normoxia	0.093 ± 0.025	0.020
	Hypoxia	0.505 ± 0.185	
72	Normoxia	0.141 ± 0.012	0.026
	Hypoxia	0.479 ± 0.229	

Table 5. Results on BCL2 expression

Time (hour)	Experimental group	Mean ± SD	p
24	Normoxia	0.156 ± 0.024	0.000
	Hypoxia	0.967 ± 0.018	
48	Normoxia	0.157 ± 0.106	0.000
	Hypoxia	0.773 ± 0.132	
72	Normoxia	0.055 ± 0.036	0.000
	Hypoxia	0.389 ± 0.037	

Table 6. Results on HSP27 expression

Time (hour)	Experimental group	Mean ± SD	p
24	Normoxia	0.945 ± 0.034	0.000
	Hypoxia	0.088 ± 0.026	
48	Normoxia	0.777 ± 0.043	0.000
	Hypoxia	0.148 ± 0.027	
72	Normoxia	0.881 ± 0.096	0.000
	Hypoxia	0.183 ± 0.021	

Table 7. Results on number of apoptotic cell amount

PA-22

Bicuspid aortic valve with infective endocarditis and ruptured right sinus of valsalva aneurysm to left ventricular outflow tract: A case report

Joseph Lawrence Ponciano[1]
[1]The Medical City Philippines

BACKGROUND Sinus of Valsalva (SOV) aneurysm is a rare disease wherein clinical manifestations vary widely and often related to aneurysm rupture or mass effect on adjacent cardiac structures. It may be congenital or acquired which are mostly associated with infectious etiologies (e.g. tuberculosis and bacterial endocarditis). It has a worldwide incidence rate of 0.09%. There is a male predilection and more common among Asian population, however, with unknown incidence, morbidity and mortality rates in the local setting.

METHODS A case of a 59-year-old male, Filipino, consulted with a three-week history of chills and body malaise. On the day of admission, patient experienced chest pain and low grade fever. Initial examinations revealed positive blood cultures and bicuspid aortic valve on 2D echocardiogram. On further work up, CT coronary revealed a ruptured right sinus of Valsalva (SOV) aneurysm. Meticulous monitoring and immediate treatment of infective endocarditis was employed as a possible cause of ruptured SOV aneurysm, the patient was clinically stable with no heart failure symptoms.

RESULTS Diagnosis of infective endocarditis warrants a complete and thorough examination in order to properly manage its course and prevent its deleterious complications. The patient was managed successfully with medical treatment, but refused surgical intervention despite in-depth patient counselling. Ruptured SOV aneurysm will eventually go into decompensation later on hence, timely surgical intervention is required. Advisable earliest time of surgery is when infection has resolved. Due to the rarity of the this disease and majority of reported cases have either undergone definitive surgical intervention or underwent into decompensation, at the time of writing there is currently no data available on how these patient should be monitored if definitive cardiac surgery was not employed.

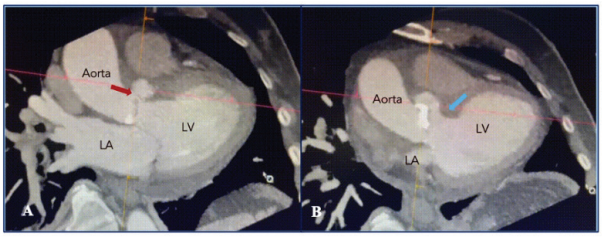


Figure 1. A. Modified 3 chamber view showing an outpouching of the right sinus of Valsalva measuring approximately 4. x 2.4 cm (CC x W) with a neck of 0.3 cm pointed in red arrow. B. Modified 3 chambe

PA-06

Association of cardiovascular disease with hospital mortality in COVID-19

Popova Anna[1], Pogosova Nana[2], Ezhov Marat[3], Barinova Irina[4], Ausheva Aza5, Kuchiev David[6], Arutyunov Artur[7], Boytsov Sergey[8]
[1]Federal State Budgetary Institution NATIONAL MEDICAL RESEARCH CENTRE OF CARDIOLOGY NAMED AFTER ACADEMICIAN E.I.CHAZOV. of the Ministry of Health of the Russian Federation, [2]Federal State Budgetary Institution NATIONAL MEDICAL RESEARCH CENTRE OF CARDIOLOGY NAMED AFTER ACADEMICIAN E.I.CHAZOV. of the Ministry of Health of the Russian Federation, [3]Federal State Budgetary Institution NATIONAL MEDICAL RESEARCH CENTRE OF CARDIOLOGY NAMED AFTER ACADEMICIAN E.I.CHAZOV. of the Ministry of Health of the Russian Federation, [4]Federal State Budgetary Institution NATIONAL MEDICAL RESEARCH CENTRE OF CARDIOLOGY NAMED AFTER ACADEMICIAN E.I.CHAZOV. of the Ministry of Health of the Russian Federation, [5]Federal State Budgetary Institution NATIONAL MEDICAL RESEARCH CENTRE OF CARDIOLOGY NAMED AFTER ACADEMICIAN E.I.CHAZOV. of the Ministry of Health of the Russian Federation, [6]Federal State Budgetary Institution NATIONAL MEDICAL RESEARCH CENTRE OF CARDIOLOGY NAMED AFTER ACADEMICIAN E.I.CHAZOV. of the Ministry of Health of the Russian Federation, [7]Federal State Budgetary Institution NATIONAL MEDICAL RESEARCH CENTRE OF CARDIOLOGY NAMED AFTER ACADEMICIAN E.I.CHAZOV. of the Ministry of Health of the Russian Federation, [8]Federal State Budgetary Institution NATIONAL MEDICAL RESEARCH CENTRE OF CARDIOLOGY NAMED AFTER ACADEMICIAN E.I.CHAZOV. of the Ministry of Health of the Russian Federation

BACKGROUND Coronavirus disease 2019 (COVID-19) had been associated with high rates of morbidity. A number of risk factors have been identified to have a potential impact on increasing risk of death in patients hospitalized for COVID-19. The purpose of our study was to evaluate the relationship of hospital mortality with history of cardiovascular disease (CVD) in according to Russian register of patients hospitalized for COVID-19.

METHODS 758 consecutive patients with COVID-19 (403 men, the median age was 61 [18 to 95] years) were included in the study. Predictors of hospital mortality were evaluated using univariate and multivariate regression analysis, using SPSS Statistics version 23.0.

RESULTS During hospitalization, 59 (7.8%) patients with COVID-19 died, 677 (89.3%) were discharged and 22 (2.9%) were transferred to other hospitals. Univariate regression analysis showed that increasing of age was associated with 92% higher mortality risk for each decade (relative risk (RR) 1.92; 95% confidence interval (CI) 1.58–2.34; p<0.001). The bigger number of CVDs was associated with higher risk of death (RR 1.71; 95% CI 1.42–2.07; p<0.001). Presence of one or more CVDs, as well as atrial fibrillation, chronic heart failure (CHF), coronary heart disease, myocardial infarction, stroke history, and diabetes were associated with a higher risk of deaths during the hospitalization for COVID-19. Presence of any CVD was associated with a 3.2-fold higher risk of hospital mortality. However, this association lost its significance after adjustment for age and gender, and only CHF was associated with a 3-fold increased risk of death (RR 3.16; 95% CI 1.64–6.09; p<0.001). One more independent predictor of mortality was age (RR 1.05; 95% CI 1.03–1.08; p<0.001).

CONCLUSION History of CVDs, their number and severity were associated with a higher risk of death in patients hospitalized for COVID-19. Age and CHF were independent predictors of hospital mortality.

PA-07

Stress, anxiety, depressive symptoms and quality of life in patients with and without common cardiovascular diseases at long-term follow-up after COVID-19

Popova Anna[1], Pogosova Nana[2], Barinova Irina[3], Ausheva Aza[4], Kuchiev David[5], Arutyunov Artur[6], Terterian Tatevik[7]

[1]Federal State Budgetary Institution NATIONAL MEDICAL RESEARCH CENTRE OF CARDIOLOGY NAMED AFTER ACADEMICIAN E.I.CHAZOV. of the Ministry of Health of the Russian Federation, [2]Federal State Budgetary Institution NATIONAL MEDICAL RESEARCH CENTRE OF CARDIOLOGY NAMED AFTER ACADEMICIAN E.I.CHAZOV. of the Ministry of Health of the Russian Federation, [3]Federal State Budgetary Institution NATIONAL MEDICAL RESEARCH CENTRE OF CARDIOLOGY NAMED AFTER ACADEMICIAN E.I.CHAZOV. of the Ministry of Health of the Russian Federation, [4]Federal State Budgetary Institution NATIONAL MEDICAL RESEARCH CENTRE OF CARDIOLOGY NAMED AFTER ACADEMICIAN E.I.CHAZOV. of the Ministry of Health of the Russian Federation, [5]Federal State Budgetary Institution NATIONAL MEDICAL RESEARCH CENTRE OF CARDIOLOGY NAMED AFTER ACADEMICIAN E.I.CHAZOV. of the Ministry of Health of the Russian Federation, [6]Federal State Budgetary Institution NATIONAL MEDICAL RESEARCH CENTRE OF CARDIOLOGY NAMED AFTER ACADEMICIAN E.I.CHAZOV. of the Ministry of Health of the Russian Federation, [7]Federal State Budgetary Institution NATIONAL MEDICAL RESEARCH CENTRE OF CARDIOLOGY NAMED AFTER ACADEMICIAN E.I.CHAZOV. of the Ministry of Health of the Russian Federation

BACKGROUND It is well known that psychosocial factors, including stress level, anxiety and depressive symptoms, negatively affect prognosis, risk factors control, and overall well-being in patients with cardiovascular disease (CVDs). During the COVID-19 pandemic, many people face new or worsened mental health issues that may pose further risks for CVD patients. This is particularly true for those surviving COVID-19 infection especially if it was severe enough to require hospitalization.

PURPOSE To assess stress level, anxiety and depression symptoms in patients (pts) hospitalized for moderate to severe COVID-19 infection through April to May, 2020.

METHODS This is a cross-sectional survey of consecutive 759 pts who survived hospitalization for COVID-19. All consecutive patients discharged alive were approached by phone 3-7 months later and invited for a follow-up visit. Exclusion criteria were limited to the refusal to participate and inability to complete the questionnaires due to illiteracy or severe cognitive impairment. Hospital Anxiety and Depression Scale (HADS) was used to assess the anxiety and depression symptoms. A score of 8-10 points on HADS-A and HADS-D subscales were considered as subclinical anxiety and depressive symptoms, and a score of ≥11 points – moderate/severe anxiety and depressive symptoms. The stress level was assessed by means of the Visual Analog Scale (VAS) according to question "Please grade the level of constant stress or tension in your life over the preceding year using the 10-point scale below", and participant had to mark one number on the scale (0 to 10 VAS). VAS score <4 was considered as low, 5-7 – as moderate, and ≥7 – as high stress level. Quality of life was measured using a VAS. The VAS asks subjects to place a mark on a graduated line ranging from 0 (worst imaginable health state) to 100 (best imaginable health state), indicating their current health status.

RESULTS A total of 212 pts gave their consent to participate, and 162 (76.4%) of them had a history of any CVDs (mainly hypertension, atherosclerotic CVDs or atrial fibrillation). Participants were distributed into CVD group (n=162, 54.3% males, aged 57.5±12.4 years) and non-CVD group (n=50, 58% males, aged 56.6±12.4 years). About one thirds (28.8%) of pts had high stress level. The majority of pts were free of anxiety and depressive symptoms. HADS-A scores > 8 points had 23% of pts. HADS-D scores > 8 points had 18% of pts. Proportion of pts with increased stress level, anxiety and depressive symptoms did not differ in CVD and non-CVD groups. CVD pts had significantly lower quality of life as compared to non-CVD pts (p=0.03).

CONCLUSION About 30% patients at long-term follow-up after hospitalization for COVID-19 had a high stress level, every fifth patient had anxiety or depressive symptoms. Proportion of patients with increased stress level, anxiety and depressive symptoms did not differ in CVD and non-CVD patients.

	All (n=212)	CVD (+) (n=162)	CVD (-) (n=50)	p
Stress				
Stress by VAS, score	5 (3; 7)	5 (3; 7)	5 (3; 6)	0,58
Stress by VAS, score ≥5 points, n (%)	121 (57,1%)	91 (56,2%)	30 (60%)	0,63
Stress by VAS, score ≥7 points, n (%)	61 (28,8%)	50 (30,9%)	11 (22%)	0,23
Quality of Life				
Quality of Life by VAS, points	75 (60; 85)	70 (60; 85)	80 (70; 90)	0,03
Anxiety and depression				
HADS-A, score	4 (2; 7)	4 (2; 7)	4 (2; 6)	0,24
HADS-A, score, n (%): < 8 8-10 points ≥11 points	 164 (77,4%) 29 (13,7%) 19 (9%)	 124 (76,5%) 24 (14,8%) 14 (8,6%)	 40 (80%) 5 (10%) 5 (10%)	0,68
HADS-D, score	4 (2; 6)	5 (2; 7)	4 (1; 6)	0,08
HADS-D, score, n (%): < 8 8-10 points ≥11 points	 174 (82,1%) 21 (9,9%) 17 (8%)	 129 (79,6%) 18 (11,1%) 15 (9,3%)	 45 (90%) 3 (6%) 2 (4%)	0,24

Stress, anxiety, depressive symptoms and quality of life in patients with and without common cardiovascular diseases at long-term follow-up after COVID-19

A022

Pulmonary embolism and pulmonary hypertension with suspected concomitant pulmonary arteriovenous malformation: A case report of clinical utility of right ventricular strain

Maria Kristina Cruz Manalili[1], Vivian D. Choa[2], Jeffrey P. Mendoza[3]

[1]Cardinal Santos Medical Center, [2]Cardinal Santos Medical Center, [3]Cardinal Santos Medical Center

BACKGROUND Venous thromboembolism (VTE) refers to a condition of thrombus formation in the peripheral extremities (deep vein thrombosis) and/or pulmonary vessels (pulmonary embolism) which may develop either spontaneously or provoked by triggering events such as trauma, surgery, and prolonged bed rest.1 VTE is the third giant killer next to stroke and myocardial infarction3, thus, its rapid diagnosis cannot be overly emphasized.

METHODS In this report, we present the case of a 58-year old Filipina who has been experiencing dyspnea and easy fatigability for one year. On physical examination, she was slightly tachypneic, with normal oxygenation at room air via pulse oximetry. She had an irregularly irregular cardiac rhythm and heave. The cardiac apex was not displaced and there was no appreciable murmur. A transthoracic echocardiogram with agitated saline contrast study showed dilated right cardiac chambers and left atrium, and late appearance of microbubbles on the left atrium signaling pulmonary arteriovenous malformation (PAVM). The conventional RV parameters – TAPSE and RVFAC – were both normal. However, the RV global longitudinal and free wall strains were -15.5% and -19.1%, respectively, implying a subclinical RV dysfunction. A CT Pulmonary angiogram showed dilated pulmonary trunk and right and left pulmonary arteries, with filling defects in multiple sites in the right pulmonary artery, which were consistent with pulmonary embolism with concomitant pulmonary hypertension. No PAVM was seen in the CTPA, hence we can surmise that it could be small and is not the primary culprit for the symptoms of our patient. The patient was then started with anticoagulant and phosphodiesterase-5 inhibitor.

RESULTS Chronic thromboembolic pulmonary hypertension (CTEPH), one of the known sequelae of pulmonary embolism (PE), can lead to right-sided heart failure and death.4 Right heart catheterization (RHC) remains to be the confirmatory test for CTEPH.6 However, due to the invasive nature of RHC, studies believe that CTEPH remains to be underdiagnosed. Current guidelines recommend the use of echocardiography as the initial step among patients suspected of PE and CTEPH. PE alone may result to RV dilatation and/or hypokinesis or dyskinesia. However, the review of Tadic et al in 2021 concluded that standard RV parameters—RVFAC and TAPSE– have limited prognostic power due to load dependency and complexity of RV geometry. The use of strain can overcome such limitations, and subsequently detect subclinical RV damage even when the standard RV parameters appear to be normal. In our patient, her RVFAC and TAPSE were within normal limits, but her RV GLS imply subclinical dysfunction.

CONCLUSION As a surrogate for right heart catheterization, hemodynamics and physiological assessment of the heart in these patients may be done with the use of echocardiography and other non-invasive tests. Furthermore, the use of newer parameters such as strain via speckle tracking, gives additional insight as to the systolic and diastolic functions of chamber/s being investigated. Such advancements will prevent delay of initiation of treatment in various cardiovascular diseases.

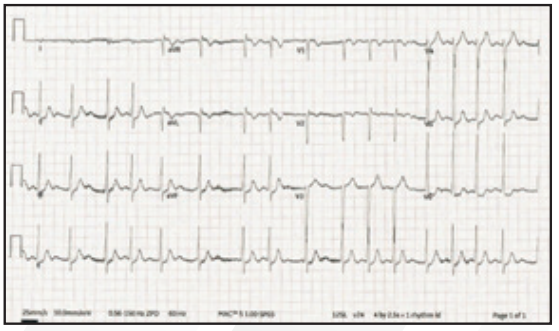


Figure 1. Baseline 12-lead electrocardiogram

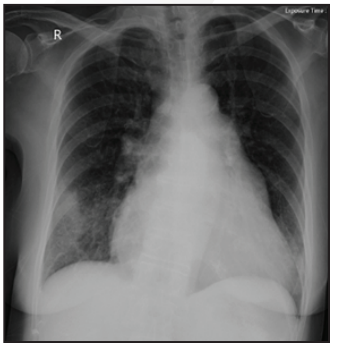


Figure 2. Baseline chest x-ray, PA view

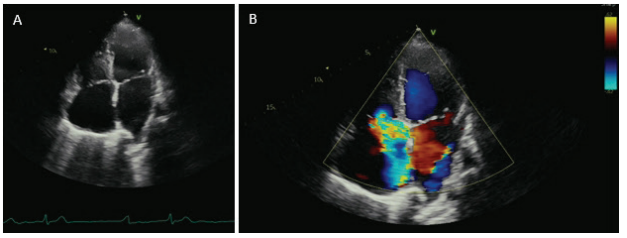


Figure 3. Apical 4-chamber views in (A) 2-D Imaging and (B) Color Flow Imaging display showing the dilated right cardiac chambers and left atrium, dilated tricuspid and mitral annuli, and severe TR

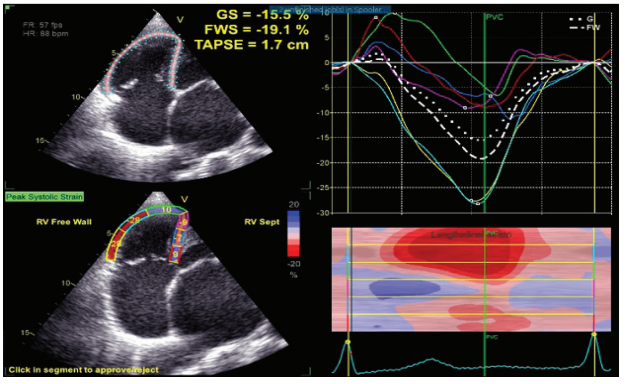


Figure 4. RV focused apical view showing the obtained RV strain via speckle tracking. GS global strain, FWS free wall strain

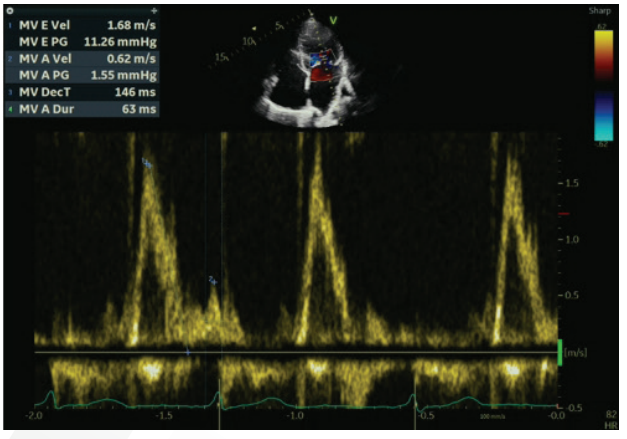


Figure 5. Doppler study of the mitral inflow profile using pulsed wave showing a sinus rhythm on electrocardiogram with E/A of 2.7, indicative of a restrictive left ventricular filling pattern

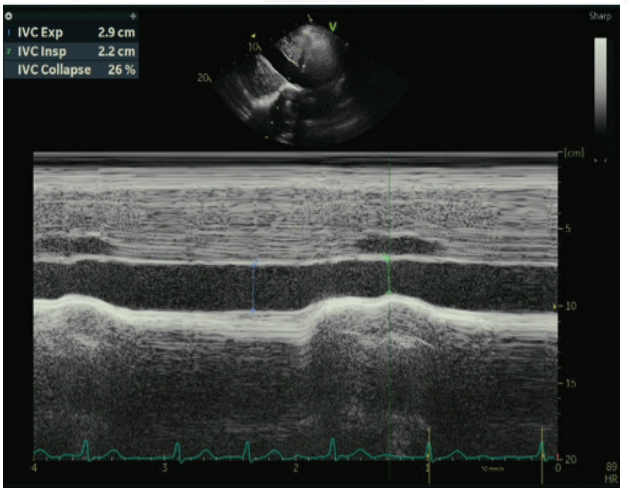


Figure 6. 2-D imaging of the dilated inferior vena cava at 29 mm with plethora (inspiratory collapsibility of 26%).

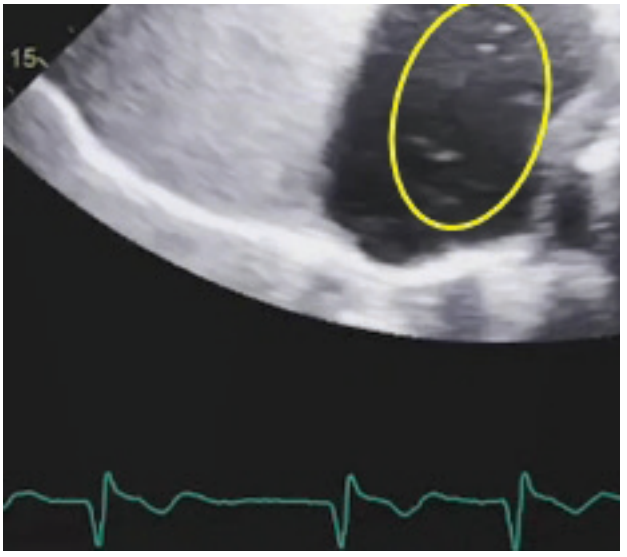


Figure 7. Agitated saline solution contrast study showing late appearance of bubbles (yellow oval) at the left atrium

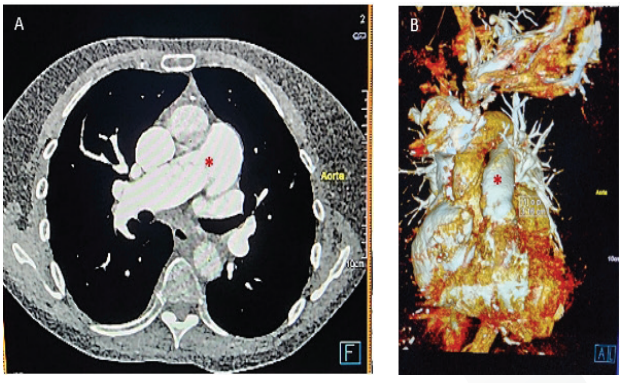


Figure 8. CTPA showing the dilated main pulmonary artery (red asterisk) and right and left pulmonary arteries in (A) 2-D axial plane imaging and (B) 3-D reconstruction

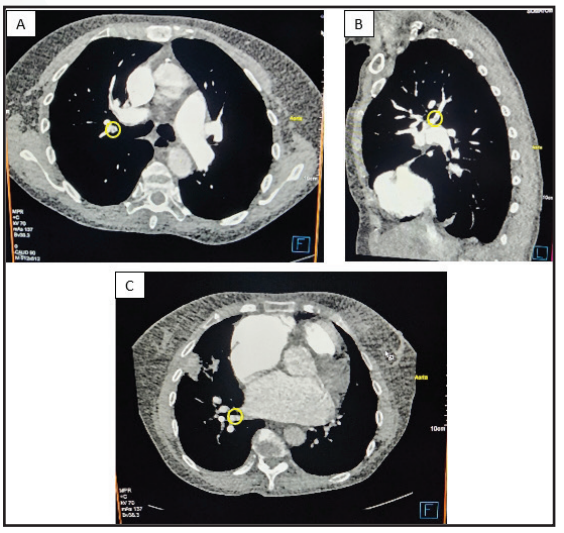


Figure 9. CT Pulmonary Angiogram showing the filling defects (yellow circles) in the (A) posterior segmental branch of the right superior lobar artery, (B) middle lobar artery of the right lung, and

F012

Screening carotid ultrasound in asymptomatic patients prior to cardiac surgery: is it justified?

Ben Elias Indja[1], Jacqui Robinson[2], John Crozier[3]
[1]St George Hospital, [2]Diagnostic ultrasound laboratory, Liverpool Hospital, [3]Liverpool Hospital

BACKGROUND Screening carotid duplex ultrasound (DUS) in asymptomatic patients prior to cardiac surgery is often performed on a selective basis for patients at high risk of carotid disease as a means to potentially reduce the risk of neurological complications. However there is conflicting evidence of the actual benefits of this approach in altering the approach to management and in reducing neurological events.

METHODS A retrospective analysis of screening carotid DUS performed in patients prior to cardiac surgery was undertaken in a vascular ultrasound laboratory servicing a tertiary hospital. Adult patients undergoing coronary procedures were included. The criteria for screening preoperative carotid DUS included left main disease, peripheral vascular disease, previous stroke/TIA, previous carotid intervention and aortic arch calcification.

RESULTS From 2011 to 2018 265 patients met the criteria for carotid DUS screening prior to. 54 patients (20.4%) had a hemodynamically significant carotid stenosis (50-99%). There were no staged or synchronous carotid interventions. PVD and more than two high risk criteria present were most strongly associated with carotid disease. There were a total of nine postoperative strokes/TIA and there was no significant association between the presence of carotid stenosis and postoperative stroke or TIA, $X(1)=0.001$, $p=0.980$. Stroke occurred in two patients with carotid stenosis, but both were outside of the brain territory associated with the carotid disease.

CONCLUSION In a highly selective group of asymptomatic patients prior to cardiac surgery, screening carotid DUS identified the presence of significant carotid stenosis in 20% of patients. The presence of any carotid stenosis was not associated with periprocedural stroke/TIA. Screening for asymptomatic carotid stenosis prior to cardiac surgery demonstrated no benefit in this population thus further adding to the evidence that the clinical utility of this common practice is questionable.

PA-01

Value of echocardiography combined with brain natriuretic peptide or N-Terminal pro-BNP level in diastolic heart failure assessment

Kajikawa Yutaka[1], Ueda Aki[2], Hirota Minoru[3]
[1]Department of Cardiology, NHO Fukuyama Medical Center,
[2]Department of Cardiology, NHO Fukuyama Medical Center,
[3]Department of Cardiology, NHO Fukuyama Medical Center

BACKGROUND Echocardiography and B-type natriuretic peptide are important diagnostic tools used in heart failure evaluation.This study aimed to evaluate combined clinical and echocardiographic parameters and B type natriuretic peptide (BNP) or N-terminal pro-BNP (NT-proBNP) in diastolic heart failure (DHF) evaluation.

METHODS In this study, 167 patients with DHF (EF>40%) who visited our hospital from August to October 2021 were included. Plasma levels of BNP, serum levels of NT-pro BNP, and other parameters were measured, and echocardiography was used to examine left ventricular function.

RESULTS Age; 74.3±13.5 years, BMI; 24.2 ± 14.1 kg/m2, men/women; 91 (54.5%) /76(45.5%), NYHA I/II/III//IV; 115 (68.9%)/ 37(22.2%)/ 10(6.0%)/ 5(3.0%), hypertension; 117 (70.0%), DM; 48 (28.7%), AF; 44(26.3%), BNP; 106.8±194.8pg/mL, log BNP; 1.653±0.548, NT-pro BNP; 1500.7±3388.9 pg/mL, log NT-pro BNP, hemoglobin; 12.2±2.0 g/dL, albumin; 3.7±0.7 g/dL, eGFR; 58.7±20.9 mL/min/1.73m2, LVEF; 64.3±8.4%, left atrial volume index (LAVI); 39.1±17.4 mL/m2, E/e'; 12.9±6.6, estimated systolic pulmonary artery pressure; 29.7±12.1, E/A; 0.86±0.41, and estimated left ventricular endo-diastolic pressure; 9.5±3.0mmHg.

Though one-way analysis of variance (ANOVA) detected significant LVEF differences between the NYHA sub groups (only NYHA I vs II and V, p <0.02, 0.001 respectively.), it detected significant log BNP and log NTpro-BNP differences between NYHA sub groups (NYHS I vs II and III, V, II vs III and IV, p <0.0001).

Multivariate regression analysis showed log BNP = 1.828+ 0.353× LAVI-0.350× albumin+0.280E/e'+0.241×AF.

Log NT-proBNP=4.044-0.501× albumin + 0.325 × LAVI -0.226 × eGFR + 0.227 × E/e'.

CONCLUSION The model including BNP, NH-proBNP, LAVI, E/e', serum albumin levels, and history of atrial fibrillation was highly predictive on severity of DHF.

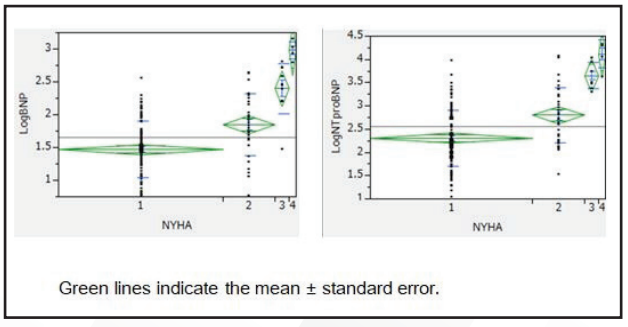


Figure 1. NYHA classification, BNP, and NT-proBNP levels

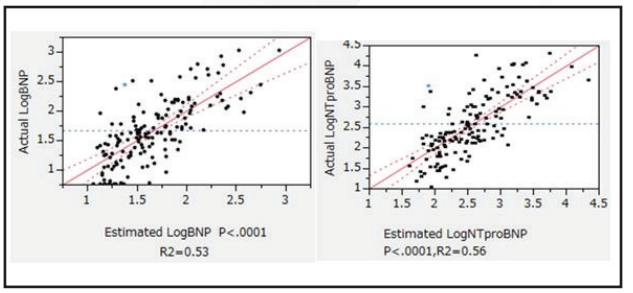


Figure 2. Acutual Log BNP or Log NT-proBNP vs. weighted value according to a multivariate regression analysis

Age	74.3±13.5 -(years)
male/female	91 (54.5%) /76 (45.5%)
NYHA	I/II/III//IV 115 (68.9%) /37 (22.2%) /10(6.0%) /5 (3.0%)
Height	1.56±0.10 (m)
Body Weight	59.2 ± 31.8 (kg)
BMI	24.2±14.1 (kg/m^2)
Hypertension	117 (70.0%)
DM	48 (28.7%)
AF	44 (26.3%)

BMI; Body mass index, DM; Diabetes mellitus. AF; Atrial fibrillation

Table 1. Patients' background

検査データ	平均±SD
WBC	7213±5804 /μL
ヘモグロビン	12.2±2.0g/dL
アルブミン	3.7±0.7g/dL
クレアチニン	0.97 ±0.43
eGFR	58.7±20.9mL/分/1.73m2
CRP	2.20±5.35mg/dL
BNP	106.8±194.8pg/mL
ログBNP	1.653 ± 0.548
NT-proBNP	1500.7 ± 3388.9 pg/mL
ログ NT-proBNP	2.55 ±0.729

WBC、白血球。eGFR、推定糸球体濾過率。CRP、C反応性タンパク質。BNP、B 型ナトリウム利尿ペプチド。NT-proBNP、N末端proBNP

Table 2. Laboratory data

Echo cardiographic parameters	mean ± SD
LVEF	64.3 ± 8.4 %
LAVI	39.1 ± 17.4 mL/m^2
E/e'	12.9 ± 6.6
sPAP	29.7 ± 12.1 mmHg
E/A	0.86 ± 0.41
DcT	219.3 ± 70.5 ms
eEDP	9.5 ± 3.0 mmHg
LVDd	42.7 ± 6.6 mm
LVDs	27.9 ± 6.0 mm
IVS	9.9 ± 6.7 mm
LVPW	9.3 ± 1.6 mm

LVEF, left ventricular ejection fraction; LAVI; Left atrial volume index; sPAP, systolic pulmonary artery pressure; DcT, deceleration time; eEDP, estimated end-diastolic pressure; LVDd; Left ventricular diastolic diameter; LVDs; Left ventricular systolic pressure; IVS, interventricular septum; LVPW; Left ventricular posterior wall.

Table 3. Echo cardiographic parameters

	NWHA1	NWHA2	NYHA3	NYHA4	P<0.001
Log BNP	1.47 ± 0.04	1.85 ± 0.07	2.40 ± 0.14	2.98 ± 0.19	All categoly
Log NT-proBNP	2.31 ± 0.05	2.80 ± 0.10	3.65 ± 0.18	4.12 ± 0.26	Ecept NYHA3,4

BNP; B-type natriuretic peptide, NT-proBNP; N-terminal proBNP

Table 4. NYHA classification, BNP, and NT-proBNP levels

A036

Spontaneous coronary artery dissection in 72-yrs-old male presenting with ACS: A case report of IVUS-guided PCI

Raymond S. Banquirigo[1]
[1]Cardinal Santos Medical Center

BACKGROUND Spontaneous coronary artery dissection (SCAD) is a rare non atherosclerotic cause of acute coronary syndrome (ACS). Literature highlights its low incidence and it is estimated to only comprise 0.07-0.2% of angiograms for ACS. Approximately 90% of SCAD patients are women, and factors such as the hormonal changes of the menstrual cycle are thought to be relevant. It is therefore interesting to consider why patients without such hormonal exposure may be affected. SCAD in men remains poorly understood.

METHODS We present a case of a 72 year old male who presented with chest pain, palpitations and exertional dyspnea. He is a known hypertensive with dyslipidemia. He had prior history of acute coronary syndrome with mild coronary artery disease on angiogram. He was apparently asymptomatic interim. 1 week prior to admission, patient had sudden onset chest pain with ECG showing ischemic changes and 2D echocardiography with Doppler revealing reduced ejection fraction and wall motion abnormality. Coronary angiography was subsequently done with findings of spontaneous coronary artery left circumflex artery dissection (LCX) dissection with severe coronary artery disease of the left anterior descending artery (LAD) and documented via intravascular ultrasound (IVUS) and eventually underwent percutaneous coronary intervention and was discharged improved.

RESULTS Spontaneous coronary artery dissection (SCAD) is defined as an epicardial coronary artery dissection that is not associated with atherosclerosis or trauma. The predominant mechanism of myocardial injury occurring as a result of SCAD is coronary artery obstruction caused by formation of an intramural hematoma (IMH) or intimal disruption rather than atherosclerotic plaque rupture or intraluminal thrombus.[2] In addition, SCAD has unique risk factors and associated conditions and different diagnostic, therapeutic, and prognostic implications compared with atherosclerotic coronary disease.

The characteristics of men with SCAD are less well described. A Canadian SCAD study by McAlister documented that out of 1,173 patients with SCAD, 123 (10.5%) were men. Men with SCAD were younger than women (mean age 49.4 ± 9.6 years vs 52.0 ± 10.6 years; P = 0.01). Men had lower rate of prior myocardial infarction than women (0.8% vs 7.0%; P = 0.005). There was no difference in angiographic types of SCAD, but men had more circumflex artery (44.4% vs 30.9%; P = 0.001) and fewer right coronary artery (11.8% vs 21.7%; P = 0.0054) dissections. At median follow-up of 3 years, men had fewer hospital presentations with chest pain (10.6% vs 24.8%; P < 0.001). There were no differences in in-hospital events or follow-up major adverse cardiovascular events (MACE) (7.3% vs 12.7%; P = 0.106).[3] This was coinciding with the profile of our patient with circumflex artery involvement and presenting with chest pain although older in age.

CONCLUSION Spontaneous coronary artery dissection (SCAD) is an important cause of ACS in otherwise healthy young and middle-aged individuals and men represent an important minority (~10%) of SCAD patients. It is frequently underdiagnosed or misdiagnosed and can potentially result in substantial morbidity and mortality; a heightened suspicion for SCAD is required for accurate diagnosis and treatment.

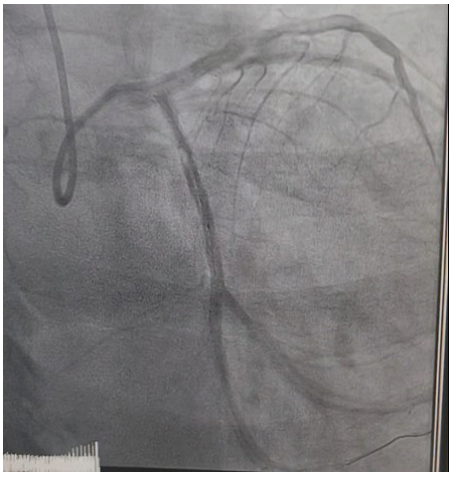
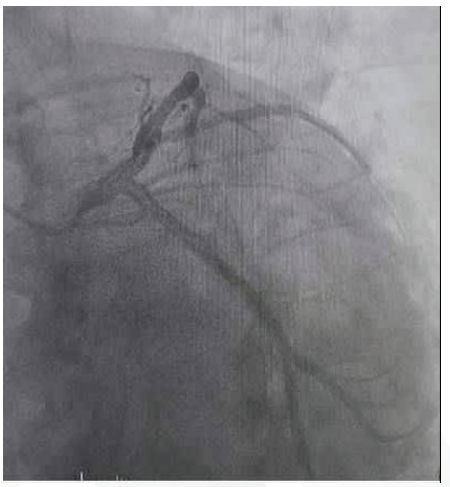
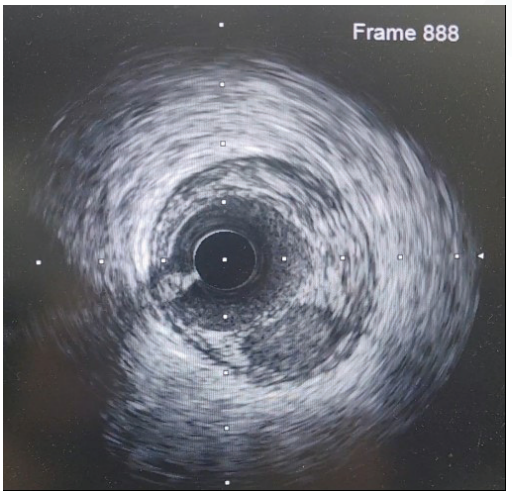


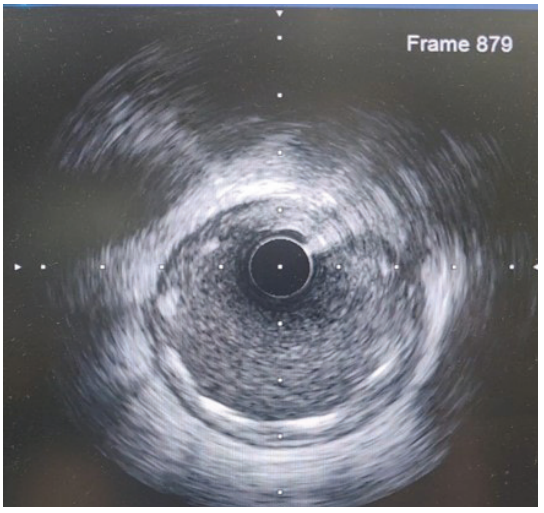
Figure 1. Coronary angiogram of left circumflex artery (LCX) (left anterior oblique caudal view) with the coronary dissection



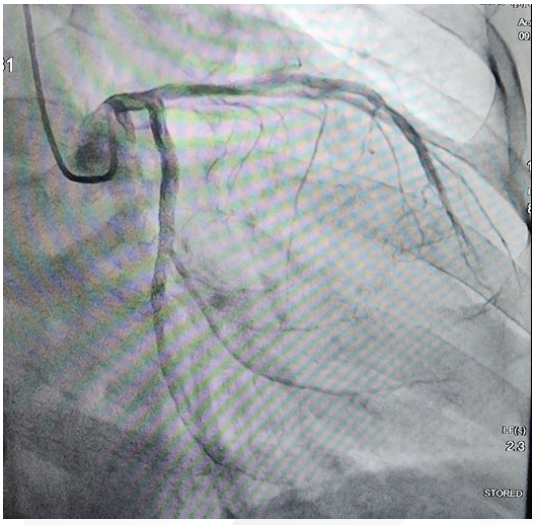
Coronary angiogram of left circumflex artery (LCX) (left anterior oblique caudal view) with the coronary dissection



IVUS showing intramural hematoma of the left circumflex artery



IVUS of the LCX post stent insertion



Left circumflex artery with resolution of the dissection after stent placement

FO81

Efficacy and safety of Direct Oral Anticoagulants versus Low Molecular Weight Heparin in treatment for cancer-asociated venous thromboembolism: An updated meta-analysis

Maria Diana Cruz Manalili[1], Orlando Wenceslao Deduyo[2]
[1]Fatima University Medical Center, [2]Fatima University Medical Center

BACKGROUND Venous thromboembolism (VTE), which includes deep vein thrombosis (DVT) and pulmonary embolism (PE) is a common complication of malignancy[1,2]. Studies have shown that the risk of developing VTE in patients with active malignancy is seven-fold, with an annual incidence of 0.5% in cancer patients as compared to 0.1% in the general population[3-4]. A systematic review by Lee *et al.* regarding epidemiology in Asia showed prevalence of VTE in cancer patients at 0.5-44.6% and cancer prevalence among VTE patients at 6.1-65%[5]. Cancer has been shown to be a major cause of mortality in patients with VTE and *vice versa*[6]. Data from the Global Anticoagulant Registry in the Field (GARFIELD)-VTE registry involving a cohort of 10,315 VTE patients from 419 centers in 28 countries showed 9.7% overall mortality within 6 months, with more than half of these deaths being cancer-related[7].

MATERIALS AND METHODS

Search Strategy

Preferred Reporting Items for Systematic reviews and Meta-analyses (PRISMA) guidelines were used. An update of the previous study by Kahale *et al.*[22] was done. The literature search done in PubMed, MEDLINE, and Google Scholar included studies published from inception until October 2022. Keywords such as "Cancer' OR "Malignancy" AND "Venous thrombosis" OR "Venous thromboembolism" AND "Direct oral anticoagulant" OR "New oral anticoagulant" AND "Heparin OR "Low molecular weight heparin" AND "Randomized controlled trial" were utilized in different word combinations to obtain published journals and articles. Hand search was also used.

Study Design

This meta-analysis involves review of randomized controlled trials among cancer patients with VTE given DOAC or LMWH, with efficacy outcome of VTE recurrence and safety outcomes of major bleeding, clinically relevant non-major bleeding, and all-cause mortality. Presence of bias in the obtained data was assessed by heterogeneity analysis.

Data Collection

The studies reviewed and evaluated in this meta-analysis were those with the following criteria: 1) randomized controlled trials; 2) adult patients (aged 18 years old and above) diagnosed with cancer and VTE; 3) with a data of usage of DOAC as intervention with LMWH alone as comparator; and 4) with disclosed information on clinical outcome as to VTE recurrence, major bleeding, clinically relevant non-major bleeding, and all-cause mortality. A total of seven studies were included in the data treatment. The included studies were limited to those using the English language.

RESULTS In this updated meta-analysis, a total of 1,614 patients were treated with DOAC and 1,628 patients were treated with LMWH. With regards to the outcome of VTE recurrence in patients with CAVTE, the calculated risk ratio at 95% confidence interval was 0.65 (0.50, 0.84) favoring the use of DOAC. For the outcomes of major bleeding and clinically relevant non-major bleeding in patients with CAVTE, the calculated risk ratios at

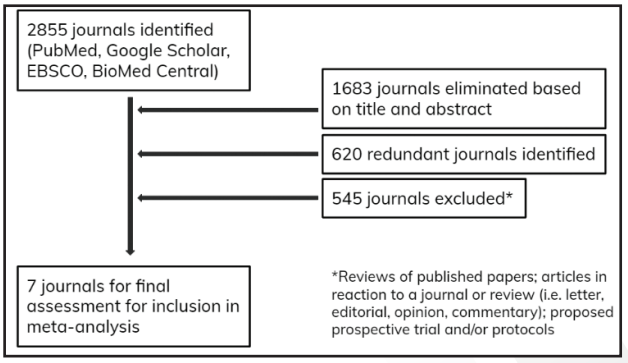
95% confidence interval were 1.32 (0.96, 1.83) and 1.53 (1.22, 1.90) respectively, favoring the use of LMWH. For the outcome of mortality, the calculated risk ratio at 95% confidence interval was 1.00 (0.89, 1.11) favoring neither DOAC or LMWH. The test of overall estimate effect for all of the outcomes were as follows: P = 0.001 for VTE recurrence, P = 0.09 for major bleeding, P = 0.0002 for clinically relevant non-major bleeding, and P = 0.94 for all-cause mortality. Calculated I^2 values were as follows: 0% for VTE recurrence (P = 0.64), 33% for major bleeding (P = 0.18), 7% for clinically relevant non-major bleeding (P = 0.38), and 0% for all-cause mortality (P = 0.43). Funnel plots (Fig. 6) were also generated to see for publication bias.

Analyses of the randomized controlled trials included showed that in terms of efficacy, which in this study was represented by the outcome of VTE recurrence, use of DOAC for CAVTE would be favored over LMWH, with a calculated risk ratio of less than 1 at 0.65 (0.50, 0.84) at 95% confidence interval. With regards to the outcomes of major bleeding and clinically relevant non-major bleeding, with calculated risk ratios of more than 1 at 1.32 (0.96, 1.83) and 1.53 (1.22, 1.90) respectively at 95% confidence interval, use of LMWH for CAVTE would result in less bleeding episodes. In terms of all-cause mortality, the calculated risk ratio at 95% confidence interval was 1.00 (0.89, 1.11), showing that the safety profile in terms of mortality of DOAC use as compared to LMWH use is comparable. These calculated risk ratios align with results from the meta-analysis performed by Kahale *et al.*[22], reinforcing that use of DOAC would be comparable to use of LMWH, the first-line treatment for CAVTE. The calculated I2 statistics for all outcomes were all less than 50% indicating low heterogeneity.

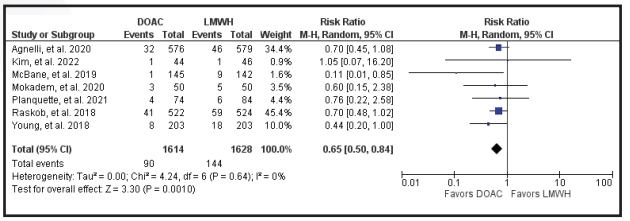
CONCLUSION Venous thromboembolism, encompassing deep venous thrombosis and pulmonary embolism, is a common complication of malignancy. As clinicians, it is important to assess which management may be done for patients who present with cancer-associated VTE. This updated meta-analysis showed that DOAC use for CAVTE treatment showed better efficacy in terms of VTE recurrence compared to LMWH use and had comparable all-cause mortality rates. However, DOAC use for CAVTE treatment may result in more bleeding episodes compared to LMWH use.

KEYWORDS Cancer, malignancy, venous thrombosis, venous thromboembolism, deep vein thrombosis, pulmonary embolism, direct oral anticoagulant, new oral anticoagulant, heparin, low molecular weight heparin, randomized controlled trial

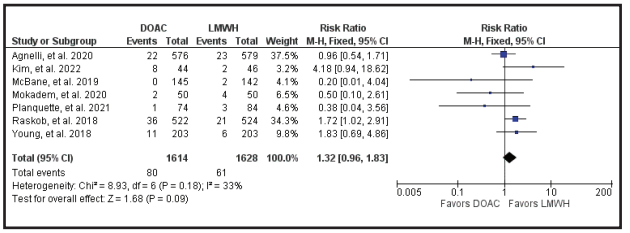
LIST OF IMAGES:



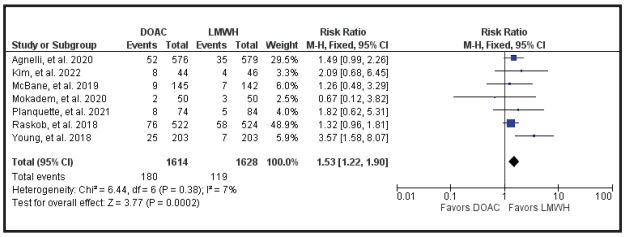
PRISMA Flowchart



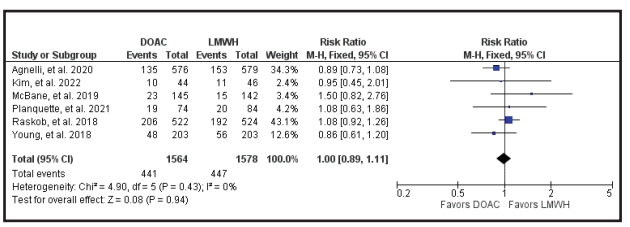
Forest plot for VTE recurrence in patients with CAVTE treated with DOAC and LMWH



Forest plot for major bleeding in patients with CAVTE treated with DOAC and LMWH



Forest plot for clinically relevant non-major bleeding in patients with CAVTE treated with DOAC and LMWH



Forest plot for all-cause mortality in patients with CAVTE treated with DOAC and LMWH

LIST OF TABLES:

Study, year	Total number of patients	DOAC used	Number of patients treated with DOAC	LMWH used	Number of patients treated with LMWH	Primary and secondary outcomes
Agnelli et al., 2020[23]	1155	Apixaban	576	Dalteparin	579	Recurrent VTE, major bleeding
Kim et al., 2022[21]	90	Rivaroxaban/ Apixaban	44	Dalteparin	46	Clinically relevant bleeding, major bleeding, recurrent VTE

Study, year	Total number of patients	DOAC used	Number of patients treated with DOAC	LMWH used	Number of patients treated with LMWH	Primary and secondary outcomes
McBane et al., 2019[24]	287	Apixaban	145	Dalteparin	150	Major bleeding, VTE recurrence, composite of major plus clinically relevant non-major bleeding
Mokadem et al., 2020[25]	100	Apixaban	50	Enoxaparin	50	Fatal or major bleeding, recurrent DVT or VTE, non-fatal or minor bleeding, mortality related to massive PE
Planquette et al., 2021[26]	158	Rivaroxaban	74	Dalteparin	84	Recurrent VTE, major bleeding, clinically relevant bleeding, mortality
Raskob et al., 2018[27]	1046	Edoxaban	522	Dalteparin	524	Composite of recurrent VTE or major bleeding, clinically relevant non-major bleeding, mortality, event-free survival
Young, et al., 2018[28]	406	Rivaroxaban	203	Dalteparin	203	Major bleeding, VTE recurrence, composite of major and clinically relevant non-major bleeding

List of RCTs reviewed

Study	DOAC group		LMWH group	
	Number of patients treated	VTE recurrence	Number of patients treated	VTE recurrence
Agnelli et al.	576	32	579	46
Kim et al.	44	1	46	1
McBane et al.	145	1	142	9
Mokadem et al.	50	3	50	5
Planquette et al.	74	4	84	6
Raskob et al.	522	41	524	59
Young, et al.	203	8	203	18

Number of patients in DOAC and LMWH groups with VTE recurrence as outcome

Study	DOAC group		LMWH group	
	Number of patients treated	Major bleeding	Number of patients treated	Major bleeding
Agnelli et al.	576	22	579	23
Kim et al.	44	8	46	2
McBane et al.	145	0	142	2
Mokadem et al.	50	2	50	4
Planquette et al.	74	1	84	3
Raskob et al.	522	36	524	21
Young, et al.	203	11	203	6

Number of patients in DOAC and LMWH groups with major bleeding as outcome

Study	DOAC group		LMWH group	
	Number of patients treated	Clinically relevant non-major bleeding	Number of patients treated	Clinically relevant non-major bleeding
Agnelli et al.	576	52	579	35
Kim et al.	44	8	46	4
McBane et al.	145	9	142	7
Mokadem et al.	50	2	50	3
Planquette et al.	74	8	84	5
Raskob et al.	522	76	524	58
Young, et al.	203	25	203	7

Number of patients in DOAC and LMWH groups with clinically relevant non-major bleeding as outcome

Study	DOAC group		LMWH group	
	Number of patients treated	All-cause mortality	Number of patients treated	All-cause mortality
Agnelli et al.	576	135	579	153
Kim et al.	44	10	46	11
McBane et al.	145	23	142	15
Mokadem et al.	50	0	50	0
Planquette et al.	74	19	84	20
Raskob et al.	522	206	524	192
Young, et al.	203	48	203	56

Number of patients in DOAC and LMWH groups with all-cause mortality as outcome

A027

Venous Thromboembolism in a Woman with Diffuse Adenomyosis Presenting as Heavy Menstrual Bleeding: Case Report

Joseph Lawrence Ponciano[1], Dr. Andrea Francesca Santos[2]
[1]The Medical City Philippines, [2]ManilaMed - Medical Center Manila

BACKGROUND Pulmonary embolism with concomitant adenomyosis is uncommon. Few case reports have described the interesting combination of venous thromboembolism (VTE) and adenomyosis which poses a challenging management dilemma. Treatment of adenomyosis would aggravate thromboembolism and vice versa. Anticoagulation would predispose the patient to more bleeding, while hormonal or antifibrinolytic therapy for menorrhagia is contraindicated in active VTE.

METHODS This is a case of 41-year-old Filipina, nulligravid with no known comorbidities, admitted due to 1 month history of easy fatigability. Work up revealed acute pulmonary embolism with underlying Protein C deficiency and with concomitant diffuse adenomyosis presenting as abnormal uterine bleeding. The patient was treated with anticoagulation therapy for pulmonary embolism and with GnRH analog for adenomyosis. She was discharged stable and was advised close follow up for monitoring.

RESULTS Few case reports have described the interesting combination of adenomyosis and venous thromboembolism which poses a challenging management dilemma. In this patient with underlying protein C deficiency who presented with pulmonary embolism and deep vein thrombosis, the appropriate management is the use of anticoagulation. However, considering that the patient was also diagnosed of diffuse adenomyosis and concomitant abnormal uterine bleeding, anticoagulation may worsen the patient's bleeding and anemia. Treatment of adenomyosis using combined oral contraceptive pills would aggravate thromboembolism and vice versa. This patient was managed successfully using a multidisciplinary approach with anticoagulation and GnRH analog injection with no adverse event noted.

CONCLUSION In conclusion, occurrence of venous thromboembolism in patients with adenomyosis is uncommon and several treatment dilemmas may be encountered, however it can be managed successfully with careful multidisciplinary planning, timely intervention and meticulous monitoring. Efficient follow-up strategy after pulmonary embolism should be provided together with continuous gynecologic treatment and monitoring to prevent recurrence and adverse side effects of anticoagulation treatment.

PA-16

Reduced iodinated contrast volume and radiation dose in the new protocol for CT coronary angiography using dual-source imaging with low tube voltage compared with the conventional protocol

Nguyen Thi Hong Tuy[1]
[1]Tam Anh Hospital Ho Chi Minh City

BACKGROUND This study's objective was to assess the effectiveness and utility of a low-contrast-volume, coronary computed tomography angiography (CCTA) protocol that leverages a lower tube peak voltage (80 kVp) compared to the conventionally employed 120 kVp in patients referred for diagnostic CCTA.

METHODS120 patients (60M, 60F, ages between 23 to 86 years were randomly assigned to two groups of n=60 who were scanned with either the 80 kVp ("Group A") or the 120 kVp ("Group B") protocols using retrospective ECG gating. All patients had body mass index (BMI) under 25 kg/m2 and heart rates under 120 beats per minute. On a patient-by-patient and segment-by-segment basis, the signal-to-noise (S/N) and contrast-to-noise (C/N) ratios, effective radiation dose given in mSv, and diagnostic confidence (DC) were assessed for both groups by two independent readers with 8 and 7 years experience in CCTA.

RESULTS Patients in group A received a significantly reduced radiation dose of 2.57 mSv compared with 7.07 mSv in group B($p<0.001$). The total administered amount of Iodine per scan was also significantly lower in Group A (17.5g) than in Group B (24.5g). A significant reduction in image noise with higher S/N and C/N ratios in coronary vessels was seen in group B ($p<0.001$). S/N ratios in group A were 18.7, 18.6, 18.7 and 18.6 for left main, proximal left anterior descending, proximal left circumflex arteries, proximal right coronary, respectively, and 16.7, 17.4 and 18.3 for distal left anterior descending, distal left circumflex, distal right coronary arteries, respectively, in group A. Conversely, in group B the S/R values were 22.5, 22.0, 22.0, 21.4,19.0, 18.8 and 21.7 in group B patients. C/N ratios were 22.2, 22.1, 21.9, 22.1, 20.5, 21.0 and 21.9 in group A compared with group B patients, who had ratios of 26.6, 26.1, 25.9, 25.5, 23.2, 23.0 and 25.6 (in a vessel-by-vessel assessment, each vessel in group B had $P < 0.001$). Importantly, no significant difference in DC per patient was seen between the groups (ICC 1.0 for Group A and 0.9 for Group B).

CONCLUSION The retrospective ECG-gated low-kVp low-volume contrast CCTA protocol used in this study provides angiograms without penalty in diagnostic confidence in patients with BMI up to 25 kg/m2 and heart rates of less than 120 beats/min. The protocol also provided an average 2.75 times reduction in radiation dose and required an average 1.5 times less contrast volume. The reduced volume of contrast can be used to reduce the cost of contrast agent as well as the chance of contrast-induced nephropathy. With the ability to use a lower Iodine dilution ratio in the low kVp protocol, it is also possible to safely rescan patients who require a rescan right away due to poor image quality caused by, e.g., inadequate holding breath, arrythmia, or thoracic outlet syndrome. It is also good for patients who have to scan many parts of the body at the same time. It is obviously beneficial for patients whose kidney functions are not good and for those who increased risk for extravasations. Further, extravasation occurring with dynamic bolus CT may involve large volumes of contrast media.

A044

Ruptured pseudoaneurysm of the mitral-aortic intervalvular fibrosa as a sequelae of left ventricular outflow endocarditis mimicking an acute aortic root dissection in a 20 year old male with bicuspid aortic valve

Kevin T. Katada[1]
[1]Perpetual Succour Hospital

BACKGROUND Mitral-aortic intervalvular fibrosa (MAIF) is a fibrous region located between the anterior mitral leaflet and noncoronary cusp. Pseudoaneurysm of the mitral-aortic intervalvular fibrosa (P-MAIF) is a rare and potentially fatal entity usually associated with aortic or mitral valve surgery. However, P-MAIF as a subaortic complication of native aortic valve endocarditis can occur.

CASE SYNOPSIS A 20 year-old male with no apparent cardiovascular illness presents with fever, angina and orthopnea. Pertinent PE findings were pericardial friction rub, pulsus paradoxus and muffled heart sounds. On 2D-echocardiogram, a bicuspid aortic valve with mobile vegetation and massive pericardial effusion with tamponade physiology was noted. Emergent pericardiostomy and drainage was performed. Pericardial sample and blood cultures yielded a positive culture for methicillin-resistant coagulase-negative Staphylococcus

aureus. Initiation of a 6-week IE regimen of IV vancomycin was then initiated. Lysis of fever and remission of heart failure ensued 5 days post operatively.

On the third week of hospital admission, the patient had recurrence of angina with hypotension. Repeat 2D-echocardiogram depicted an aortic root dissection. Impression on CT aortogram was a short segment ascending aortic dissection; however, P-MAIF was also considered. Pericardiotomy and repair of a ruptured P-MAIF draining into the posterior transverse sinus was then performed via pericardial patching.

DISCUSSION AND SIGNIFICANCE Pseudoaneurysm of the mitral-aortic intervalvular fibrosa (P-MAIF) is a rare complication of infective endocarditis. Aortic valve infections may directly extend into the MAIF area. Because of the avascular nature of this intervalvular fibrosa, this region is more prone to injury and infectious insults. The proposed mechanism is through continuous impinging of an infected aortic regurgitant jet on this vulnerable region. Bicuspid aortopathy is also a predisposing factor for this sequelae because it causes an innate congenital weakness of the MAIF.

CONCLUSION Transthoracic echocardiography remains the first-line imaging modality for suspected periaortic abscess or other IE complications but only has 43% sensitivity. Transesophageal echocardiography has a higher sensitivity rate of 90%. A pulsatile echo-free sac that expands during systole and collapses on diastole is the typical echocardiographic finding. Multimodality imaging aided in the accurate interrogation of structures and arrival at this complex diagnosis.

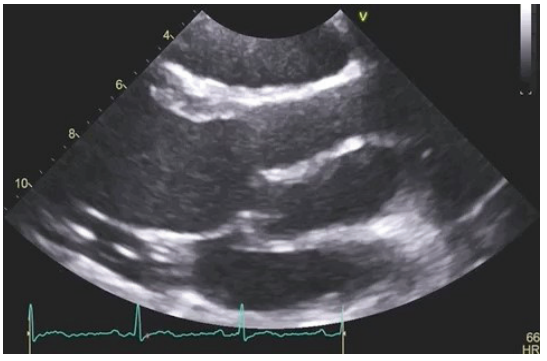


Figure I. An aortic root dissection was suspected on repeat 2-D echo scan, showing an intimal flap within a dilated aortic root measuring 4.0 cm in its widest diameter.

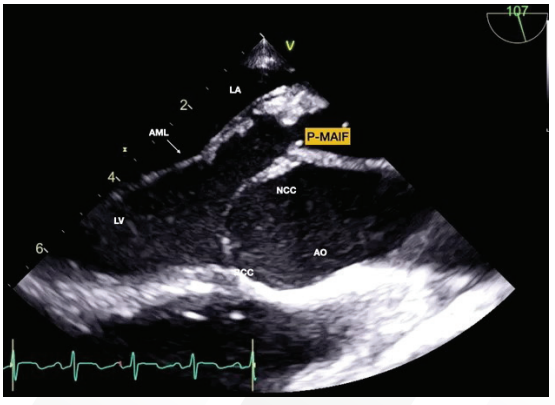


Figure II. Mid esophageal LAX view on TEE depicting a loss of normal continuity between the base of the anterior mitral leaflet & aortic noncoronary cusp at the level of the intervalvular fibrosa

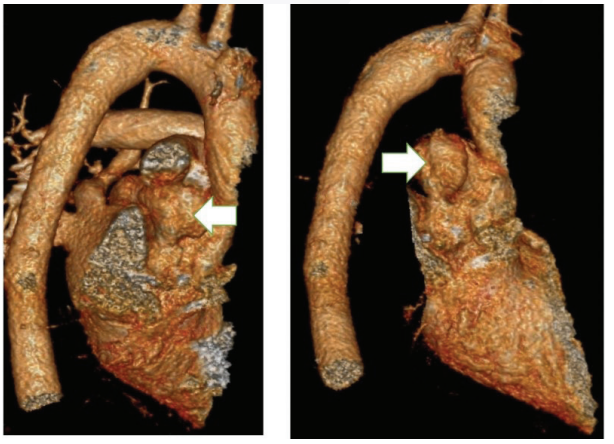


Figure III. CT aortogram, 3-D reconstruction depicting an outpouching behind the aortic root

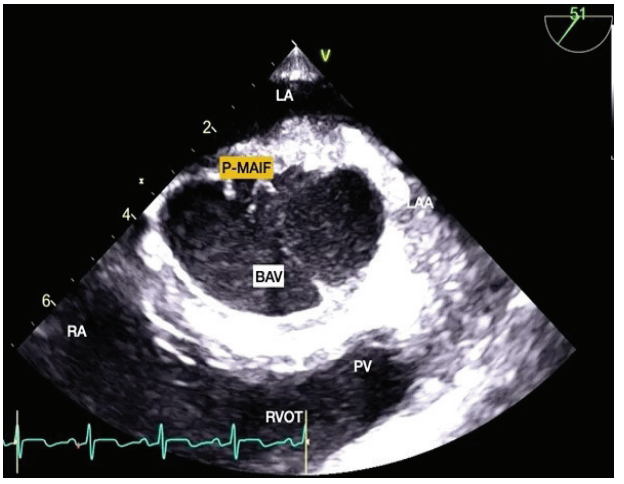


Figure IV. Mid esophageal short axis view on TEE showing a Seiver type 0 Bicuspid AV with an aneurysmal sac noted between the aorta and left atrium which expands during systole & collapses on diastole

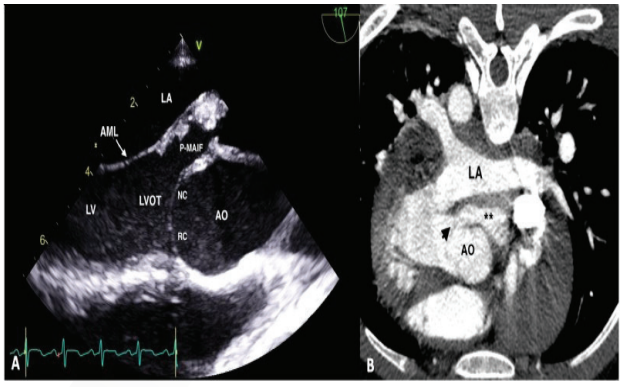


Figure V. A) LAX TEE view of the LVOT. Pseudoanerusym of the mitral-aortic intervalvular fibrosa (P-MAIF). B) Axial view of the CT aortogram T6-T7 level. An outpouching (**) which appears to be an aneurysmal sac point of rupture (arrow) located in between the LA and the proximal aorta

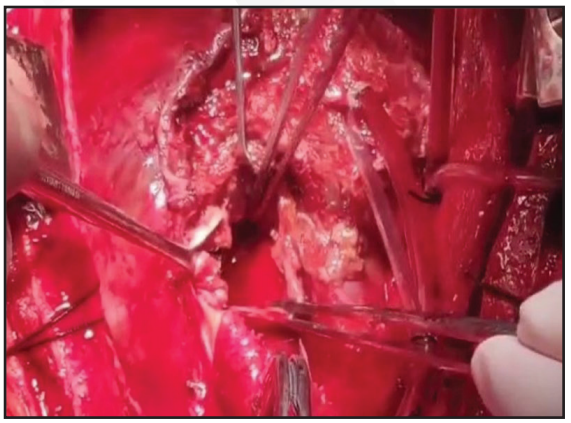


Figure VI. At the mitro-aortic junction was a site of rupture with pseudowall formation at the posterior surface. The site of rupture was closed using a pericardial patch

A096

Outcomes of COVID-19 patients on ECMO in intensive care unit: A case series

Nurulhuda Binti A Manap[1]
[1]Pantai Jerudong Specialist Center

BACKGROUND In the intensive care unit (ICU), patients with Coronavirus disease 2019(COVID-19) developed acute hypoxemic respiratory failure of varying severity and its incidence can be as high as 67%. According to the World Health Organization (WHO), one of the components of COVID-19 management is supportive care. Extracorporeal membrane oxygenation (ECMO) is part of the supportive care available in our healthcare setting.

METHODS This is a retrospective study that involved patients who had COVID-19 infection and were supported by ECMO, admitted to our National Isolation Center (NIC) ICU, Brunei Darussalam from August 2021 until January 2022 .

RESULTS Total of 12 patients, one of which had to be excluded in view of mortality within 24 hours of initiation of ECMO. Overall mortality was 82%. Mean age was 41.7 +/- 10.1 years old. There were two survivors who were tracheostomized and eventually decannulated. One patient was fully vaccinated. 45% of patients had hypertension, 54% of patients had diabetes Mellitus and 18% were morbidly obese. 10 patients had percentage more than 76% based on the Respiratory ECMO Survival Prediction (RESP) score but only survived. High-resolution computerized tomography (HRCT) scanning was only performed on two patients to assess the extension of lung damage.

CONCLUSION Based on the cases reviewed, we concluded that using scoring system like RESP score will not be accurate in predicting survival in COVID-19 patients. We also concluded the importance of HRCT scanning of the lungs to assess the extension of lung damage before the initiation of ECMO and its potential value in the prognostication following ECMO initiation.

A057

Long term outcomes of minimally invasive versus conventional sternotomy for mitral valve surgery

Ben Elias Indja[1], Jaewon Chang[2], Campbell Flynn[3]
[1]St George Hospital, [2]St George Hospital, [3]St George Hospital

BACKGROUND Minimally invasive mitral valve surgery (MI) is a well-established technique with the goal of avoiding a sternotomy and its associated complications and reducing patient recovery time. Multiple studies have demonstrated similar early outcomes and safety of MI as compared to the median sternotomy (MS) however to date, long term outcomes have been less clearly established. To our knowledge this is the first meta-analysis looking at long-term outcomes of MI versus MS for mitral valve surgery

METHODS A search of three online medical databases was performed capturing studies from inception to June 2023. All studies reporting on long term outcomes of patients undergoing mitral valve surgery via a MI versus a MS approach were included. Reconstructed individual patient data was utilised to perform an enhanced secondary survival analysis.

RESULTS 14 studies were included with a total of 10,382 patients. Mitral valve repair was performed in 86% and 78% of the MI and MS groups respectively. Survival at two, four, six and eight years was 95.8%, 93.3%, 89.7% and 86.9% for the MI group and 94%, 90.8%, 85.7% and 78.8% for the MS group. A significant difference in survival favouring MI group was evident by four years ($p<0.001$). Freedom from reintervention at two, four, six and eight years for the MI group was 96.9%, 96.1%, 95% and 93.3% and for the MS group 98.3%, 97.2%, 96.9% and 96.9%.

CONCLUSION With appropriate patient selection and surgeon experience minimally invasive approaches to mitral valve repair provides excellent long-term survival and freedom from reintervention.

PA-23

Candida parapsilosis infective endocarditis in an immunocompromised host: a case report

Erwin D. Dizon[1], Vivian D. Choa[2], Maria Kristina C. Manalili[3], Arlene Melissa Dychiching[4]
[1]Cardinal Santos Medical Center, [2]Cardinal Santos Medical Center, [3]Cardinal Santos Medical Center, [4]Cardinal Santos Medical Center

BACKGROUND Fungal endocarditis (FE) is a relatively uncommon form of endocarditis, accounting for only 2% to 4% of all cases of infectious endocarditis and is most commonly observed in individuals with prosthetic valves.1,6 Candida endocarditis is an extremely rare in patients with normal native cardiac valves.1,6

METHODS A 79 year old female presented with fever. She had history of recurrent hospitalization due to bullous erythema multiforme, candida with streptococcal intertrigo, immune-mediated pancytopenia, and was treated with steroids, several antibacterial and antifungal medications. Peripherally inserted central catheter line (PICC) was also inserted for rituximab infusion. She was initially admitted for complicated urinary tract infection and multiple skin infections however on the 31st hospital day, patient had recurrence of fever associated with decreased sensorium and oliguria. Femoral catheter was eventually inserted for hemodialysis initiation. PICC line was removed and was sent for culture which revealed Candida parapsilosis. Candida parapsilosis was

also detected in blood cultures taken from peripheral and femoral line. The patient was given intravenous amphotericin B and was referred to the Cardiology service for infective endocarditis work-up.

RESULTS At the time of the referral, patient was seen awake and alert with no signs of cardiorespiratory distress. Patient was febrile with a temperature of 37.8°C. Blood pressure, heart rate and respiratory rate were 140/80, 75 beats per minute and 22 breaths per minute respectively. Other clinical findings upon referral included oral thrush, erythematous bullae on both upper extremities, Janeway lesions on the palm and splinter hemorrhages (Figure 1). Other systems were unremarkable, including normal heart sounds. However, transesophageal echocardiography revealed vegetations involving the mitral, aortic and tricuspid valves (Figures 2-5) with moderate mitral and tricuspid regurgitations and mild aortic regurgitation. The walls of the left atrium showed inhomogeneous echodensity suggestive of biofilm covering some parts of the left atrium (Figure 5). Amphotericin B IV was continued, and a family meeting was arranged to discuss surgical options. However, due to age and multiple comorbidities of the patient, and an AEPEI score for 4.7, indicating a high post-procedural mortality rate of 38.2-45.1%, relatives chose to forego surgery and continue with medical management. The patient eventually died due to overwhelming sepsis.

CONCLUSION Despite advances in diagnostic tools and antifungal therapy, FE continues to be associated with significantly high mortality rate. Cases will continue to rise due to an aging population, an increase in immunocompromised patients, and an increase in the frequency of intravascular device implantation. A high index of suspicion needs to be exercised in these high risk patients when presenting with prolonged fever. Early diagnosis and a prompt surgical intervention coupled with optimal antifungal therapy remains the primary therapy of choice to reduce the extremely high mortality and morbidity associated with FE.

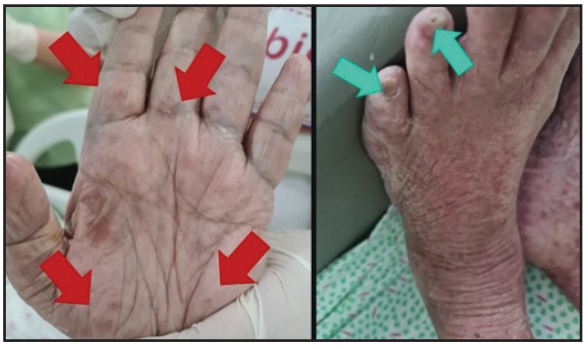


Figure 1. Non tender Erythematous lesions (Janeway lesions) on the palms as pointed by the red arrows, and splinter hemorrhages on the nail beds as pointed by the green arrows

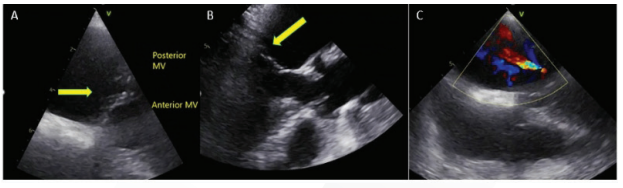


Figure 2. Transesophageal echocardiogram A. Mid esophageal 4-Chamber view showed 3.32mm vegetation on the posterior mitral valve leaflet B. Long axis view showed 4.02mm vegetation on the posterior mitral valve leaflet 4.02mm. C. Color flow Doppler showed moderate mitral regurgitation

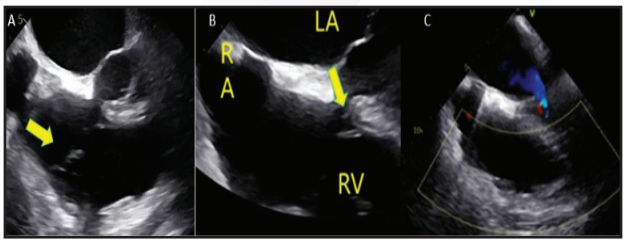


Figure 3. Transesophageal echocardiogram – Mid esophageal 4-Chamber view showed A. 2.36 mm vegetation on the anterior tricuspid valve leaflet B. and on the septal tricuspid valve leaflet. C. Color flow Doppler showed moderate tricuspid regurgitation

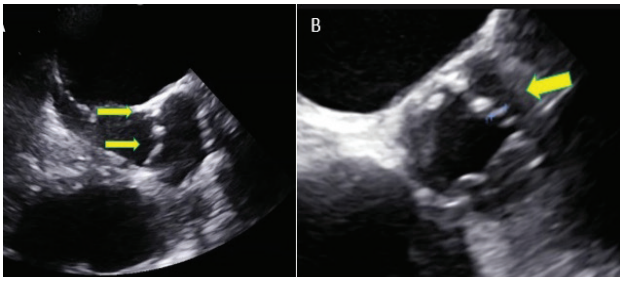


Figure 4. Transesophageal echocardiogram A. Long axis view showed vegetations on the non coronary cusp (3.42mm) and right coronary cusp (2.40mm). B. Short axis view showed vegetation on the left coronary cusp

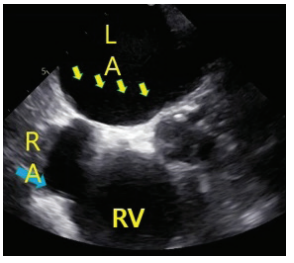


Figure 5. Transesophageal Echocardiogram – mid esophageal view showed inhomogenous echodensity (yellow arrows) enveloping left atrial wall suggestive of biofilm. Prominent eustachian valve (blue arrow)

Variable	Points
BMI >27 kg/m^2	1
eGFR <50mL/min	2.2
NYHA class IV	1.3
sPAP > 55 mmHg	1
Critical state	1.5

Score, 0 to 1 point: expected mortality, 4.5% to 7.7%; Score, 1.3 to 2 points: expected mortality, 9% to 12.9%; Score, 2.2 to 2.8 points: expected mortality, 14.1% to 18.9%; Score, 3.2 to 3.8 points: expected mortality, 22.6% to 29.4%; Score, 4.5 to 5 points: expected mortality, 38.2% to 45.1%; Score, 5.5 to 6 points: expected mortality, 52.5% to 59.4%; Score, 7 points: expected mortality, 72.4%

Table 1. The AEPEI score: the risk factors for In-hospital death (by Backward Multivariable Logistic Regression) 4

PA-21

Primary mediastinal large cell neuroendocrine carcinoma presenting with superior vena cava syndrome treated with endovascular stenting: A case report

Arlene Melissa T. Dychiching[1], Regidor R. Encabo[2], Michael Anthony A. Dela Cruz[3]
[1]Cardinal Santos Medical Center, [2]Cardinal Santos Medical Center, [3]Cardinal Santos Medical Center

BACKGROUND Superior vena cava syndrome (SVCS) is a potential fatal oncologic emergency that requires immediate intervention.

METHODS A 65-year-old male patient presented with recurrent syncopal attacks, difficulty of breathing, facial plethora, right upper extremity edema, and venous collaterals. When instructed to raise both arms, facial congestion and cyanosis (Pemberton's sign) were observed. Subsequent work-up revealed an anterior mediastinal tumor compressing the superior vena cava (SVC), causing SVCS.

RESULTS A venogram was immediately performed (Figure 2) which revealed a 70% concentric narrowing at the proximal SVC, with the narrowest diameter being 3.2 mm, a distal SVC diameter of 11.17 mm, and a lesion length of 22.4 mm (Figure 2A). The distal subclavian vein was completely occluded following contrast injection, with contrast stasis along the right upper extremity venous system. A Boston Scientific Over-The-Wire Mustang (0.035") 7.0 mm x 40 mm balloon inflated to 9 atm was employed to pre-dilate the stenosed portion. Following adequate pre-dilation, a Boston Scientific Express LD Vascular 9 mm x 25 mm balloon-expandable stent was placed at the SVC and was inflated at 12 atm for 5 seconds. The final venogram demonstrated a new diameter of 9.7mm with residual stenosis of 10% (Figure 2B). The procedure was well tolerated by the patient with no complications. The patient reported immediate resolution of symptoms post procedure. The rest of the hospital stay was unremarkable. The official biopsy confirmed large cell neuroendocrine tumor. The patient was sent home with dabigatran & clopidogrel. Patient underwent 30 cycles of radiotherapy and 4 cycles of carboplatin-paclitaxel-durvalumab chemotherapy as outpatient. A repeat PET-Scan revealed a decreased in FDG-uptake associated with fibrosis of mediastinal mass. The patient has been declared on clinical remission.

CONCLUSION Superior vena cava syndrome is a potentially fatal oncologic emergency that requires prompt diagnosis and treatment to alleviate symptoms of obstruction and avert life-threatening complications. In the era of rapid technological advancement, endovascular stenting has emerged as the first-line treatment of SVC syndrome for both malignant and benign etiologies. This paper aims to update the physicians and cardiologists with the contemporary and evolving therapeutic approach to SVC syndrome.

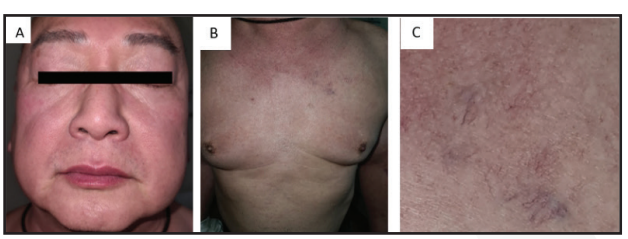


Figure 1. A. Facial plethora. B and C. Collateral venous circulation causing distension of the superficial veins across the chest wall of the patient.

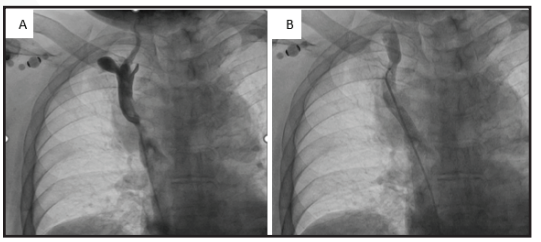


Figure 2. Angiography shows SVC compression on admission. A: Pre-stent ion venogram showed 70% concentric narrowing at the proximal SVC. The distal subclavian vein is totally occluded with contrast stasis along the right upper extremity venous system. B. Post-stent ion venogram showed 1

F043

Efficacy of Tolvaptan in Acute Decompensated Heart Failure (ADHF) : A single centre experience

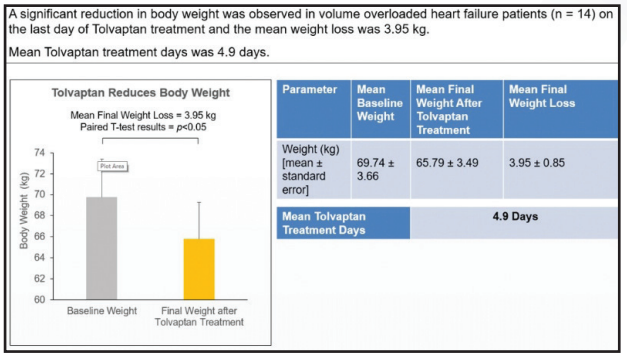
Swee En Goay[1], Gin Peng Chan[2], Chee Kiang Teoh[3], Azmee Mohd Ghazi[4]
[1]National Heart Institute, Malaysia, [2]Ministry of Health, [3]National Heart Institute, Malaysia, [4]National Heart Institute, Malaysia

BACKGROUND Heart Failure (HF) remains an important cause of hospitalisation accounting for 6%-10% of all acute medical admissions in Malaysia. Traditionally used loop diuretics for volume decongestion often leads to electrolyte imbalance. Tolvaptan an orally active vasopressin V2- receptor antagonist that promotes aquaresis might be of benefit in achieving early euvolemia without electrolyte imbalance. This study is to determine the efficacy of Tolvaptan in volume decongestion in hospitalised HF and its effect on the electrolytes and renal profile (RP).

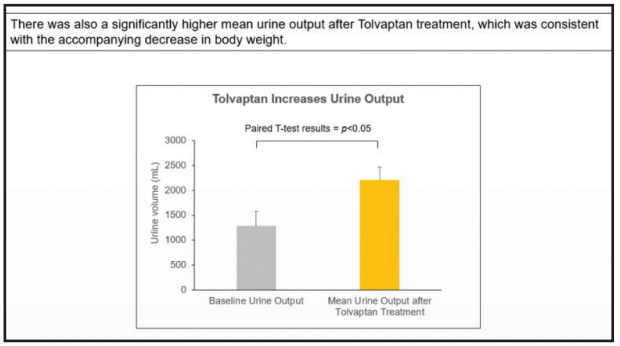
METHODS This is a retrospective cohort study of all hospitalized heart failure patients prescribed with Tolvaptan in the National Heart Institute, a tertiary heart centre in Malaysia between 1st February 2023 till 31st July 2023. Patients were randomly selected and started on tolvaptan. The demographic characteristics, mean change in urine output, body weight and RP were recorded and further analysed.

RESULTS There was a total of 589 admissions for acute decompensated heart failure (ADHF) between the study period in which 14 patients (50% Malay, 36 % Chinese, 7% Indian, 7% others) were randomly selected and started on tolvaptan, where all of them were given loop diuretics frusemide concomitantly. They were of mean age of 62.5 ± 7.6 years, predominantly male (6:1) with mean a left ventricular ejection fraction (LVEF) of 30.2 ± 14.5%. Mean treatment duration was 4.9 ± 2.6 days. Patients started on tolvaptan had a mean weight reduction of 3.95 ± 0.9 kg. Tolvaptan treatment also increases urine output by 72.6% with a mean urine output of 2.2 ± 1.0L per day. Up to 78.6% have their sodium and 85.7% have their potassium within normal laboratory range throughout treatment period ($p<0.05$), and 71.4% patients' RP maintains normal after started on treatment, while only 21.4% had their creatinine worsened by 14.4-39.3% (p=0-89). One patient (7%) had his creatinine improved by 49.7%.

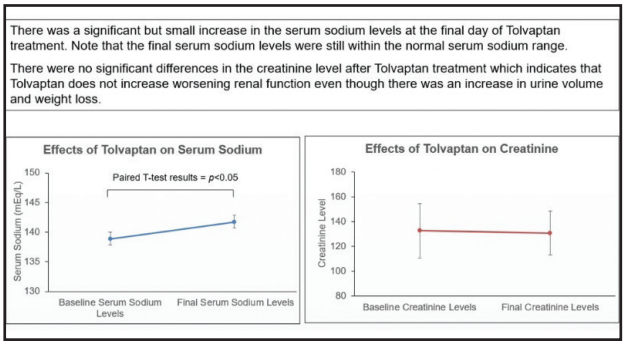
CONCLUSION Tolvaptan has showed a favourable result in effective volume decongestion in acute setting safely without causing electrolyte derangement or compromising renal function in this study



Mean Weight Loss



Mean Urine Output

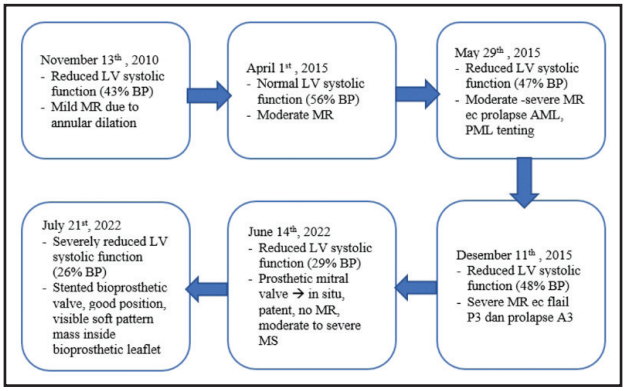


Effect on Serum Sodium and Creatinine

METHODS A 51 years old man was referred to our clinic for diagnostic confirmation. He had been diagnosed with multivessel CAD and underwent CABG concomitant with MVR 7 years prior to presentation, with bioprosthetic valve due to severe mitral regurgitation from MVP. Patient was lost-to-follow-up following surgery and did not consume any medication. Two months prior to presentation, he complained shortness of breath and leg edema. TTE study in our echo lab showed significant obstruction related to leaflet immobility suggesting valve thrombosis (MVA VTI 0.6 cm2, DVI 3.94), large thrombus at LA roof with severely reduced LV systolic function.

RESULTS The most likely diagnosis was bioprosthetic valve thrombosis with significant obstruction due to inadequate anticoagulation therapy. Recommendation is needed for the best treatment to manage patient with bioprosthetic valve thrombosis with large LA thrombus and severely reduced EF without acute condition. The decision was made together with Heart Failure Division to monitor his symptoms, regular echocardiography evaluation, optimize anticoagulation and heart failure therapy, higher INR target (3.0-4.0), and consider MVR if his symptoms worsened. His 3-months follow-up revealed no worsening symptoms and echocardiography study showed significant reduction of LA thrombus with persistent immobilization of two bioprosthetic leaflet, suggesting pannus might also have role in valve obstruction, and non-significant improvement of LV systolic function.

CONCLUSION Guideline recommendations and expert opinion can be used as guidance for patients with bioprosthetic valve thrombosis, but an individualized approach is needed to determine the best treatment for our patient.



Echocardiography Follow Up (2010-2022)

A043

Bioprosthetic Valve Thrombosis: A Challenging Case

Dita Maulida Anggraini[1], Melawati Hasan[2], Hawani Sasmaya Prameswari[3], Muhammad Rizki Akbar[4]
[1]Faculty of Medicine, Universitas Padjadjaran, Bandung, Indonesia, [2]Hasan Sadikin General Hospital Bandung, [3]Hasan Sadikin General Hospital Bandung, [4]Hasan Sadikin General Hospital Bandung

BACKGROUND Bioprosthetic valve thrombosis (BPVT) is a rare yet important complication of prosthetic valve replacements and may significantly contribute to valve dysfunction and patient's clinical deterioration. Despite its increase in prevalence, BPVT still presents a challenge in diagnosis and management.

A029

Syncopal episodes unveiling biventricular arrhythmogenic cardiomyopathy: A case report in a Filipino patient

Angela S. Apostol-alday, Md[1], Dyanna Bersamira, Md[2]
[1]Section of Cardiology, Department of Internal Medicine- Central Luzon Doctors Hospital, [2]Department of Internal Medicine- Central Luzon Doctors Hospital

BACKGROUND Inherited cardiac disorders are important causes of arrhythmias, congenital heart diseases, hypertension and cadiomyopathies; however this is underreported and underrecognized in many regions in Asia. We report a case of a young female diagnosed

with a rare form of cardiomyopathy after presenting with recurrent syncopal attacks

CASE The patient is a 31 year old, Filipino female, a chronic smoker and has no recorded co-morbid illnesses. She presented to the emergency department due to second episode of syncopal attack within 2 months, followed by brief episodes of seizure preceded by premonitory symptom of palpitation. ECG showed T wave inversions on precordial leads and right axis deviation with negative troponin I and 24 hour Holter. Echocardiogram, showed RA and RV dilatation with signs of high probability of pulmonary hypertension. CT pulmonary angiogram was negative for pulmonary thromboembolism or interstitial lung disease . Cardiac MRI was done with noted RV dilatation with microaneurysms, dyskinesia and signs of pressure overload. There was late gadolinium enhancement not attributable to ischemic mediated injury on post intravenous gadolinium contrast, indicative of fibrofatty replacement. The same late gadolinium enhancement was seen in the left ventricle. Hence patient fulfilled the Padua criteria and diagnosis of biventricular arrythmogenic cardiomyopathy was made.

CONCLUSION Arrhythmogenic cardiomyopathy is an inherited cardiac muscle disease that poses risk for fatal arrhythmia and sudden cardiac death. There are very few available reported cases of ACM among Asians decent, this maybe attributed to underdiagnosis or misdiagnosis of common clinical manifestations, or unavailability of conventional cardiac diagnostics especially in rural areas of low income Asian countries. A high index of suspicion should raise the possibility of heritable diseases in young patients.

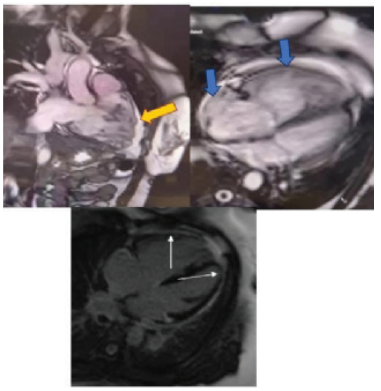


Figure 1. Cardiac MRI images of the patient showing focal, dyskinetic bulge, indicative of microaneurysm (yellow arrow); dilated RA and RV (blue arrows) and late gadolinium enhancement in the RV and L

A032

Case report: Unmasking a myocardial infarction mimicker: A case report of Takotsubo cardiomyopathy in a patient with intestinal obstruction

Angela S. Apostol-alday, Md[1], Alvin De Aquino, Md[2], Jeremiah Mangahas, Md[3], Elaine Abenoja,md[4]

[1]Department of Internal Medicine- Tarlac Medical Center, [2]Department of Internal Medicine- Tarlac Medical Center, [3]Department of Surgery- Tarlac Medical Center, [4]Department of Internal Medicine- Tarlac Medical Center

BACKGROUND The association of ischemic changes on ECG and troponin elevation with angina or anginal equivalent is frequently diagnosed as acute coronary syndrome (ACS). However, it is important to consider conditions other than ACS that may present similar features as the difference in the treatment is substantial. We report a case of an elderly female who presented with an ACS mimicker in the setting of an intestinal obstruction.

RESULTS A previously well 64-year old female presented to the emergency department due to 2-day history of epigastric discomfort associated with ischemic changes on ECG and cardiac troponin elevation. She was diagnosed with acute coronary syndrome and was managed with dual antiplatelets and anticoagulant. However, upon re-assessment, her signs and symptoms were more compatible with intestinal obstruction and the 2dechocardiogram showed wall motion abnormalities consistent with apical ballooning. Computed tomography scan of the abdomen showed dilated bowel loops due to volvulus in the jejunum and inflammation of the appendix with surrounding periappendiceal abscess. Multidisciplinary discussion with a gastroenterologist and colorectal surgeon was made due to need for surgical intervention in the setting of a high risk for perioperative cardiac events. Emergency exploratory laparotomy was done under intraoperative cardiac monitoring. After a moderately stormy immediate post-operative course, patient was extubated on the 2nd post-operative day and started on oral beta-blockers and angiotensin-receptor blocker. There were no remaining complications during the rest of the hospital stay. A CT coronary angiogram done after discharge showed patent coronary arteries with a total calcium score of 0.

CONCLUSION Takostubo syndrome can highly mimic an ACS, hence It is essential that a thorough and carefully organized patient history is obtained to avoid delays in the management of the underlying illness that triggered TS, particularly when the definitive therapy is surgical in nature.

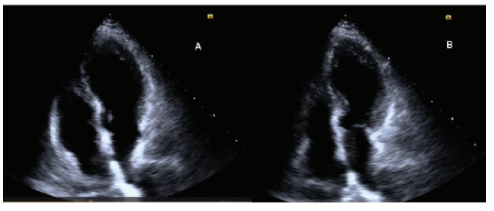


Fig 1. Four-chamber echocardiogram views of the patient in diastole (A) and systole (B).

PA-10

Deriving machine learning and visualization frameworks for decoding inter-related factors in preventing cardiac ageing

Vincent Wei Jun Sim[1], Eric Wei Peng Sim[2], Si Yong Yeo[3], Fei Gao[4], Louis Ly Teo[5], Ru-san Tan[6], Angela S. Koh[7]

[1]National Heart Centre Singapore, [2]School of Computing, National University of Singapore, Singapore, [3]Nanyang Technological University, [4]National Heart Centre Singapore, [5]National Heart Centre Singapore, [6]National Heart Centre Singapore, [7]National Heart Centre Singapore

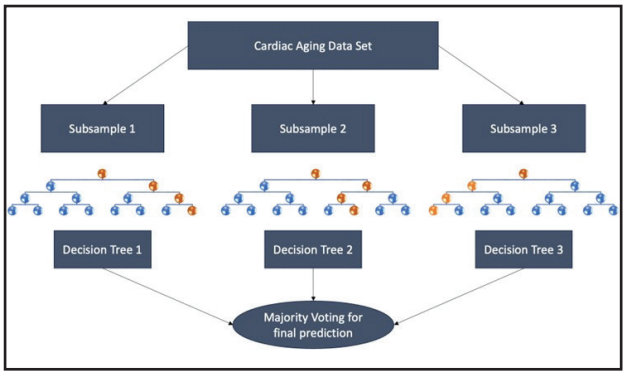
BACKGROUND Ageing produces changes in cardiac function that increases risks of cardiovascular disease (CVD). However, age-related changes in body composition such as visceral adiposity or sarcopenia are rarely studied in association with physical activity (PA) factors in older adults. Given that PA is widely advocated as a preventive strategy against CVD, we explored methods in machine learning particularly with visualization techniques to delineate these factors separately.

METHODS Participants without cardiovascular disease (CVD) from a community-based cohort had their PA factors collected

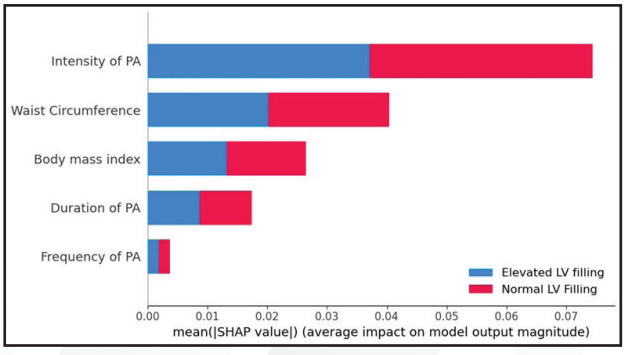
prospectively. Doppler and tissue Doppler echo-derived mitral E and e' ratio (a marker of left ventricular filling pressure) (E/E1), and anthropometric measurements were obtained simultaneously. Using the random forest model, multiple decision trees were created. Each tree represents a set of clinical parameters, such as the PA factors, the adiposity parameters, and clinical parameters (age, gender, blood pressure). Each tree was studied individually to provide a prediction, then merged together, to produce a majority prediction. (Figure 1). The magnitude of impact of each parameter on individual left ventricular filling pressure is depicted by intelligible visualization using SHapley Additive exPlanations (SHAP).

RESULTS Using repeated K-cross-validation on the train set (n = 473), we found the Random Forest Regressor with the most optimal hyperparameters, which achieved the lowest mean squared error. With the trained model, we evaluated its performance by reporting its mean absolute error and plotting the correlation on the test set (n = 119). Based on Figure 2, the intensity of PA is the most important feature in determining LV filling due to its greatest average impact on the model output as indicated by the mean absolute SHAP values. Figure 3 describes the relationship between the features and their global impact based on the computed SHAP values for each instance. Increased intensity, duration and frequency of exercise contributes to a lower prediction of elevated left ventricular filling pressure whereas high BMI and waist circumference contributes to increased prediction of elevated left ventricular filling pressure.

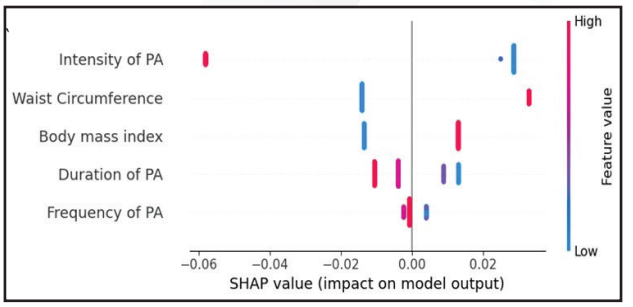
CONCLUSION Use of machine learning techniques with intelligible visualization is a promising method for discovering, targeting, monitoring, and reporting the outcomes of preventive strategies, physical activity or otherwise, for optimizing the cardiovascular health of older adults.



Random Forest Model



The important of each feature on prediction of left ventricular filling pressure.



SHAP value of each feature on predicting elevated left ventricular filling pressure.

A098

Correlation between heart rate and oxygen saturation with mean pulmonary arterial pressure in acyanotic congenital heart diseases

Shindu Phalguna[1], Kino[2], Didik Hariyanto[3], Mefri Yanni[4], Gesza Utama[5], Merlin Sari[6]

[1]Resident Cardiology and Vascular MDjamil Hospital, Andalas University, [2]Staff Cardiology and Vascular MDjamil Hospital, Andalas University, [3]Staff Cardiology and Vascular MDjamil Hospital, Andalas University, [4]Staff Cardiology and Vascular MDjamil Hospital, Andalas University, [5]Resident Cardiology and Vascular MDjamil Hospital, Andalas University, [6]Resident Cardiology and Vascular MDjamil Hospital, Andalas University

BACKGROUND Pulmonary Hypertension (PH) was defined by elevated pulmonary arterial pressure (PAP) and increased pulmonary vascular resistance, often resulting in right heart failure and untimely mortality. The predictive significance of heart rate (HR) and peripheral oxygen saturation in precapillary pulmonary hypertension caused by acyanotic congenital heart disease (CHD) remained still not extensively researched. The aim of this study was to evaluate correlation between heart rate and peripheral oxygen saturation with mean pulmonary arterial pressure patient in acyanotic congenital heart disease.

METHODS 114 patients were diagnosed with asyanotic CHD. We calculated the patients' HR based on their age and categorized patients into those with increased and unchanged HR. We conducted right heart catheterization (RHC) on the samples and calculated the mean pulmonary arterial pressure (mPAP) and peripheral oxygen saturation. The data on mPAP was then correlated with the heart rate based on the patients' age and peripheral oxygen saturation, then we analysed statistically.

RESULTS Out of 114 patients with asyanotic CHD, 35.1% were male, and 64.9% were female. All patients had acyanotic CHD with left-to-right shunt, and none exhibited symptoms or signs of Eisenmenger syndrome. Among them, 36% were diagnosed with atrial septal defects, 40.3% with ventricular septal defects, and 23.7% with patent ductus arteriosus. The patients ranged in age from 3 to 50 years, with an average age of 15 (3-50) years, an average weight of 35,5 (10-90) kilogram, and an average oxygen saturation of 98,54 ±0,8%. HR was categorized into two groups based on patient age when RHC was performed, with the HR increase group having a mean heart rate of 109 (101-131) beats/minutes and the non-increase HR group having 89 (60-115) beats/minutes (p = <0,001). Patients underwent RHC

and were grouped into those with an increased mPAP with a mean of mPAP was 45 (20-93) mmHg and those with unchanged mPAP with a mean of mPAP was 18 (10-19). The data were transformed into nominal form, normality tests were conducted, and bivariate analysis was performed. The correlation between HR and mPAP showed a significant relationship (p = 0.001), indicating an association between increased heart rate and elevated mPAP in patients with acyanotic CHD. The weak correlation was demonstrated by the relationship between peripheral oxygen saturation and mPAP (p<0,001).

CONCLUSION In patients with acyanotic CHD, a significant relationship was found between HR (heart rate) and peripheral oxygen saturation with mPAP, where an increase in mPAP could lead to an elevation in HR and conversely decrease in peripheral oxygen saturation. This assisted in predicting mPAP and guiding the management of pulmonary hypertension treatment when patients were in a peripheral hospital without access to invasive or non-invasive modalities of examination.

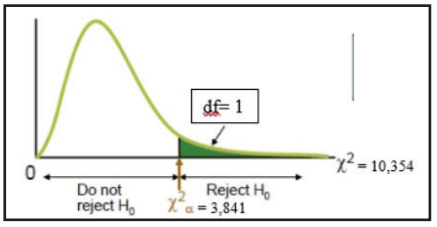


Figure 1.1 Graphic correlation between HR and mPAP. An increase in HR was associated with an increase in mPAP, consistent with our hypothesis

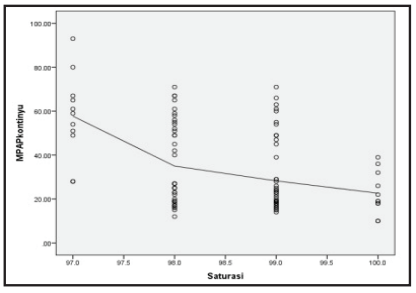
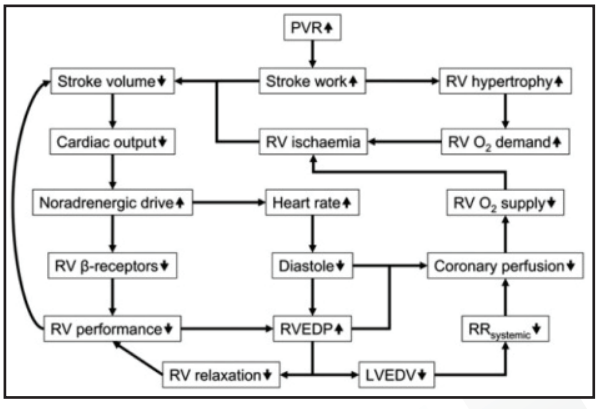


Figure 1.2 Graphic correlation between peripheral oxygen saturation and mPAP. Implies a weak inverse relationship between saturation and mPAP. Higher mPAP was associated with lower peripheral oxygen s



The changes that occur during increased hemodynamics, as explained by Ivo et al.,10 involve an elevation in Pulmonary Vascular Resistance (PVR) leading to a decrease in stroke volume (SV) and cardiac

Characteristics	Increase HR Group	Normal HR Group	p- value
Age, years	16 (3-42)	14 (3-50)	0,554 [a]
Body Weight, kg	38,5 (10-60)	35 (11-90)	0,797 [a]
Sex criteria, n (%)			0,521[b]
Male	8 (20)	32 (80)	
Female	16 (21,6)	58 (78,4)	
Type of CHD			0,778 [c]
ASD	9 (22,0)	32 (78,0)	
VSD	8 (17,4)	38 (82,6)	
PDA	7 (25,9)	20 (74,1)	
HR, beats/ minute	109 (101-131)	89 (60-115)	<0,001[a]
Saturation, %	98,38 (0,875)	98,58 (0,77)	0,556[d]

Table 1. Baseline Characteristics a. Mann-Whitney test, b. Chi-square test, c. One-Way Anova test, d. T-test Baseline characteristics CHD=congenital heart disease ASD=Artrial Septal Defect VSD= Ventricular Septal Defect PDA=Patent Ductus Arteriosus

Variable	χ^2	df	p-value
HR and mPAP	10,354	1	0,001[a]

Table 2. Bivariate test a. Chi-Square test HR=heart rate mPAP=mean pulmonary arterial pressure

Variable		mPAP
Saturation	correlation coefficient	- 0,376
	p-value	<0,001a

Table 3. Correlation between Saturation and mPAP a. Correlation-Spearman test mPAP=mean pulmonary arterial pressure

A035

Catheter-Directed Thrombolysis with Ulnaris Access in Acute Upper Limb Ischemia: A Rare Approach

Dita Maulida Anggraini[1], Achmad Hafiedz Azis Kartamihardja[2]
[1]Hasan Sadikin General Hospital Bandung, [2]Hasan Sadikin General Hospital Bandung

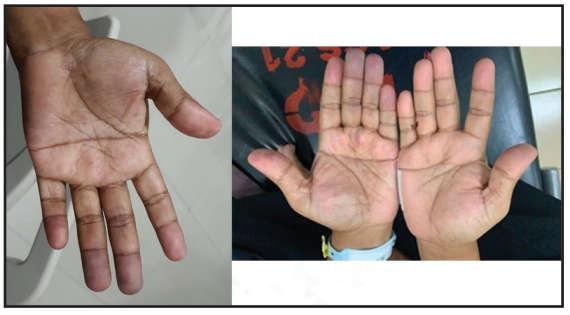
BACKGROUND Acute upper limb ischemia is less common than lower limb ischemia and catheter-directed thrombolysis (CDT) is one of treatment option with safer outcome. Different kind of approach has been established for CDT, with ulnaris access as an uncommon one. In this case, we present a patient with upper limb ischemia who had successful catheter-directed thrombolysis with uncommon ulnaris approach with an excellent outcome.

METHODS A 45-years-old male patient came to the Emergency Care Unit of Hasan Sadikin General Hospital with continuous pain and numbness in the two fingers of the left hand for the past three days, accompanied with bluish discoloration and coldness on those fingers. He had history of hypertension and diabetes mellitus since 2014 with controlled treatment. On physical examination revealed normal pulsation of distal radialis and ulnaris artery, with diminished

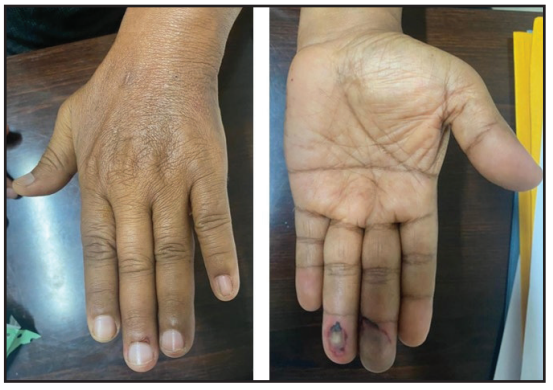
pulse oximetry result on digiti III and IV manus sinistra. Doppler examination showed monophasic flow at digitalis artery III-IV manus sinistra, with normal multiphasic flow on right hand.

RESULTS The patient was diagnosed with acute upper limb ischemia and planned for heparinization while preparing for catheter-directed thrombolysis with ulnaris approach. Follow-up on the next day post-thrombolysis, the bluish fingers of left hand were recovered and the patient had no complaints of pain. No complications were found after procedure. The final left-hand angiogram showed improvement of digitalis artery blood flow. The patient was discharged in a few days following procedure.

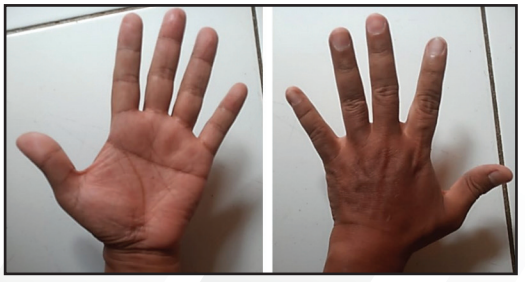
CONCLUSION Catheter-directed thrombolysis with ulnaris approach is a feasible treatment option for the patient with acute upper limb ischemia. It is technically simple and safe with less bleeding risk complication. Further research is recommended to compare the risk and benefit of ulnaris approach with femoral and/or brachial approach in catheter-directed thrombolysis for acute upper limb ischemia.



Bluish 3rd and 4th fingers of the left hand suggesting acute upper limb ischemia



Follow-up 7 days after discharge showed improvement of bluish fingers of the left hand



Follow-up 6 months after discharged showed recovery of ischemic fingers of the left hand

A024

Ultrasound diagnostics of abernathy malformation in adult patients with idiopathic pulmonary hypertension

Kushnir Vera[1]

[1]Federal State Budgetary Institution NATIONAL MEDICAL RESEARCH CENTRE OF CARDIOLOGY NAMED AFTER ACADEMICIAN E. I. CHAZOV. of the Ministry of Health of the Russian Federation

BACKGROUND Abernethy malformation is a congenital defect of the portal system, in which visceral venous blood, bypassing the liver, enters the large circulation through abnormal extrahepatic portosystemic shunts. The Abernethy malformation is anatomically classified as type I, characterized by the absence of a portal vein and two variants of congenital portocaval shunts:Ia - splenic vein and superior mesenteric vein are drained separately into the inferior vena cava and Ib-drained by a common trunk. Type II is defined as congenital portocaval shunts "side to side" with the preserved trunk of the portal vein.The available thematic publications are mainly presented by clinical observations of congenital portocaval shunts in children.The rare occurrence of the defect, the absence of a concensus in the name and evaluation of anatomical variants of congenital portocaval shunts, the possibility of an asymptomatic course is caused by the complexity of diagnosis and the uncertainty of the management tactics of such patients.The authors of all publications of congenital port-caval shunts are recognized as the cause of severe systemic diseases, the mechanisms and real frequency of which remain unknown.It has been established that congenital portocaval shunts can be associated with the development of pulmonary arterial hypertension.Modern clinical classification of pulmonary arterial hypertension, necessary for standardization of diagnostic and therapeutic approaches to patient management, includes associated forms of the disease. Pulmonary arterial hypertension associated with portal hypertension is one of the specific forms of the disease. The importance of differential diagnosis is due to a more unfavorable prognosis in patients with arterial hypertension compared with patients with idiopathic pulmonary hypertension. Ultrasound examination with Doppler assessment of blood flow is recognized as the method of choice of diagnostics of congenital portocaval shunts. Computer tomography is recommended to confirm the results and clarify the anatomical variant of congenital portocaval shunts.

OBJECTIVE To show the diagnostic value of ultrasound in the detection of congenital portocaval shunts at the stage of primary examination of adult patients with idiopathic pulmonary hypertension.

METHODS The article presents 3 observations of patients with the established diagnosis of idiopathic pulmonary hypertension who were treated at the Chazov National Research Medical Center for the period from 2021 to 2023, in whom congenital portocaval shunts were diagnosed during routine ultrasound examination of the abdominal cavity. All patients were female, aged 39 to 58 years. Ultrasound examination was performed on the Voluson E-8 device with a convexic sensor with a frequency of 3.5 MG in In-mode and with color Doppler mapping, in the back position and lateral access. The results of the ultrasound examination were compared with the data of echocardiography and multispiral computed tomography with contrast.

RESULTS In all patients, symptoms of pulmonary arterial hypertension were diagnosed in adolescence and had a progressive

course. There was no anamnestic information about liver diseases, clinical and laboratory symptoms of hepatic dysfunction. The leading complaint was shortness of breath with little physical exertion (climbing 1-2 floors).The patients were examined according to established standards, according to the results of which idiopathic pulmonary hypertension was diagnosed. Ultrasound examination of abdominal organs was performed in accordance with the recommendations on the strategy of diagnosing patients with pulmonary arterial hypertension to exclude liver pathology and portal hypertension. Normally, with standard ultrasound examination of the right hypochondrium in adult patients, the following are visualized: the trunk of the portal vein, the right and left branches of the portal vein, the splenic vein and the superior mesenteric vein, forming the zonukonfluence, 3 hepatic veins flowing into the inferior vena cava. Assessment of the size and structure of the liver showed no pathological changes. The principal point of ultrasound examination in these patients was the absence of the trunk of the portal vein and its intrahepatic branches. The confluence zone, the splenic vein and the superior mesenteric vein were preserved. The splenic vein had a normal diameter (no more than 8mm), there was no enlargement of the spleen. The superior mesenteric vein was unevenly expanded (up to 12-14mm) with a convoluted course and flowed into the inferior vena cava in two cases, into the left renal vein in one case. Anatomical features of the identified congenital portocaval shunts corresponded to type 1 Abernethy malformation and the prehepatic level of the portal block according to the classification of portal hypertension. In all cases, there was a compensatory expansion of the hepatic artery up to 7-8mm with high-speed blood flow –Vmax to 120-180 sm/s. Dilatation of hepatic veins was noted. Echocardiography revealed enlarged right chambers of the heart and increased central venous pressure. The results of multispiral computed tomography with contrast confirmed the presence of congenital portocaval shunts in all observations and clarified the anatomical type of Abernethy malformation: Ia - in one case and Ib - in two observations.

CONCLUSION

1. The detection of congenital portocaval shunts during ultrasound examination in adult patients with idiopathic pulmonary hypertension had the character of a diagnostic finding, allowed to establish the anatomical type of Abernethy malformation and the level of the portal block.

2. The revealed compensatory reaction of arterial blood flow against the background of liver deportalization explained the absence of hepatic dysfunction in these patients.

3. Extrahepatic localization of congenital portocaval shunts corresponded to the prehepatic variant of the portal block and was combined with signs of stagnation in a large circle of blood circulation according to the results of echocardiography.

4. The data obtained confirm the expediency of using ultrasound as the primary method of differential diagnosis of congenital portocaval shunts in patients with idiopathic pulmonary hypertension and the need for further research to identify mechanisms to confirm the pathogenetic relationship of Abernathy malformation and pulmonary arterial hypertension as an associated pathological condition.

A054

Comparative efficacy of Bisoprolol and Nadolol in Long QT Syndrome and its implications for cardiovascular care in resource-limited countries: A meta-analysis

Rifqi Rizkani Eri[1], Sania Zahrani[2]
[1]Faculty of Medicine, University of Indonesia, [2]Faculty of Medicine, University of Indonesia

BACKGROUND Congenital Long QT Syndrome (LQTS) is a hereditary heart disorder that causes delayed electrical conduction in cardiac cells, leading to a prolonged QT interval on ECG. It is primarily due to dysfunctional potassium channels and, in rare cases, sodium channel changes. LQTS affects about 1 in 2000 individuals and is a significant cause of sudden death in young people. Currently, propranolol and nadolol are the preferred treatments, but in some areas, access to these drugs may be limited. This meta-analysis aims to explore the effectiveness of bisoprolol, a more widely available beta-blocker, as a potential alternative treatment for LQTS.

MATERIALS AND METHODS We conducted a thorough literature search in PubMed, PMC, SCOPUS, and Embase using the keywords "bisoprolol" and "long QT syndrome." Two independent reviewers screened and selected articles for our meta-analysis.

Included studies compared bisoprolol with other beta blockers (atenolol, propranolol, nadolol, metoprolol) in the context of long QT syndrome, diagnosed through clinical features and/or genetic screening, and included patients with any genotype. We focused on cardiac events like syncope, cardiac arrest, and sudden cardiac death. Excluded studies had cardiac comorbidities, incomplete data, or were not in English.

RESULTS We included two cohort studies that investigated the use of bisoprolol compared to nadolol, the first line option for long QT syndrome (Table 1). Upon meta-analysis, we found no significant difference on the occurrence of syncope, cardiac arrest and sudden cardiac death between bisoprolol and nadolol group (RR: 0.70 (0.34-1.45) (Figure 1).

CONCLUSION These findings indicate that bisoprolol may be an appropriate drug option for individuals with LQTS, particularly in regions where access to propranolol and nadolol is limited. However, considering the limited number of studies included in this analysis, more research has to be conducted, not just to assess its' efficacy, but also the possible adverse effects, since bisoprolol is a more cardioselective beta-blocker compared to nadolol.

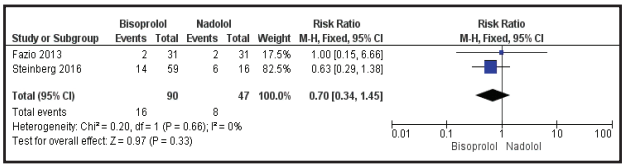


Figure 1. Forest plot of cardiac events risk ratio in long QT syndrome treated with bisoprolol compared to nadolol

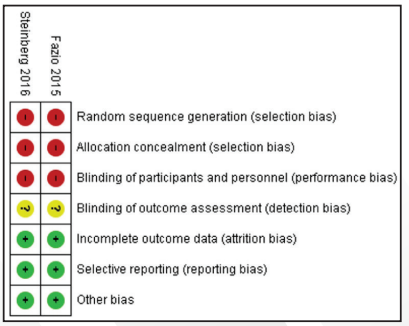


Figure 2. Risk of bias assessment

First author	Year	Country	Study design	Study drugs	Participants/ mean follow-up	Primary outcome
Steinberg	2016	Canada	Retrospective cohort	Bisoprolol, atenolol, and nadolol.	114/3	Arrhythmogenic syncope, sudden cardiac death, aborted cardiac arrest, and polymorphic ventricular tachycardia.
Fazio	2015	Italy	Prospective cohort	Bisoprolol, nadolol, and propanolol	34/7.8	Arrhythmogenic syncope and ventricular arrhythmia.

Table 1. Included studies

A050

A systemic review of 4 ECG left ventricular hypertrophy criteria: Peguero-Lo Presti, Cornell criteria, Sokolow-Lyon, and Romhilt-Estes: Which one has the better diagnostic performance?

Sania Zahrani[1], Rifqi Rizkani Eri[2], Bambang Widyantoro[3]
[1]Faculty of Medicine, Universitas Indonesia, [2]Faculty of Medicine, Universitas Indonesia, [3]Department of Cardiology and Vascular Medicine, Faculty of Medicine Universitas Indonesia- National Cardiovascular Center Harapan Kita

BACKGROUND Left ventricular hypertrophy (LVH) is a pathological condition commonly occuring in individuals with hypertension and valvular heart disease. Detecting LVH in a timely manner is essential for effective management. Electrocardiography (ECG) is a widely accessible, cost-effective, and non-invasive method commonly employed for initial LVH detection. Currently, there are 37 acknowledged ECG criteria for. Four of the more widely used criteria are Cornell Voltage (CV), Peguero-Lo Presti (PLP), Romhilt-Estes (RE), and Sokolow- Lyon (SL). In this study, we aim to assess the sensitivity and specificity of the four most utilized criteria

MATERIALS AND METHODS Literature searches were done in 4 databases (Pubmed, Embase, PMC, and Cochrane Library) with keywords of "Cornell Voltage AND Sokolow-Lyon Voltage AND Peguero-Lo Presti AND Romhilt-Estes AND Left Ventricular Hypertrophy" were used. We included all cross-sectional studies investigating adult patient (≥ 18 years old) for Left Ventricular Hypertrophy, studies using Peguero-Lo Presti, Cornell Voltage, Sokolow-Lyon, and Romhilt-Estes as LVH ECG criterias, studies using echocardiography as the gold-standard diagnostic evaluation using Devereux formula to calculate Left Ventricular Mass (LVM). Studies with topics irrelevant to clinical question, articles without available full-text, and studies with language other than English were excluded from this review.The assessment tool to evaluate study quality was QUADAS-2. Extracted datas were then analyzed for meta-analysis using Stata-MP-64.

RESULTS Four moderately-high to high quality studies were included in the study (Figure 1 and 2). The study characteristics are specified in Table 1. We found that The sensitivity and specificity in detecting LVH was highest using PLP criteria (45,2%) and CV criteria (92,4%) subsequently (Table 2).

CONCLUSION In conclusion, ECG is a poor tool for LVH screening due to its low sensitivity. However, in limited settings, our findings suggest that among the four criteria, PLP and CV criteria exhibit superiority over RE and SL criteria in detecting left ventricular hypertrophy through ECG analysis.

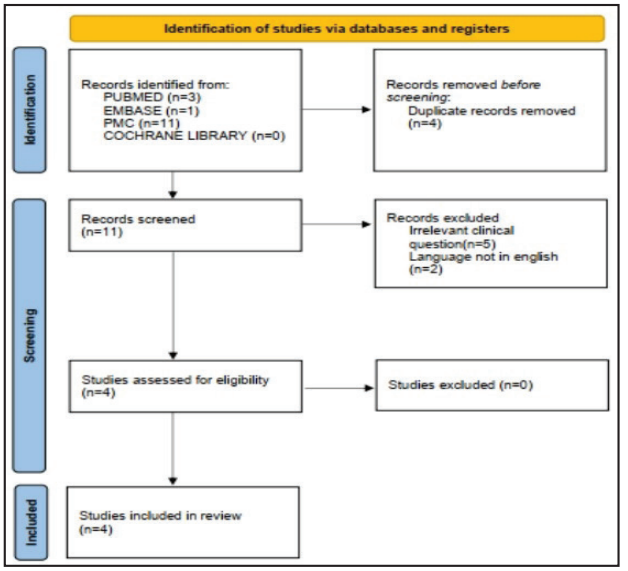


Figure 1. Literature searching results

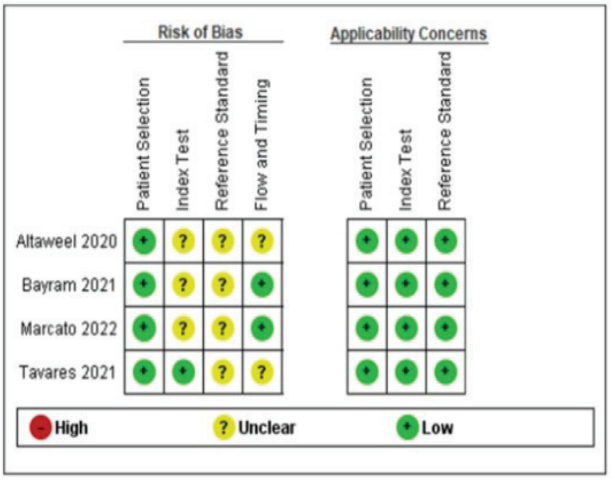


Figure 2. Quality summary of included trials

First author	Year of publication	Region	Design	Sample size (n)	Age (years)	BMI (kg/m2)	LVH (%)	Male (%)
Marcato JP	2022	Brazil	Retrospective	142	64,5	26,3	70,4%	43%
Tavares CAM	2021	Brazil	Retrospective	692	77,5	-	40,7%	49,1%
Bayram N	2021	Turkey	Prospective	165	50	-	31,5%	51,5%
Altaweel RB	2020	Iraq	Prospective	140	50,4	32,5	59,3%	57,9%

Table 1. Study characteristics

First author (Year)	Sensitivity (%)				Specificity (%)			
	CV	PLP	RE	SL	CV	PLP	RE	SL
Marcato JP (2022)	26	41	28	6	97.62	92.86	78.57	100
Tavares CAM (2021)	35.27	51.87	44.4	28.22	89.74	82.05	79.2	92.59
Bayram N (2021)	3.85	19.23	9.62	1.92	96.46	92.92	78.76	93.81
Altaweel RB (2020)	50.6	46.99	50.6	37.35	96.49	70.18	21.05	75.44
Pooled	35	45,2	38,2	22,3	92,4	83,8	73,2	91,6

Table 2. Sensitivity and specificity

A072

Multi analytical approach to find out the risk factors in terms of single nucleotide polymorphisms in patients with coronary artery disease in Indian Asian Population

PAMILA DUA[1], Dr Kh Reeta[2], Dr. Bhawana Prasher[3], Dr Sandeep Seth[4], Dr. Subir Kumar Maulik[5], Dr. Mitali Mukerji[6], Sangeeta Khanna[7], Dr.archana Vats[8]

[1]All India Institute of Medical Sciences, [2]All India Institute of Medical Sciences, NEW DELHI, [3]Institute Of Genomics And Integrative Biology, Sukh Dev Vihar, New Delhi, [4]All India Institute Of Medical Sciences, New Delhi, [5]All India Institute Of Medical Sciences, New Delhi, [6]Indian Institue Of Technology, Jodh Pur, Rajasthan., [7]institute Of Genomics And Integrative Biology, Sukh Dev Vihar, New Delhi, [8]Institute Of Genomics And Integrative Biology, Sukh Dev Vihar, New Delhi

BACKGROUND Researches have revealed a connection between CAD (coronary artery disease) and genetics, with various biochemical tests established to evaluate its severity. The incorporation of bioinformatics has advanced biomedical research and improved data management efficiency. The current study's objective was to identify risk factors in terms of Single Nucleotide Polymorphisms, associated with CAD in an Indian Asian population, utilizing a combined approach.

METHODS The present study was completed in two phases: First phase was a literature search for susceptible SNPs and Second comprised of a cross sectional study. In first phase, using bioinformatic techniques like PubMed parser and Natural Language Processing (NLP) and manual search, we tried to find out susceptible polymorphisms to CAD. In second step, Global Screening Array (GSA) (Illumina) was performed in extracted DNA samples of 97cases and 36 controls. Different biochemical tests like Hemogram, Lipids, Fasting Blood Sugar (FBS), LFT, KFT, Vitamin D and HbA1C were also done as per standard protocol.

RESULTS In literature search from 134 studies conducted across several continents and various populations with more a million cases and controls, we could retrieve a comprehensive dataset of 261 susceptible SNPs with pooled Odd's ratio of 1.196.

On observing 261susceptible SNPs in our GSA results, we could find 5 SNPs with significant p value including rs187238 of IL-18 gene at chromosome 11, rs731236 and rs2228570 of VDR gene at chromosome 12, rs11556218 of gene IL16 at chromosome 15 and rs5882 of CETP gene at chromosome 16. The earlier studies had reported association of these with several disease conditions and for CAD, pathways related to endothelial damage, susceptibility of vitamin D receptor (VDR) polymorphisms and lowering HDL-cholesterol and ultimately causing CAD. But among Indian population, all only rs5882 has been studied in CAD cases and that too has not shown any association. The polymorphisms regarding VDR gene are also novel in Indian population, further biochemical co-relation done in both cases and controls revealed more percentage of Vitamin D deficient in healthy controls.

CONCLUSION To conclude, a set of 261 susceptible SNPs for CAD was gathered and out of which association of 5 SNPs in the Indian Asian population was observed. Further, this pool can be validated in different ethnic groups and may provide a valuable screening tool to separate the vulnerable high-risk population where primary prevention strategies can be implemented. We could find, the Vitamin D deficiency may be key reason for developing the disease and further, an alarming condition for seemingly healthy population.

A053

A systematic review on Coenzyme Q10 administration among patients with heart failure with preserved ejection fraction

Angelie May S. Antolin[1]

[1]Manila Doctors Hospital

BACKGROUND The American Heart Association estimates 6.5 million subjects over the age of 20 years have Heart failure (HF) in the US alone. Approximately 40–70% of all HF patients have preserved ejection fraction and its prevalence is increasing as the population ages[3]. The understanding of the pathophysiology of

HFpEF is incomplete, and despite intensive efforts, optimal therapy remains uncertain, as most trials to date have been negative One pathophysiologic mechanism that may significantly contribute to diastolic dysfunction in HFpEF is mitochondrial dysfunction leading to energy starvation of the cardiac myocyte. Coenzyme Q10 (CoQ10) facilitates the production of adenosine triphosphate in the mitochondria by participating in redox reactions within the electron transport chain.

METHODS This study is a systematic review of trials that included two randomized trials that looked into CoQ10 administration among patients with heart failure with preserved ejection fraction.

RESULTS There was no trial that looked into the outcomes mortality and rehospitalization to date. With regards to the change in terms of improvement in diastolic function, there was no significant difference with or without Coenzyme Q10 administration.

CONCLUSION In this systematic review CoQ10 administration did not significantly change the diastolic function parameters among patients with heart failure with preserved systolic function.

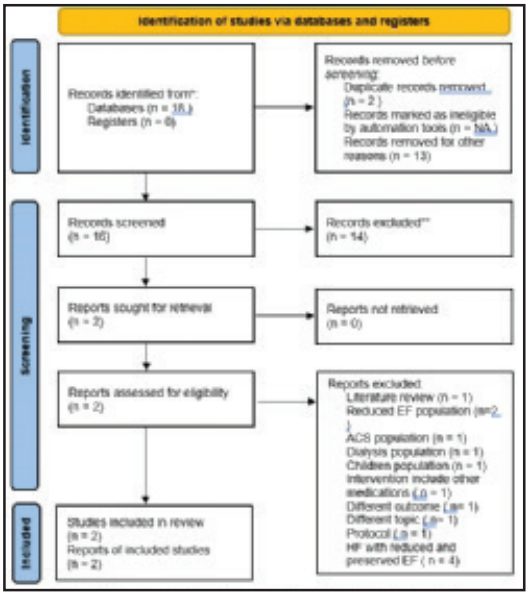


Figure 1. PRISMA diagram for electronic search and study selection

Figure 3. Risk of bias summary

Author, Year	Population	Treatment Coq10	Control placebo	Outcome	Duration
Samuel 2022	patients with heart failure with preserved ejection fraction	(n=19)	(n=20)	Diastolic function index difference lateral e' lateral E/e' E/A NT pro BNP	4 months
Sobirin 2019	patients with heart failure with preserved ejection fraction	(n=14)	(n=14)	Diastolic function change E/e septal and lateral e, E/A	30 days

Table 2 Characteristic of included Studies

F136

Important complications of the Fontan procedure: Focus on thrombosis

Amanda Halimi[1], Oktavia Lilyasari[2], Yovi Kurniawati[3], Sisca Natalia Siagian[4], Indriwanto Sakidjan[5], Olfi Lelya[6], Aditya Agita Sembiring[7]
[1]National Cardiovascular Center Harapan Kita, [2]National Cardiovascular Center Harapan Kita, [3]National Cardiovascular Center Harapan Kita, [4]National Cardiovascular Center Harapan Kita, [5]National Cardiovascular Center Harapan Kita, [6]National Cardiovascular Center Harapan Kita, [7]National Cardiovascular Center Harapan Kita

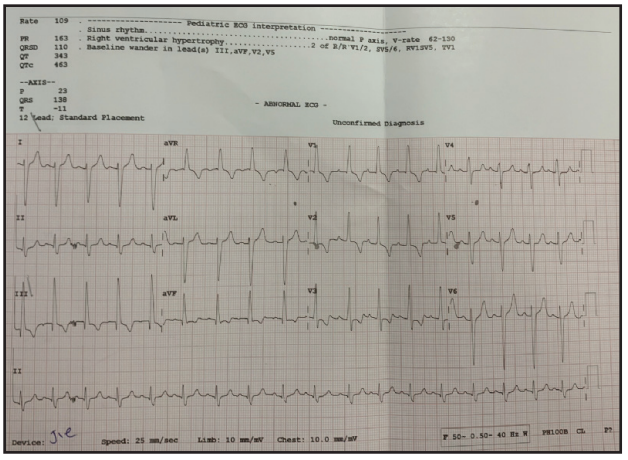
BACKGROUND There is an ever-increasing number of patients with congenital heart disease who survive with single ventricle. These patients will need lifelong medical care, frequently with serious complications arising, that need to be closely monitored and treated. This case presentation aims to focus on thrombosis as one of the important complications of the Fontan procedure.

METHODS An 11-year old boy was admitted to the emergency room with chief complaint of swelling in the face and eyes since two weeks before admission. Swelling appeared suddenly and accompanied with bluer lips than usual. Patient previously underwent BCPS in 2012 and Fontan surgery in 2014. On physical examination, peripheral oxygen saturation was 87% with cyanosis at the lips. Heart examination revealed single second heart sound and pansystolic murmur 2/6 at lower left sternal border. Echocardiographic examination revealed sluggish flow at inferior vena cava and spontaneous echo contrast was seen. Multi- Slice Computed Tomography scan revealed thrombus at distal superior vena cava, right pulmonary artery, and extracardiac conduit Fontan. Patient was immediately started on warfarin. Two days later, during pediatric surgical conference, patient was decided for immediate thrombosuction. During catheterization, there was slow flow in the conduit and no thrombus was seen.

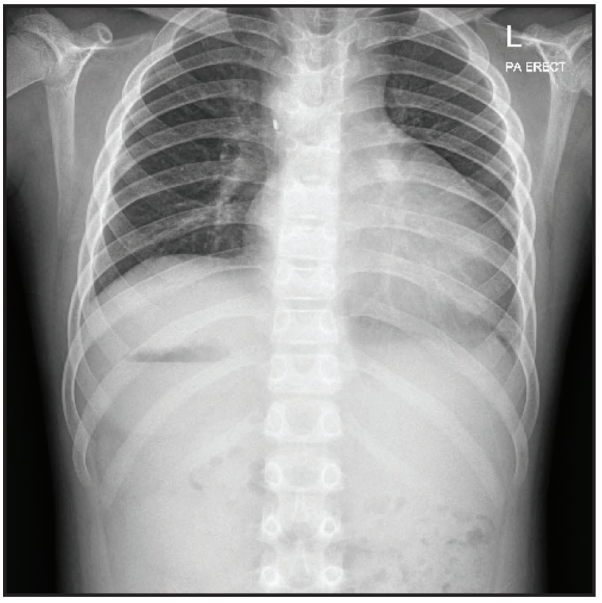
RESULTS Patient was discharged with stable hemodynamic condition and warfarin was continued.

CONCLUSION Management of thrombosis as one of the important Fontan procedure complications is vital to reduce morbidity and

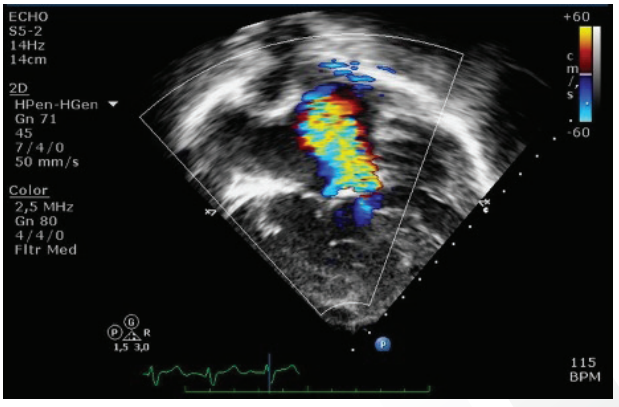
mortality of patients. Both antiplatelet and anticoagulant can be given for patients with Fontan circulation. Consideration for risk factors, patient compliance, socioeconomic, as well as geographic conditions should be given.



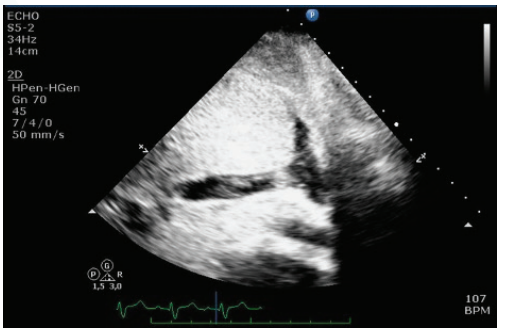
ECG at admission



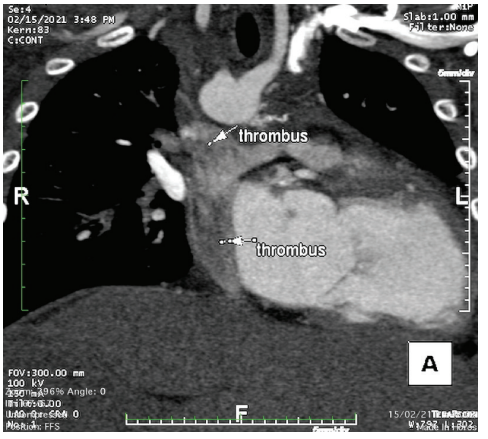
Chest X-ray at admission



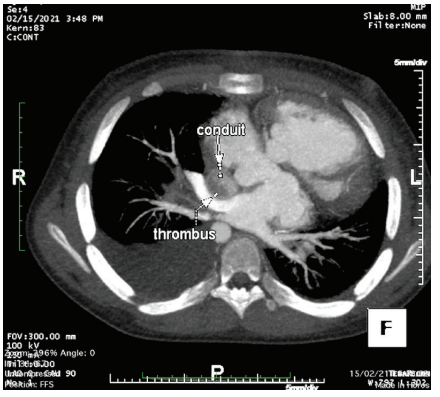
Severe atrioventricular valve regurgitation



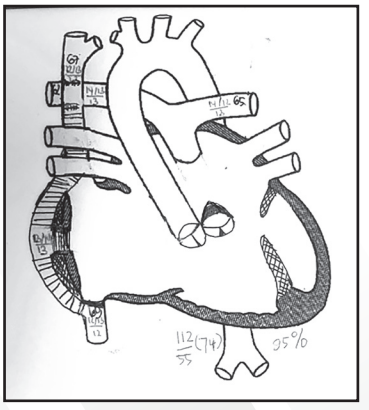
Sluggish flow at inferior vena cava



Thrombus at distal SVC-RPA



Thrombus at extracardiac conduit



Catheterization pressures and saturation

Name	Result	Value
Hemoglobin	17.6	g/dL
Hematocrit	55.3	%
Leukocyte	8950	cells/mm^3
Thrombocyte	281 000	cells/mm^3
Urea	26	mg/dL
BUN	13	mg/dL
Creatinine	0.63	mg/dL
Blood glucose	114	g/dL
Sodium	139	mmol/L
Potassium	4.4	mmol/L
Chloride	103	mmol/L
PT	17	sec
INR	1.57	
Albumin	3.1	g/dL

Laboratory findings at admission

A033

Case report: Multiple coronary artery ectasia with left main coronary artery involvement in a patient with history of anabolic steroid use

Angelie May S. Antolin1
1Manila Doctors Hospital

BACKGROUND Coronary artery ectasia (CAE) or aneurismal coronary artery disease (CAD) is dilatation of an arterial segment to a diameter at least 1.5 times that of the adjacent normal coronary artery. This form of atherosclerotic coronary artery disease (CAD) can be found in 1.4-4.9% of all coronary angiography patients1. All three coronary vessels can be affected, but almost 75% of patients will have an isolated artery that is ectatic. In a single observational study involving approximately 5,000 patients, CAE was reported mostly in proximal-mid right coronary artery (68%), followed by proximal left anterior descending artery in 60% of cases, and left circumflex artery in 50% of the cases. Left main coronary artery ectasia (LMCA) is an extremely rare occurrence, which accounts for 0.1% of cases[1].

Atherosclerosis is the most frequent etiopathogenetic mechanism. Other possible causes include systemic inflammatory vasculitis, connective tissue disorders, genetic diseases, infections, and iatrogenic injury following percutaneous coronary intervention (PCI).

Anabolic steroids are synthetic derivatives of the male sex hormone testosterone. It is used to enhance athletic performance, induce muscle hypertrophy, and augment male sexual characteristics[4]. It is used by bodybuilders and athletes, but non-athletes also use them in order to improve their physical abilities and appearance. Its use is associated with a wide range of side effects and potential cardiovascular complications. Anabolic steroid was linked to lipid metabolism derangements, hypertension, coagulation disorders, and cardiomyopathy[4]. Based on the study conducted by Perry et

METHODS This is a case report of 50-year-old male apparently well with no comorbidities who presented with heart failure symptoms. He had a history of anabolic steroid use two years prior to the onset of symptoms. Coronary angiography revealed multiple coronary artery ectasia with left main coronary artery involvement and dilated cardiomyopathy.

RESULTS This is a report a of 50-year-old male with no history of hypertension, diabetes, kidney disease or childhood illness who presented with shortness of breath, bipedal edema and chest pain. He had a history of anabolic steroid use two years prior to the onset of symptoms. Coronary angiography revealed multiple coronary artery ectasia with left main coronary artery involvement and dilated cardiomyopathy. Three years after stopping the anabolic steroid use repeat 2D Echocardiogram showed concentric left ventricular remodelling, normal wall motion and contractility, adequate systolic function with EF of 68% by Teicholz, 69% by Simpsons, normal left and right atria, normal ventricular size with normal systolic function, normal size main pulmonary artery, aortic root, visualized proximal ascending aorta, and aortic arch dimension. The objective of this case report is to present a rare case of multiple coronary artery ectasia with involvement of left main coronary artery and cardiomyopathy in a patient with history of anabolic steroid use.

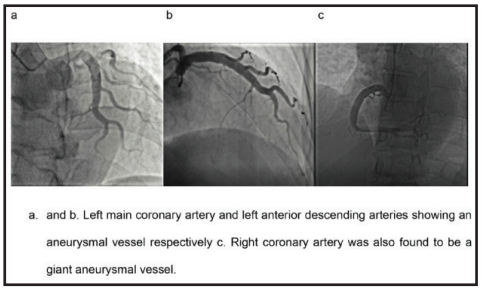


Figure 1 a. and b. Left main coronary artery and left anterior descending arteries showing an aneurysmal vessel respectively c. Right coronary artery was also found to be a giant aneurysmal vessel.

A013

Fishing stent in femoral artery (A case report of a coronary stent dislogment's retrieval)

Fadma Yuliani[1], Eka Fithra Elfi[2], Masrul Syafri[3]
[1]M Djamil Padang Hospital, [2]Indonesian medical association, Indonesian Heart Association, ESC Professsional Member, [3]Indonesian medical association, Indonesian Heart Association, ESC Professsional Member

BACKGROUND Stent dislodgement is a rare complication (0.21% to 8.4%) of percutaneous coronary intervention (PCI) procedures that caused peripheral blood circulation disruption, coronary thrombosis or myocardial infarction that led to sudden cardiac death. An urgent intervention should be done to retrieve stent dislodgement such as snaring technique. This case presented a case of coronary stent dislodgement to the right common femoral artery (RFA) during PCI that treated with endovascular snaring technique.

METHODS A 62 years old woman was admitted to our hospital due to a non-ST-elevation acute coronary syndrome. She had a history of previous PCI with stent placement in the osteal to mid left anterior descending

(LAD) artery 2 years back. Coronary angiography shown type II LAD in-stent restenosis, diffuse stenosis in distal Left circumflex artery (LCX) and Obtuse Marginal 1 (OM1) (Fig. 1). Patient then proceeded for PCI to LAD using right femoral approach, with 7Fr guiding catheter and coronary guiding wire to LAD and LCX. After stent implantation to LM-LAD (3.5x16mm), LCX wire was trapped under the stent. During the attempt to pull LCX wire, the stent was dislodged to RFA (Fig. 2).

RESULTS The RFA Sheath and catheter then removed and left femoral artery (LFA) sheath was inserted. By using 7Fr JR Guiding and One Snare Endovascular snare system, the dislodged stent was successfully retrieved and removed from femoral artery (Fig. 3A and 3B). During retrieval the right femoral artery sustained no angiographically obvious injuries, the patient remained well, and the PCI continued by inserted 1 stent amphilimus 3.5x38 mm in distal LM to mid LAD. The patient hemodynamic was stable until the procedure had finished.

CONCLUSION Stent dislodgement was associated with poor vessel preparation, calcification, previously stented vessels, small stents, tortuous coronary arteries, and severe angulation of the vessel. In this case the cause of stent dislodgment probably poor vessel preparation and calcification. Stent dislodgement during a percutaneous coronary intervention (PCI) procedure can become life threatening. Therefore, interventional cardiologists should think several retrieval methods such as using a loop snare, small-balloon catheter, double wire, and forceps. Because the available equipment from catheterization lab was ONE Snare® 6Fr endovascular snaring device, we used it and without resistance passed through, enabling us to successfully and retrieve a lost stent in RFA.

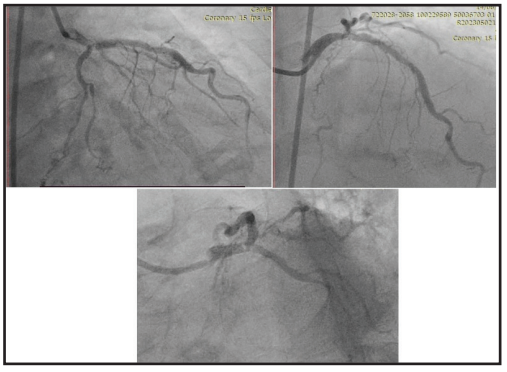


Figure 1. Coronary Angiography result type II LAD in-stent restenosis, diffuse stenosis in distal Left circumflex artery (LCX) and Obtuse Marginal 1 (OM1)

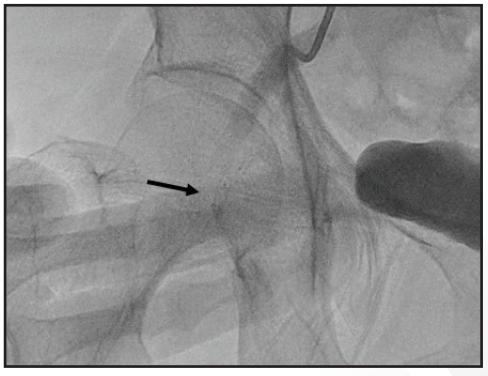


Figure 2. Stent dislodged in Right Femoral Artery

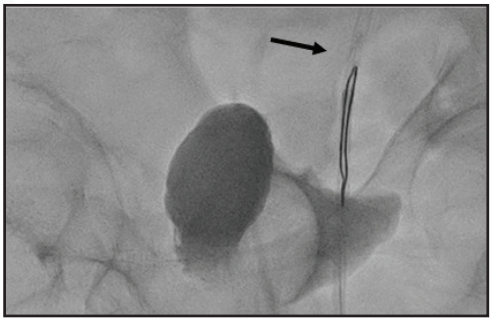


Figure 3A. Retrieval stent from right femoral artery

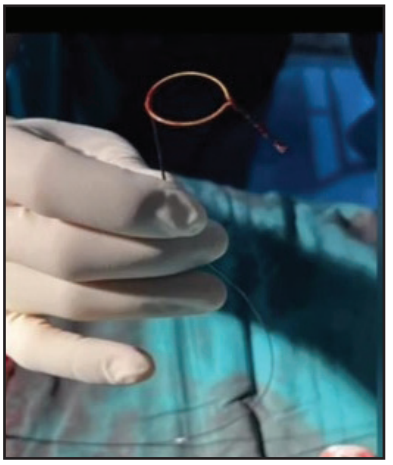


Figure 3B. Stent had removed from the RFA

A051

Comparative efficacy and safety of Pitavastatin 2mg daily and Atorvastatin 10mg daily in patients with dyslipidemia: A systematic review and meta-analysis

Paul Daniel Solis Coronado[1], Charles Andrew Tarrosa Francia[2], Pierre Albert Ama Alora[3]

[1]Cardinal Santos Medical Center, [2]Cardinal Santos Medical Center, [3]Cardinal Santos Medical Center

BACKGROUND Statins are effective treatment of dyslipidemia although difference in chemical structure and pharmacokinetics can lead to variations in effects and adverse event profiles. Pitavastatin is found to be effective concerning mean change in lipid profile and offer low drug to drug interaction when compared to equipotent dosages of other statins.

MATERIALS AND METHODS Comprehensive search of electronic databases for relevant RCT comparing efficacy and safety of Pitavastatin 2 mg daily and Atorvastatin 10 mg daily in patients with dyslipidemia. Eligible studies met the pre-defined criteria and reviewed independently to assess the quality of studies. Outcomes concerning percent change from baseline LDL-C, HDL, TC and TG levels estimated using mean difference in percent changes from baseline and overall incidence of statin related adverse events estimated using inverse variance risk ratio were analyzed using Cochrane's RevMan.

RESULTS Pitavastatin did not differ from Atorvastatin on lowering LDL-C (mean difference 1.12; 95% CI -0.54 – 2.81; I2 0%; p 0.19), TC (mean difference 1.71; 95% CI -0.07 – 3.5; I2 42%; p 0.06) and TG (mean difference -1.71; 95% CI -7.08 – 3.66; I2 62%; p 0.53) but superior in increasing levels of HDL (mean difference 2.26; 95% CI 1.48 – 3.03; I2 0%; p <0.00001). Risk of adverse events did not differ between Pitavastatin and Atorvastatin (RR 0.99; 95% CI 0.76 – 1.28; I2 0%; p 0.92).

CONCLUSION Pitavastatin and Atorvastatin had comparable efficacy in lipid lowering as well as safety in the treatment of dyslipidemia. Pitavastatin was superior in increasing HDL levels.

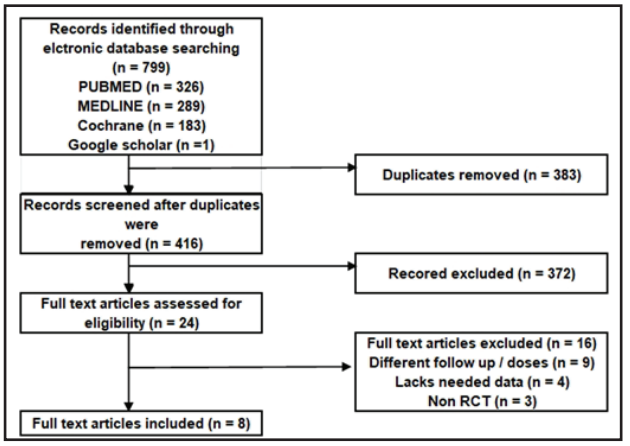


Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Flow Chart

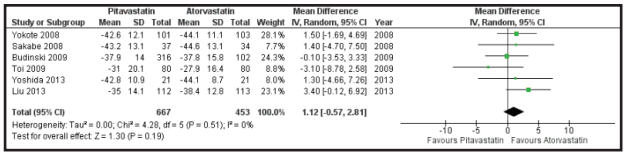


Figure 2. Mean Difference in the per cent changes in LDL-C

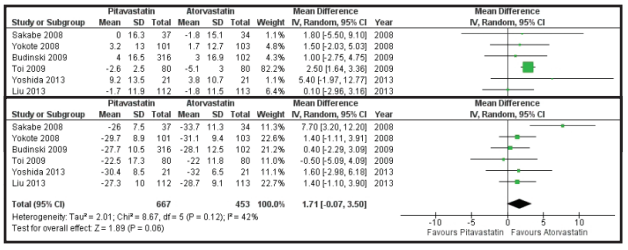


Figure 4. Mean Difference in the per cent changes in TC

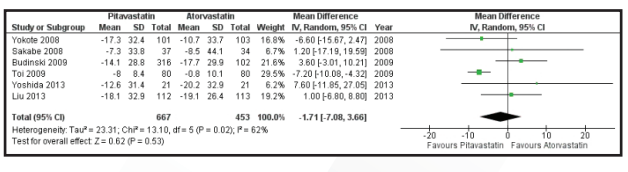


Figure 5. Mean Difference in the per cent changes in TG

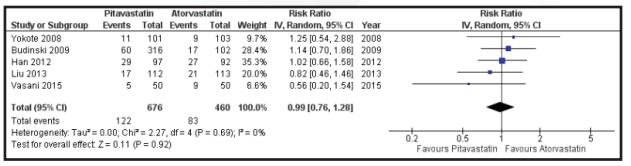


Figure 6. Overall incidence of statin related adverse events

A074

Relationship between integral marker of metabolic status Lipid Accumulation Product (LAP) index and vascular stiffness

Kirill Novikov[1], Natalya Druzhinina[2], Yulia Rodionova.[3], Rustam Shikhmagomedov[4], Alena Lezhennikova[5], Mikhail Iotchenko[6], Sergey Muradov[7], Anna Bragina[8]

[1]I.M. Sechenov First Moscow State Medical University (Sechenovskiy University), [2]I.M. Sechenov First Moscow State Medical University (Sechenov University), [3]I.M. Sechenov First Moscow State Medical University (Sechenov University), [4]I.M. Sechenov First Moscow State Medical University (Sechenov University), [5]I.M. Sechenov First Moscow State Medical University (Sechenov University), [6]I.M. Sechenov First Moscow State Medical University (Sechenov University), [7]I.M. Sechenov First Moscow State Medical University (Sechenov University), [8]I.M. Sechenov First Moscow State Medical University (Sechenov University)

BACKGROUND To evaluate the lipid accumulation product (LAP) index correlation with anthropometric measurements and markers of vascular stiffness (ankle-brachial index (ABI), cardio-ankle vascular index (CAVI) and vascular aging (VA)).

METHODS 193 patients (72 men и 121 women) were examined, age median was 36,5 [21;56] years. All participants underwent anthropometric measurement and lipid profile test (total cholesterol (TC), lipoproteins and triglycerides (TG)) by CardioChek PA (USA) express analyzer. The LAP index was calculated by the formula: (LAP = (WC (cm) – 65) x TG (mmol/L)) for men, and (LAP = (WC (cm) – 58) x TG (mmol/L)) for women. Vascular stiffness level (ABI, CAVI, VA indices) was measured by sphygmomanometry on VaSera FUCUDA DENSHI scanner (Japan). Statistical processing of the data was done with STATISTICA 10 software.

RESULTS Included patients were divided into two groups according to the presence and absence of metabolic syndrome (MS). In the group 1 were patients with MS (n=35), median age was 38,7 [26;62] years. In the group 2 were patients without MS (n=158), median age was 30 [21;52] years. The groups had no statistical difference by gender and age (p>0,05). In the group 1 body mass index (BMI) (33,3[31;35]), waist circumference (WC) (110[98;120]), systolic blood pressure (SBP) (137[130;149]), diastolic blood pressure (DBP) (83[75;90]), glucose level (5,8[5,1;6,6]), TC (5,3[4;6,6]) were significantly higher than in the group 2 (BMI 24,6[21;28], WC 78[69;87], SBP 127[120;135], DBP 80[72;85], glycose level 4,8[4,4;5,7], TC 4,6[4;5,5] (p<0,05).

In the group 1 the LAP index (88,2[44;134] cm×mmol/L), was significantly higher, than in the group 2 (25,7[12,4;48,8] cm×mmol/L), (p<0,01).

In the group 1 CAVI 8,8[7,8;9,8], ABI 0,97[0,91;1,2] and VA 68[55;80] indices had no significant difference from participants in the group 2: CAVI 6,6[5,9;7,6], ABI 1,08[1,02;1,21] and VA 25[20;51], (p<0,05).

We have found significant correlation between the LAP index and age (r=0,29;p<0,05), obesity (r=0,6;p<0,05), MS (r=0,44;p<0,05), BMI (r=0,74;p<0,05), WC (r=0,83;p<0,05), SBP (r=0,35;p<0,05), DBP (r=0,22;p<0,05), TC (r=0,2;p<0,05), glycose level (r=0,3;p<0,05), CAVI (r=0,2;p<0,05) and VA (r=0,2;p<0,05).

CONCLUSION The LAP-index has higher values for patients with metabolic syndrome. This integrative metabolic index associated with anthropometric measurements, cardiometabolic biomarkers, systolic and diastolic blood pressure and markers of vascular stiffness – CAVI and vascular aging.

F042

Efficacy and safety of early initiation of SGLT2i in patients with Acute Heart Failure: A systematic review and meta-analysis

Reynald Evan Roseos Tugade[1], Patricia Noreen L. Bueno[2], Billy Joseph David[3], Francisco Palma Dalangin[4]

[1]HB Calleja Heart & Vascular Institute Saint Lukes Medical Center - Quezon City, [2]Department of Medicine Saint Lukes Medical Center - Quezon City, [3]Department of Medicine Saint Lukes Medical Center - Quezon City, [4]HB Calleja Heart and Vascular Institute St. Lukes Medical Center - Quezon City

BACKGROUND Acute heart failure (HF) is one of the leading causes of hospitalizations worldwide, associated with significant morbidity and mortality. A key factor causing its severity is congestion. Hence, treatment usually focuses on decongestion using diuretics and guideline-based medical therapies. Loop diuretics are the cornerstone of decongestive therapy, but their use has caused vital side effects such as hyperuricemia, renal failure, and neuropathy, all related to a worse prognosis in patients with heart failure (HF). New evidence from recent randomized clinical trials found that sodium–glucose cotransporter 2 (SGLT2) inhibitors are non-inferior to loop diuretics in reducing the risk of cardiovascular death or hospitalization as well as its adverse events in patients with chronic heart failure in both reduced and preserved ejection fraction. Whether the SGLT2 inhibitors provide clinical benefit in patients with acute heart failure is unknown.

Sodium-glucose cotransporter-2 inhibitor (SGLT2i) have been shown to reduce the composite endpoint of cardiovascular death and worsening heart failure in patients with reduced ejection fraction and is likely to be incorporated as a part of guideline-directed medical therapy (GDMT). Empagliflozin significantly reduces the risk of cardiovascular death or hospitalization for heart failure in patients with chronic heart failure with preserved left ventricular ejection fraction (LVEF), while Dapagliflozin has shown benefit in HF patients with reduced ejection fraction. These medications are known to benefit all kinds of heart failure, but there is limited data on their efficacy and safety.

In this study, the researchers aimed to perform a systematic review and meta-analysis to review the efficacy of SGLT2i in treating acute heart failure in terms of all-cause mortality, rehospitalization, and adverse events.

METHODS The meta-analysis was accomplished following the updated Preferred Reporting for Systematic Review and Meta-Analysis (PRISMA) guidelines. A systematic search of Pubmed, Cochrane, and Google Scholar was performed. The search strategy was: "Sodium-glucose cotransporter-2 inhibitor" AND "Acute Heart Failure."

Two reviewers independently searched the databases to determine all eligible studies and reviewed the full articles for inclusion. Selected articles were then compared, and the decision to include the article was reached through a consensus. Consultation with the third author was done when a consensus could not be reached.

RESULTS A total of 5 studies were included, with 1,831 subjects were analyzed. There were 913 patients treated with SGLT2 inhibitors and 918 given a placebo with all-cause mortality events of 80 and 111, respectively. Patients with SGLT2i showed no significant difference in all-cause mortality rate (RR 0.58 [95%CI:0.32-1.06], p=0.08, I2 = 61%, high certainty of evidence). On the other hand, there was a significant difference in terms of rehospitalization of HF rate with no evidence of heterogeneity (RR 0.66 [95%CI:0.58-0.76], p<00001, I2 = 0%). In regards to adverse events, there was no significant difference in terms of worsening of kidney function (RR 0.80 [95%CI:0.58-1.09], p=0.16, I2 = 44%, no evidence of heterogeneity) and hypotension between the two groups (RR 0.89 [95%CI:0.57-1.39], p=0.62, I2 = 44%, moderate certainty of the evidence).

CONCLUSION Findings provide insight into the efficacy and safety of early initiation of SGLT2 inhibitors during acute heart failure in terms of decreasing rehospitalization rate and adverse events such as worsening kidney function and hypotension. However, the all-cause mortality has similar rates of SGLT2 inhibitors and placebo.

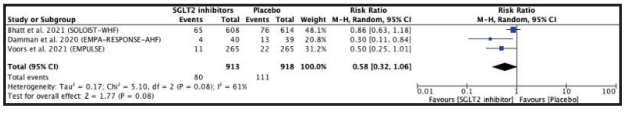


Figure 1 Forest Plot Comparison: SGLT2 inhibitors vs Placebo on All-cause Mortality. SGLT2: Sodium-Glucose Cotransporter 2

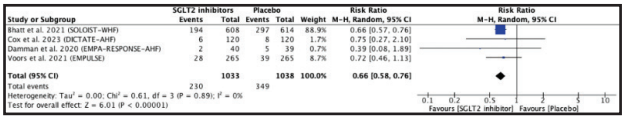


Figure 2 Forest Plot Comparison: SGLT2 inhibitors vs Placebo on Rehospitalization for Heart Failure. SGLT2: Sodium-Glucose Cotransporter 2

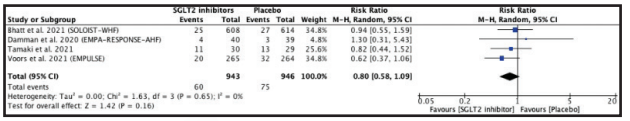


Figure 3. Forest Plot Comparison: SGLT2 inhibitors vs Placebo on Worsening Kidney Injury. SGLT2: Sodium-Glucose Cotransporter 2

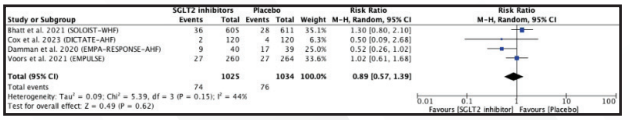


Figure 4. Forest Plot Comparison: SGLT2 inhibitors vs Placebo on Hypotension. SGLT2: Sodium-Glucose Cotransporter 2

F373

Complication case of vascular access: Trials and Tribulations

Kogulakrishnan Kaniappan[1]
[1]National Heart Institute (Institut Jantung Negara)

BACKGROUND 68 years old Male. Admitted in a district hospital for NSTEMI in failure 1 month ago.Referred for further cardiac management. He has a background history of ESRF on regular dialysis, Hypertension, Diabetes Mellitus, Dyslipidemia and Obesity with BMI of 32

On examination, Afebrile, BP recorded was 135 / 70 mmHG with heart rate of 72 bpm. Systemic examination was unremarkable. No signs of failure noted

INVESTIGATIONS

Full blood count	WCC 9.5 / Hb 11.4 / PLt 302
Renal Profile	Urea 15 / Na 139 / K 5.6 / Creat 677
Liver function test	Bili 7 / ALT 60 / ALP 166
Troponin	754
NT ProBNP	14 680
CRP	6.9
INR	1.1
ECG	Sinus rhythm, LVH, LAD , TWI in anterior leads
2D Echocardiography	LVEF 35% ,Grade 3 diastolic dysfunction, TAPSE 1.8cm,LA dilated, no LV clot, no pericardial effusion

METHODS Coronary angiogram was performed via the Right femoral approach under fluoroscopy and USG guidance. 6F sheath was inserted with JL 4.0 and JR 3.5 diagnostic catheter used.

Findings showed :

LMS : mild distal disease

LAD : severe proximal disease

LCX : mild moderate ostial and proximal disease

RCA : severe stenosis at proximal segment

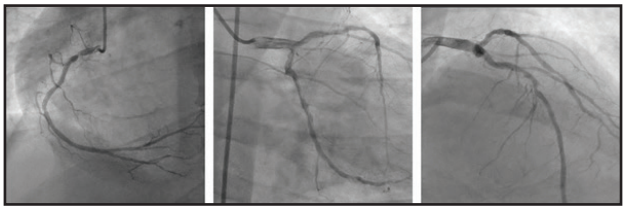
RESULTS Quantitative flow ration (QFR) of Left anterior descending artery was 0.74 (significant).

Decided for Percutaneous Coronary Intervention (PCI) to LAD. Engaged LM with EBU 3.5,6F.Wired across with SION BLUE. Predilated with SC 2.5 x 15mm , Scoring 2.75 x 15mm.STENTED with DES 2.75 x 26mm at nominal pressure. Postdilated with NC 2.75 x 15mm at high pressure. QFR of LAD post PCI improved to 0.92

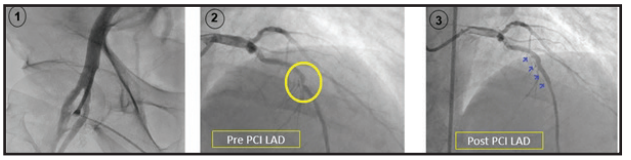
Proceeded with PCI to RCA. JR 3.5 guiding engaged the RCA. Wired across the lesion with SION BLUE. Attempted to predilate with SC 2.5x15mm unable to cross the tight lesion. Used SC 2.0x15mm to predilate first. Further predilatation with Scoring 3.0 x15mm at high pressure. STENTED with DES 3.5 x18mm at nominal. Post dilated with NC 3.5 x15mm at high pressure. Final shot showed good results with TIMI III flow established. Femoral shot taken again. Manual compression done

Patient developed hypotension 30 minutes later in recovery bay. Urgent restudy done via Left Femoral Artery (LFA).Noted RCA stent patent. IVUS showed no stent edge dissection. Rechecked LCA. Noted LAD stent patent with TIMI III flow. Fluid resuscitation and inotropes ongoing to stabilize patient. Patient was restless due to hypotension, femoral sheath. Decided to check femoral shot with contralateral shot. Noted contrast leakage from previous RFA puncture site indicating perforation. Aorto-Iliac view taken with JR 3.5 , 5 Fr.Wired into contra lateral CFA into SFA using Terumo wire. Balloon tamponade done with Admiral Extreme 7.0mm x 20mm x 130cm. Contrast leak still present. Balloon tamponade done with Admiral Extreme 8.0mm x 40mm for longer duration. Still unsuccessful to seal the perforation. 2nd pint Packed cell on going at this point. Patient tachypnoeic despite on FHM. Electively intubated for respiratory distress by Anaest team. Deployed Covered STENT 7.0 mm x 38mm x 120 mm at the site of leak. Postdilated with ADMIRAL Extreme 8.0mm x 40mm x 80cm and ADMIRAL Extreme 9.0mm x 40mm x 80cm. Finally secured the perforation successfully. Patient was extubated the next day and discharged well Day 4 post procedure. Review in 3 months in clinic, patient is well with FC NYHA 1

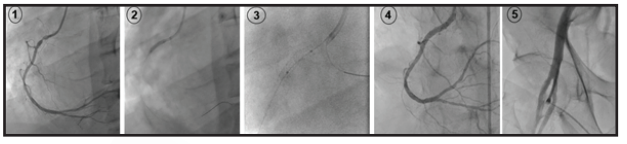
CONCLUSION Access Site Perforation can be life threatening which require time-sensitive emergency management.In our case, despite femoral puncture done under fluoroscopy and Ultrasound guidance, complication occurred. Extra caution needed in patient with predictors of femoral artery complications such as Elderly female, obese patients, calcified vessels, ESRF, Peripheral artery disease , use of anti coagulation and anti thrombotic agents and femoral puncture which are either too high or low.



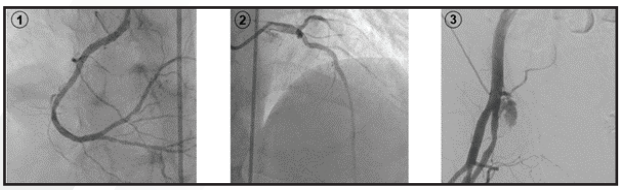
Coronary Angiogram



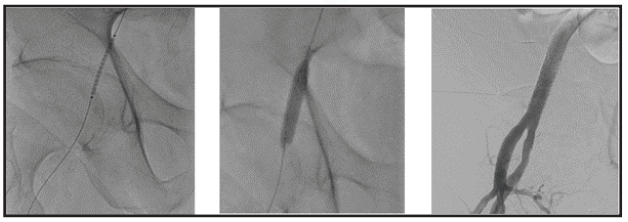
PCI to LAD



PCI to RCA



RCA stent patent , LAD good distal flow SFA perforation at puncture site with extravasation of contrast noted



Covered stent placement over SFA and final results

PA-09

Differences in Heparanase levels in lung cancer patients diagnosed with Deep Veinous Thrombosis (DVT) versus non-DVT lung cancer at Dr. M. Djamil Padang General Hospital

Anna Prima Sari[1], Dr. Dr. Masrul Syafri, Sppd, Spjp (k)[2], Dr.dr.eka Fithra Elfi, Spjp (k)[3], Dr. Sabrina Ermayanti, Sp.p(k), Fisr[4], Ratno Widoyo , Skm, Mkm, Phd[5], Dr.didik Haryanto, Spa (k)[6], Dr.mefri Yanni, Spjp (k)[7], Prof. Dr. Hardisman, M.hid, Dr.ph, Frsph[8], Dr.nia Kasmiati, Spjp[9], Dr.merlin Sari[10], Dr.rengga Sebastian[11], Dr.alles Firmansyah[12]

[1]Medical Faculty Andalas University, [2]Staff at Department of Cardiology and Vascular Medicine, Faculty of Medicine, Universitas Andalas/DR.M. Djamil Hospital, [3]Staff at Department of Cardiology and Vascular Medicine, Faculty of Medicine, Universitas Andalas/ DR.M. Djamil Hospital, [4]Staff at Department of Pulmonology and Respiratory Medicine, Faculty of Medicine, Universitas Andalas/ Dr.M.Djamil General Hospital, Padang, Indonesia, [5]Department of Epidemiology and Biostatistics, Faculty of Public Health, Universitas Andalas, [6]Staff at Department of Cardiology and Vascular Medicine, Faculty of Medicine, Universitas Andalas/DR.M. Djamil Hospital, [7]Staff at Department of Cardiology and Vascular Medicine, Faculty of Medicine, Universitas Andalas/ DR.M. Djamil Hospital, Padang, Indonesia, [8]Department of Public Health and Community Medicine, Faculty of Medicine, Universitas Andalas, [9]Department of Cardiology and Vascular Medicine, Faculty of Medicine, Universitas Andalas/DR.M. Djamil Hospital, Padang, Indonesia, [10]1Department of Cardiology and Vascular Medicine, Faculty of Medicine, Universitas Andalas/DR.M. Djamil Hospital, Padang, Indonesia, [11]Department of Cardiology and Vascular Medicine, Faculty of Medicine, Universitas Andalas/DR.M. Djamil Hospital, [12]1Department of Cardiology and Vascular Medicine, Faculty of Medicine, Universitas Andalas/DR.M. Djamil Hospital, Padang, Indonesia

BACKGROUND Heparanase was an enzyme of the β-D-endoglucuronidase type that degraded heparan sulfate. Its activity had implications in the growth of tumor cells, inflammatory responses, tissue remodeling, angiogenesis, and the invasion of cells. Elevated levels of procoagulant heparanase activity were evident in various conditions, including cancer. Malignancies, in general, exhibited a strong correlation with an increased susceptibility to thrombosis and a hypercoagulable state.

METHODS A cross-sectional analytical study conducted at RSUP M. Djamil Padang's IPJT from January to June 2023 focused on lung cancer patients who underwent Vascular Doppler examinations. Researchers assessed heparanase levels in venous blood samples obtained from these patients at the UNAND medical faculty's Biomedical Laboratory.

RESULTS Statistical analysis revealed that lung cancer patients with Deep Vein Thrombosis (DVT) had significantly higher median heparanase levels (3.598 ng/ml) compared to those without DVT (2.470 ng/ml), with a statistically significant p-value of 0.033. This finding suggests a strong association between elevated heparanase levels and DVT in lung cancer patients. Additionally, the study identified an optimal heparanase level of 2.786 ng/ml as a predictor for DVT occurrence among lung cancer patients. This predictor demonstrated robust sensitivity (71.4%) and specificity (67.7%), along with a commendable AUC value of 69.1% (p = 0.033), indicating its potential for accurately predicting DVT development in this patient group.

CONCLUSION The research findings highlighted that heparanase levels were notably higher in the lung cancer group with DVT compared to those without DVT, underscoring statistical significance with a p-value of 0.033 (p< 0.05). Furthermore, an optimal heparanase level of 2.786 ng/ml exhibited the capability to predict the development of DVT in lung cancer patients, boasting favorable sensitivity and specificity rates of 71.4% and 67.7% respectively, alongside a substantial AUC value of 69.1% (p = 0.033).

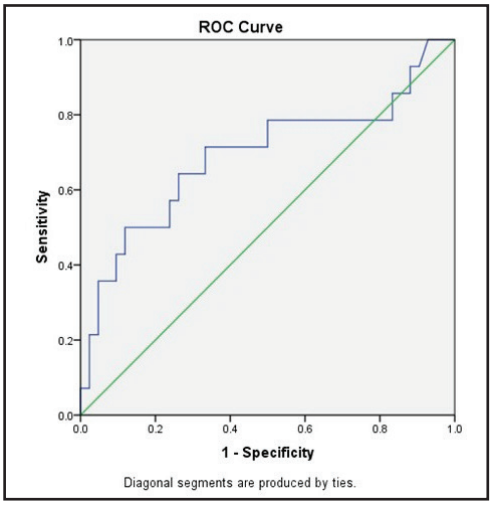


Figure 1. Accuracy of the Heparanase Level Cut-off Value for DVT in Lung Cancert

Patient Characteristics	Frequency n = 56		P-Value
	DVT, n (%) 14 (25%)	Non-DVT, n (%) 42 (75%)	
Gender			0.424a
Male	13 (93)	34 (81)	
Female	1 (7)	8 (19)	
Age			
18-39 years	2 (14.3)	2 (4.8)	0.559a
40-59 years	5 (35.7)	15 (35.7)	
≥ 60 years	7 (50)	25 (59.5)	
Imobilization			
Yes	5 (35.7)	7 (16.7)	0.151a
No	9 (64.3)	35 (83.3)	

Patient Characteristics	Frequency n = 56		P-Value
	DVT, n (%) 14 (25%)	Non-DVT, n (%) 42 (75%)	
Smoking Smokers Non-Smokers	 13 (92.8) 1 (7.2)	 33 (78.5) 9 (21.5)	 0.423a
IMT (kg/m2) <18.5 (underweight) 18.5-24.9 (not underweight)	 2 (14.3) 12 (85.7)	 7 (16.7) 35 (83.3)	 1.000a
Cancer Cells Type Lung Cancer Cell Type Small Cell Carcinoma Non-Small Cell Carcinoma a. Adenocarcinoma, b. Squamous Cell Carcinoma c. Adenosquamous Other Cell Types	 0 (0) 5 (35.7) 8 (57.1) 1 (7.2)	 5 (11.9) 18 (42.8) 19 (45.3) 0 (0)	 0.164b
Staging Stage III Stage IV	 4 (28.6) 10 (71.4)	 9 (21.4) 33 (78.6)	 0.717a

Table 1. Basic Characteristics of Research Subjects The basic characteristics of the research subjects are presented in Table 1

Lung Cancer	Heparanase Level (ng/ml) Median (Minimum-Maksimum)	P-Value
DVT	3,598 (2,009 – 12,561)	0.033c
Non-DVT	2,470 (1,480 – 10,443)	

Bivariate Analysis Table 2. Difference in median heparanase levels between TVD and non-TVD lung cancer patients.

A020

Percutaneous residual interatrial communication device closure in adult Ebsteins anomaly with hypoxemia: Post Hoc, Ergo Propter Hoc

Jenevieve Jansalin Violeta[1], Dr. Rolando H. Estacio[2], Dr. Emmett Vi G. Ladlad-pua[3], Dr. Reynante T. Gamponia[4], Dr. Christian Allan T. Comandante[5]

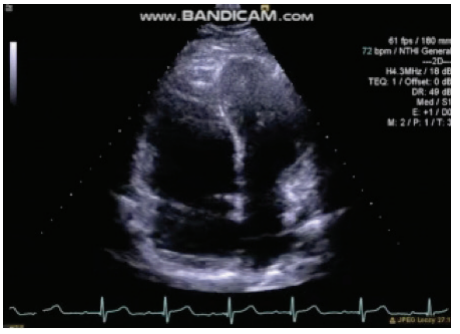
[1]Philippine Heart Center, [2]Philippine Heart Center, [3]Philippine Heart Center, [4]Philippine Heart Center, [5]Philippine Heart Center

BACKGROUND A 25-year old female patient with congenital heart disease - Ebstein's anomaly with concomitant ASD, S/P Tricuspid valve replacement and partial patch closure of the interatrial communication, presenting with desaturation and heart failure symptoms one month post surgery. The patient underwent TEE which revealed a small echo drop out measuring 0.4 cm at the superior and posterior portion of the interatrial septum, a continuous wave doppler showed a tricuspid valve gradient of 5 mmHg, with the interatrial septum bulging into the LA , signifying pressure overload in the RA. Cardiac catheterization showed pressure difference between the RA and the RV during diastole. The pressure gradient was more than 5mmHg which is indicative of prosthetic valve dysfunction, some form of valve obstruction secondary to probable thrombus formation on the biosprosthetic valve in the tricuspid position. Oximetry showed significant step-down of oxygen saturation at the level of the LUPV to LA, consistent with a right-to-left shunt. Amelioration of symptoms occurred after performing percutaneous device closure of the residual shunt using a PFO occluder.

METHODS Echocardiography and cardiac catheterization afforded the attending physicians a much clearer picture of the patient's condition and were pivotal in the decision to pursue percutaneous device closure of the residual shunt.

RESULTS Percutaneous device closure of the residual interatrial connection provided relief of the manifestations of the patient.

CONCLUSION In conclusion, Ebstein's anomaly is rare, and its management can be challenging, as with this case. An anecdotal approach was adopted with tremendous clinical outcomes.



Video 1. 4-chamber view showing Ebstein's anomaly GOSE II with 3.2 cm tricuspid valve

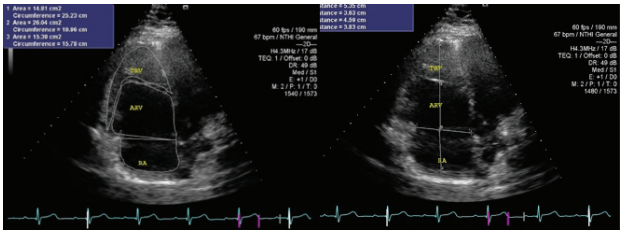


Figure 1-A. 2D echocardiography image showing a small functional right ventricle with dilated atrialized right ventricle. Atrialized right ventricle (ARV); Functional Right Ventricle (FRV), Right atri

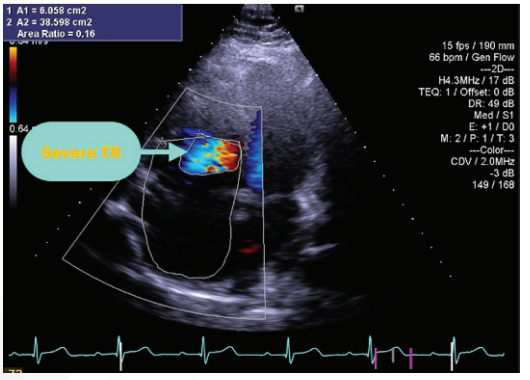


Figure 1-B. 2D echocardiography image showing severe tricuspid regurgitation (TR)

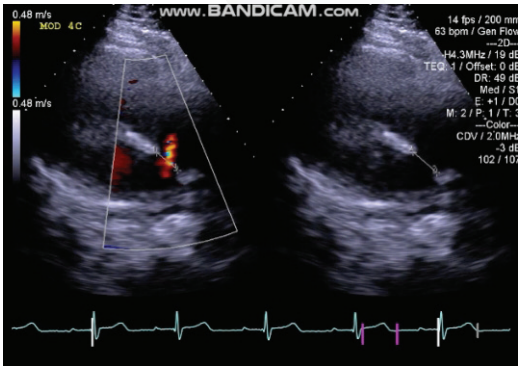
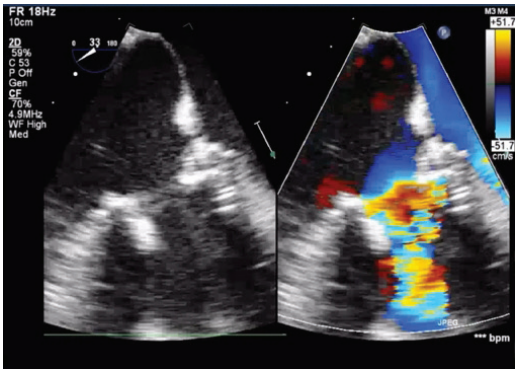


Figure 1-C. Modified 4 chamber view showing secundum type atrial septal defect measuring 1.2 cm by color width.



Video 2. Bioprosthetic tricuspid valve seen in the mid-esophageal view at 60Â° with good opening and closing motion

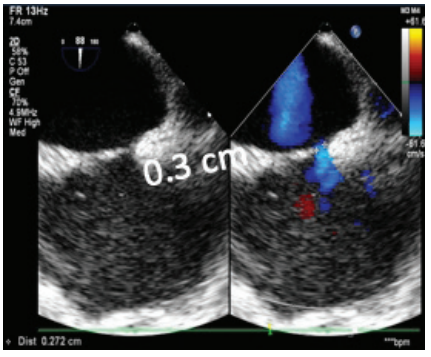


Figure 2. A small residual shunt is noted across the mid interatrial septum (0.3 cm)

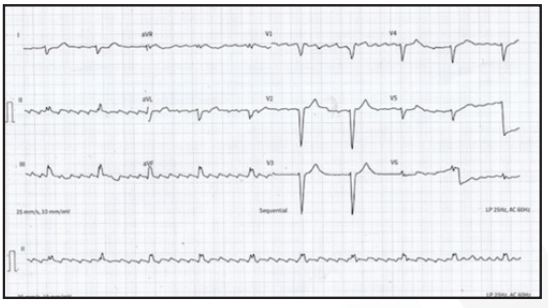


Figure 3. 12-lead ECG day 3 post-op showing paroxysmal atrial flutter with variable AV conduction.

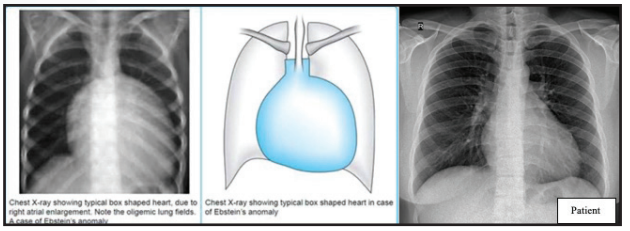
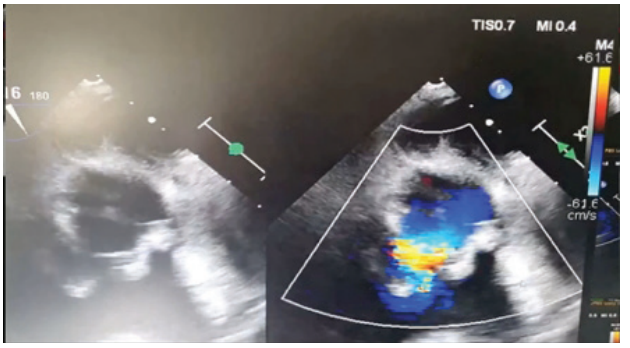


Figure 4. Chest radiograph showing clear lungs, right atrium not enlarged, with right ventricular prominence, normal vascularity, with a top normal CT ratio of 0.51



Video 3. TEE at 100Â° mid-esophageal level, showed a small echo drop out measuring 0.4 cm at the superior and posterior portion of the interatrial septum

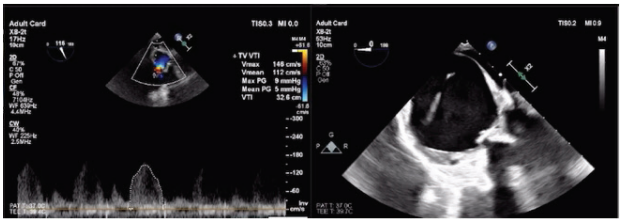


Figure 5. The modified bicaval view, continuous wave doppler showed a tricuspid valve gradient of 5 mmHg. Video 4. In the 0 mid-esophageal view, the interatrial septum is seen bulging into the LA, signifying pressure overload in the RA

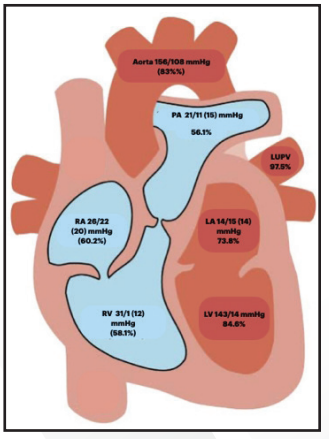
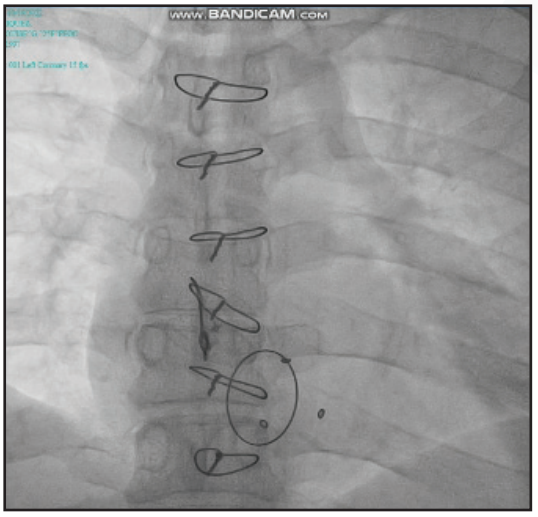
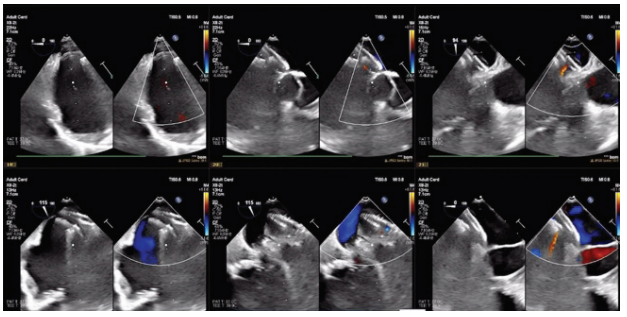


Figure 6. Shows the pressures and the saturation values of the different chambers and vessels



Video 5. PFO occluder device size 25-25 under fluoroscopy



Video 6. TEE showing an echogenic density across the interatrial septum consistent with an occluder device with confirmed absence of color flow

PA-24

Familial Cardiac Syncope

Nang Khin Hnaung Tint[1], Nang Khin Hnaung Tint[1], Kyaw Soe Win[1], Khin Oo Lwin[1], Khin Mg Win[1], Chaw Thu Thu[1], Thein Tun[12]
[1]Mandalay General Hospital, [2]Department of cardiovascular medicine, Mandalay General Hospital

BACKGROUND Arrhythmogenic right ventricular cardiomyopathy/dysplasia (ARVC/D) is an uncommon inherited cardiac disease characterized by progressive right ventricular (RV) dysfunction due to fibro-fatty replacement of the myocardium and associated with high risk of ventricular arrhythmias and sudden cardiac death (SCD). ARVC/D has a predominantly autosomal dominant inheritance, although recessive forms associated with a cutaneous phenotype are observed. [2]

CASE A 19-year-old otherwise healthy girl was presented with palpitation and chest discomfort. She had history of syncope for 2 times. On detailed history, her father died of sudden cardiac death at 39 years of age while traveling without significant known cardiac risks. He also had frequent episodes of syncope. Her sister also had repeated attack of syncope.

On physical examination, her heart rhythm was regular and no abnormal heart sounds. Her past EKG showed ventricular tachycardia of left bundle branch block morphology with superior axis (negative QRS in leads II, III, and aVF and positive in lead aVL). Her EKG in sinus state showed inverted T waves in V1 to V6 in the absence of right bundle branch block. 24-hour Holter ECG showed moderately frequent PVCs (15% PVCs load), 6 runs of Non-sustained VT. Echocardiogram of the patient and her sister revealed dilated RV and excessive trabeculation with RV wall motion abnormality

DISCUSSION In light of her clinical presentation, family history and objective findings, there was a high suspicion for ARVC. Since cardiac MRI was not available, the diagnosis for ARVC was confirmed by using International Task Force criteria. The patient met 1 major and 3 minor criteria, hence she was finally diagnosed as ARVC. Since there were frequent episodes of syncope with documented ventricular tachycardia, management plan for her was ICD as secondary prevention. Therefore, both her sister and herself are now on regular follow up.

CONCLUSION A young lady presenting with frequent palpitation and recurrent syncope with documented ventricular tachycardia and history of similar symptoms and sudden cardiac death in her family could be considered as inherited tachy-arrythmias. Ideally, cardiac MRI is indicated to detect fibro-fatty replacement of the myocardium in ARVC. In this case, we diagnosed ARVC by using clinical criteria with clinical history, EKG and echocardiogram. This case highlighted the importance of clinical criteria as a practical tool for the diagnosis of ARVC in the settings with limited available resources.

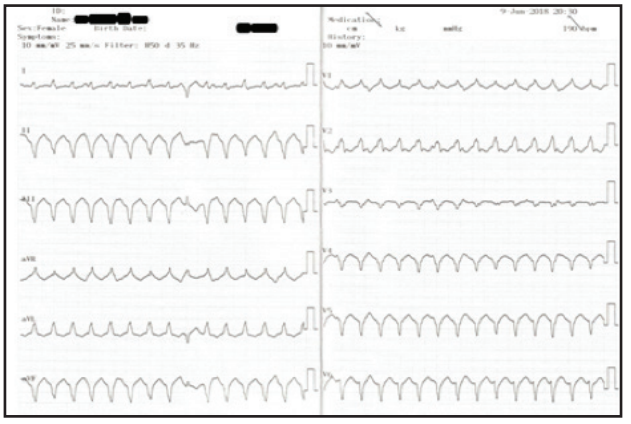


Fig 1. Electrocardiogram showing ventricular tachycardia with superior axis (negative QRS in leads II, III, and aVF and positive in lead aVL)

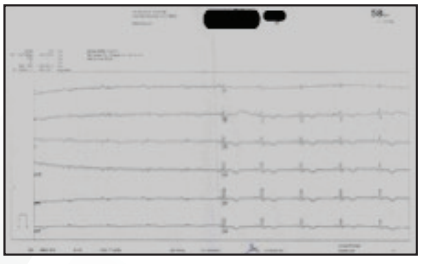


Fig 2. Electrocardiogram showing inverted T waves in V1 to V6 in the absence of right bundle branch block

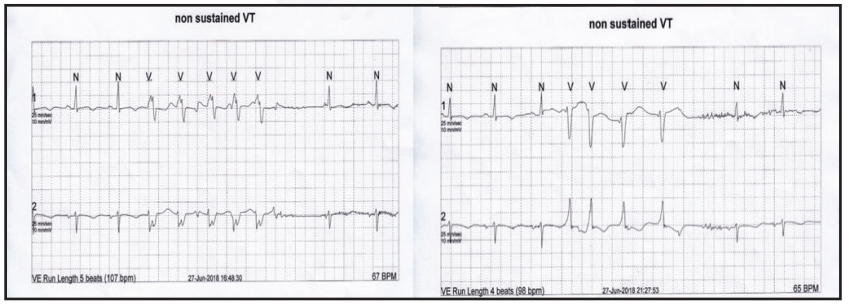


Fig.3 Holter monitoring showing runs of non-sustained VT

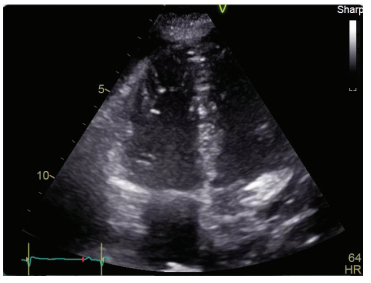


Fig. 4 Echocardiogram showed dilated Right ventricle and excessive trabeculation

Table 1. International Task Force Criteria for the diagnosis of ARVC
(Diagnosis can be made if patient has either two major criteria or one major and two minor, or four minor criteria)

Domain	Major criteria	Minor criteria
Family history	• ARVD confirmed in a first-degree relative • ARVD confirmed at surgery or autopsy in a first degreerelative • Pathogenetic mutation in a gene associated with ARVD	• History of ARVD in a first-degree relative in whom it was notpossible to determine whtere the current Task Force Criteria ismet • Premature death at <35 years of age due to suspected ARVD • ARVD confirmed pathologically or by current Task Force criteria in a second-degree relative
ECG abnormalities	• Epsilon wave (reproducible low-amplitude signals between end of QRS complex and beginning of T-wave in leads V1 to V3 • Inverted T-waves in leads V1 to V3 in individuals >14 years of age in the absence of RBBB and QRS ≥120 ms)	• Late potentials by signal-averaged ECG in ≥1 of 3 parametersin an absence of QRS ≥110 ms • Filtered QRS duration ≥114 ms • Duration of terminal QRS <40 uV and ≥38 ms • Root-mean-square voltage of terminal QRS <40 ms and ≤20uV • Terminal activation duration of QRS ≥55 ms measured between the nadir of the S wave and the end of the QRS complex, including R', in V1, V2, or V3, without RBBB • T-wave inversion in V1 and V2 in individuals >14 years of age in an absence of RBBB, or in V4 to V6 • T-wave inversion in leads V1 to V4 in individuals >14 years of age in the presence of complete RBBB
Arrhythmias	• Nonsustained or sustained VT with a LBBB morphology with superior axis (negative or indeterminate QRS in leads II, III, and aVF and positive in aVL)	• Nonsustained or sustained VT of RVOT configuration, LBBB morphology with inferior axis (positive QRS in leads II, III, and aVF and negative in aVL) or of unknown axis • 500 ventricular extrasystoles within 24 h on Holter monitoring
Tissue characteristics	• Fibro-fatty replacement of the myocardium on endomyocardial biopsy	• Residual myocytes <60% by morphometric analysis (or <50% if estimated) • with fibrous replacement of the RV free wall myocardium in >1 sample, with or without fatty replacement of tissue onendomyocardial biopsy • Residual myocytes 60%-75% morphometric analysis (or 50%-65% if estimated) with fibrous replacement of the RVfree wall myocardium in >1 sample, with or without fatty replacement of tissue on endomyocardial biopsy
Global or regional functional or structural abnormalities		

Domain	Major criteria	Minor criteria
Echocardiography	Regional RV akinesia, dyskinesia, or aneurysm and one of thefollowing at end diastole: • PLAX RVOT ≥32 mm (corrected for body o PLAX RVOT ≥36 mm (corrected for body size [PLAX/BSA] ≥19 mm/m2) size [PLAX/BSA] ≥21 mm/m2) • Fractional area change ≤33%	Regional RV akinesia, dyskinesia, and one of the following at enddiastole: • PLAX RVOT ≥32 and <36 mm (corrected for body size[PLAX/BSA] >18 and <21 mm/m2) • PLAX RVOT ≥29 and <32 mm (corrected for body size[PLAX/BSA] >16 and <19 mm/m2) • Fractional area change >33% and ≤40%
MRI	Regional RV akinesia or dyskinesia or dyssynchronous RV contraction and one of the following: • Ratio of RV end-diastolic volume to BSA ≥110 mL/m 2 (male) or ≥100 mL/m2 (female) • RV ejection fraction ≤40%	Regional RV akinesia or dyskinesia and one of the following: • Ratio of RV end-diastolic volume to BSA ≥100 mL/m and <110 mL/m 2 (male) or ≥90 mL/m 2 and <100 mL/m 2(female) • RV ejection fraction >40% and ≤45%
RV angiography	Regional RV akinesia, dyskinesia, or aneurysm	Regional RV akinesia, dyskinesia, or aneurysm

1. Department of Cardiovascular Medicine, Mandalay General Hospital

2. Li, K.H.C., Bazoukis, G., Liu, T., Li, G., et al. (2018) Arrhythmogenic right ventricular cardiomyopathy/dysplasia (ARVC/D) in clinical practice. Journal of Arrhythmia. 34 (1), 11–22.

PA-13

A Randomized Controlled Trial of Music Therapy in Synchronization with Heart Rhythm to Prevent Atrial Fibrillation in High-Risk Patients. A Clinical Trial Design Paper

Chloe Kim[1]; Rachel Hur[2]; Siwon Lee[3]; Hyun J Kim[4]; Chang G Lee[5]; Yong J Kim[6] (Speaker);
[1]YISS, bytheSOUND; [2]KIS, bytheSOUND; [3]bytheSOUND; [4]bytheSOUND; [5]bytheSOUND; [6]The Catholic University of Korea, Seoul.

BACKGROUND Atrial fibrillation (AF) is the most common type of arrhythmia, and it is a major risk factor for stroke. There is a significant unmet need for effective treatments for AF beyond the medical approach. Music therapy is a mind-body intervention that has shown promise in reducing the symptoms of AF and improving quality of life, but more research is needed to confirm its effectiveness in preventing AF in high-risk patients.
MATERIALS AND METHODS This will be a multicenter, randomized controlled trial. Participants will be randomized to either receive music therapy in synchronization with heart rhythm or standard care. The music therapy intervention will involve listening to music that is specifically designed to synchronize with the participant's heart rhythm for 30 minutes per day, 5 days per week for 12 weeks. The standard care group will receive the usual care for AF prevention.
RESULTS The primary outcome of the trial will be the incidence of AF at 12 months. Secondary outcomes include heart rate variability, quality of life, symptoms of AF , and healthcare resource utilization. The primary outcome will be analyzed using a time-to-event analysis with the log-rank test. The secondary outcomes will be analyzed using appropriate statistical tests, such as t-tests, chi-squared tests, and Mann-Whitney U tests.
CONCLUSION This clinical trial will provide important information about the efficacy of music therapy in synchronization with heart rhythm to prevent AF in high-risk patients. If the trial shows that music therapy is an effective intervention for preventing AF, it could offer a safe and affordable alternative to traditional medical treatments.
KEYWORDS music therapy, atrial fibrillation, synchronization

PA-12

A Comparison of Atrial Fibrillation Diagnosis Rates of the Conservative 24-hour Holter Test and Single-Lead Wearable Patches in Patients with Nonatherosclerotic Cerebral Infarction

Yong-Jae Kim

BACKGROUND Atrial fibrillation (AF) is a common heart rhythm disorder that can lead to stroke. The prevalence of AF increases with age, and stroke of undetermined source (ESUS) is a common type of stroke in older adults. However, early detection of AF in ESUS patients is challenging, as AF episodes can be intermittent and difficult to capture on conventional 24-hour Holter monitoring.
METHODS This is a multicenter, prospective, randomized controlled trial. Patients with IS within the past six months will be included. This study aims to assess the rate of AF detection in ESUS patients using singlelead patch monitoring for five days compared to conventional 24-hour Holter monitoring.
RESULTS The primary outcome is the detection of AF by a single-lead wearable patch versus 24-hr Holter monitoring during the follow-up visits (baseline, 6 months, and 12 months) among stroke patients with ESUS. The secondary outcome is to compare the detection rates of AF between 24-hour Holter monitoring and a single-lead wearable patch among stroke patients with large artery atherosclerosis (LAA) or small vessel occlusion (SVO) at baseline only.
CONCLUSION This study will provide evidence on the usefulness of a simple single-lead patch electrocardiogram for the early detection of AF in patients with ESUS. It will also determine whether single¬lead patch monitoring is more sensitive for detecting AF in IS patients with LAA or SVO.

Contents

GOLD SPONSORS

Daiichi-Sankyo

SILVER SPONSORS

NOVARTIS
Medtronic
Boehringer Ingelheim
AstraZeneca
TERUMO
Pfizer

BRONZE SPONSORS

Boston Scientific
Advancing science for life™
Abbott
MENARINI
ASIA-PACIFIC

CO - SPONSORS

BIOTRONIK
excellence for life
GOLDENGROWTH
BIOTECHNOLOGY

OTHER SPONSORS

DUC TIN MEDICAL EQUIPMENT CORP
sanofi
AM
ANGEION MEDICAL
BAYER
HETERO
Roche
SMT
iVascular
therapies for living
Elixir
MEDICAL CORPORATION
INNOVATION FOR LIFE
Gigamed
DHG PHARMA
Vì một cuộc sống khỏe đẹp hơn
DAVIPHARM
TRONGTIN
VIỆT QUỐC PHARMA
MERCK
VIATRIS
SERVIER
moved by you