PROGRAMME BOOK

The 12th Bali Cardiology Update
"Improving Knowledge on Latest Cardiovascular Disease: Translating Guideline into Real-world Experience"

23-26 August 2023 | The Westin Nusa Dua, Bali
CHAIRMAN FOREWORD

As the COVID-19 pandemic has been resolved, we are glad to welcome our colleagues to visit the paradise island, Bali, while joining our annual meeting, the 12th Bali Cardiology update that will be held offline. We organise workshops, symposiums, plenary talks, lectures with international and national keynote speakers, and interactive gatherings from throughout regions to discuss cutting-edge discoveries to advance the profession and medications specializing in cardiovascular disease managements, providing an absolutely superb framework for professionals in cardiovascular health, researchers, scientists, healthcare specialists, academicians, and individuals with interest in cardiology. This is your best opportunity to network with the most individuals from hospitals, academic institutions, heart associations, and research facilities because there are people from all over the world interested in finding a few solutions in the field of cardiology. The opportunity to network with colleagues and hear from renowned cardiologists and cardiovascular researchers at this cardiology summit is unmatched.

Agung Pradnyana Suwirya
### Workshop I: Physical Examination In Clinical Setting: Tips and Tricks for General Practitioners
**Venue:** Jakarta Room A  
**PIC:** dr. Made Agus Endra Permana, Sp.P

<table>
<thead>
<tr>
<th>TIME</th>
<th>Wednesday, 23 August 2023</th>
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<tbody>
<tr>
<td>07:30 - 07:50</td>
<td>Registrasi</td>
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<td>07:50 - 08:00</td>
<td>Opening oleh MC</td>
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<td>08:00 - 08:10</td>
<td>Opening by Chairman</td>
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<td>08:10 - 08:25</td>
<td>Pre-test</td>
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**Lecture 1:**
**Speaker:** dr. Tika Astuti, Sp.P, FIHA
**Topic:**
General Approach to valvular murmur related to hemodynamics

**Lecture 2:**
**Speaker:** dr. Ketut Raditya Surya, Sp.P, FIHA
**Topic:**
General Approach to cardiac defect murmur

**Lecture 3:**
**Speaker:** dr. I Gusti Agung Bagus Kriyana Jayantika, Sp.P, FIHA
**Topic:**
Physical examination in acute coronary syndrome and heart failure: what we should focus on?

**Lecture 4:**
**Speaker:** dr. I Dewi Gede Astia, Sp.P, FIHA
**Topic:**
Cardiac murmur: Interactive quiz in real cases

**Discussion**

**Lecture 5:**
**Speaker:** dr. I Made Gustiana, Sp.P, FIHA
**Topic:**
Hands on manostatin case discussion (30 minutes)

**Post-test**

**Closing workshop:**
1. Pembacaan peserta terbaik (2 orang)
2. Pembacaan video back up dan sponsor (bis ada)

### Workshop II: Exercise Stress Test: How to Session
**Venue:** Jakarta Room B  
**PIC:** dr. A.A.A. Dani Adelia Yuniarto, Sp.P(K)

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<tr>
<td>08:15 - 08:45</td>
<td>Overview of Exercise Physiology, Recognizing the Modalities and Protocols of Exercise Stress Test</td>
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<td>08:45-09:15</td>
<td>The Role of Exercise Stress Test in Diagnostci of CAD</td>
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<td>09:15-09:45</td>
<td>The Role of Exercise Stress Test in Assessing Exercise Classification and Exercise Prescription</td>
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**Hands on Session**
**Work Station:**  
Treadmill Stress Test and ECG Exercise Cycle

### Workshop III: All About Atrial Septal Defect: From Diagnosis to Intervention
**Venue:** Jakarta Room A  
**PIC:** dr. Made Setria Yudha Dewangga, Sp.JPP(K)

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**Lecture 1:**
**Speaker:** dr. Made Setria Yudha Dewangga, Sp.JPP(K)
**Topic:**
Back to Basic Clinical Hemodynamics and Pathophysiological Concept of ASD

**Lecture 2:**
**Speaker:** Dr. dr. Ni Putu Vidyatama Yanti, Sp.P(K)
**Topic:**
Physical Examination of ASD: What should not be missed?

**Lecture 3:**
**Speaker:** Dr. Ni Made Agus Wulan Sari, Sp.P(K)
**Topic:**
Imaging of ASD: Focus on Transesophageal Echocardiography

**Lecture 4:**
**Speaker:** Dr. Arna Ulfah Rohijitno, Sp.P(K)
**Topic:**
Management and post-procedural issues: Interventionalist point of view

**Lecture 5:**
**Speaker:** Dr. Dr. I Made Gustiana, Sp.P, FIHA
**Topic:**
Solving the Problems in ASD with Pulmonary Hypertension: Which guidelines should we use?

**Discussion**

**Closing workshop:**
1. Pembacaan peserta terbaik (2 orang)
2. Pembacaan video back up dan sponsor (bis ada)
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<td>08:20 - 08:50</td>
<td>Lecture 1</td>
<td>Assessing LV Performance with Echocardiography</td>
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<td>09:00 - 09:20</td>
<td>Lecture 2</td>
<td>Assessing RV Performance with Echocardiography</td>
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<td>Speaker: dr. Lubriyati Sastriati, Sp.PKI, FIHA</td>
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<td>09:30 - 09:50</td>
<td>Lecture 3</td>
<td>Pericardial Effusion and Tamponade Echocardiography</td>
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<td>Speaker: dr. Ida Nugraha Rangga Wibowo, Sp.PKI, FIHA, FASE</td>
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<td>Lecture 4</td>
<td>Echocardiography as a Non-invasive Method of Hemodynamic Monitoring</td>
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<td>What GPs can do</td>
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<td>Speaker: dr. Ni Made Ayo Wijaya Sar, Sp.PKI</td>
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<td>10:30 - 11:50</td>
<td>Hands-on</td>
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<td>12:05 - 12:15</td>
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<td><strong>PROGRESS</strong>: ALIF, RONY, DEMIA</td>
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**Lecture 2**

14:25 - 14:55

**Topics**: Profiling of Diagnosing and Managing Disorders of The Veins and how to manage comprehensively in Primary Health Care Services

**Speaker**: Dr. Agung Pradnyana Susanto, Sp.P, FIHA

**Discussion**

14:55 - 15:25

**Topics**: CLT and AI: the difference and treatment

**Speaker**: Dr. dr. Bagus Ari Pradnyana DS, Sp.PKI, FIMA, FICA, FACC, FSCAI

15:25 - 15:55

**Topics**: Basic duplex ultrasound for arterial/vein disorder

**Speaker**: Dr. Taufan, Sp.JP(K), FIMA, FICA, FACC

15:55 - 16:10

**Discussion**

16:10 - 16:20

**Topics**: Real Case Discussion

16:20 - 17:20

**Hands-on**

17:20 - 17:30

**Post-test**

17:30 - selesai

**Closing Workshop**

1. Pembacaan peserta terbaik (2 orang)
2. Penonton video batas panjang sponsor (buka ad)

**PROGRESS**: ALIF, RONY, DEMIA

**PERLU 3 ORANG PROGRESS**

1. Normal, 2 or 1 PAID
Abstract

Back to Basic: Clinical Hemodynamics and Pathophysiologial Concept of Atrial Septal Defect

Made Satria Yudha Dewangga, MD, FIHA

Atrial septal defect (ASD) is one of the most common congenital cardiac anomalies. Regardless of the type of ASD, the direction and degree of shunting across the communication is determined by the difference in compliance between the right and left ventricle. Hemodynamics in adult is characterized by left-to-right shunting, often complicated by related to long-standing right sided volume overload lead to pulmonary arterial hypertension and therefore will impact survival and morbidity. Right ventricular dilation and diastolic septal shift towards the left compromise the diastolic filling of the left ventricle. As a result, left-to-right shunting at the atrial level increases even further potentially compromising systemic cardiac output. Any hemodynamic condition modifying the ventricular compliances or intracardiac pressures will impact the interatrial shunt. The natural history of atrial septal defects remains relevant although there is a development of surgical and percutaneous closure method. Significant interatrial shunting may decrease exercise capacity, contributed to atrial and ventricular arrhythmias, may develop into acute to chronic heart failure and pulmonary hypertension, and ultimately impact survival. Understanding the basic hemodynamic and pathophysiologial concept will guide clinicians for provide better care and decision making.

Keywords: Hemodynamic, Pathophysiology, Atrial Septal Defect
Outlook of the Presentation
1. Natural History of ASD
2. Clinical Presentation
3. Pathophysiology and Haemodynamics
4. ASD with LV dysfunction and Pulmonary Hypertension: Case Illustrations

Atrial Septal Defect: Natural History
- Low mortality rate in the first two decades of life, related to pulmonary hypertension and congestive heart failure
- Independent predictors of long-term survival: age at operation and systolic PAP before surgery
- Premature death → progressive right ventricular dilation with diminished coronary reserve

Atrial Septal Defect: Natural History (2)
- Size of the defect:
  - < 6 mm typically close spontaneously
  - 6 and 9 mm may regress in infants and children
  - >10 mm, low probability of spontaneous closure
- Spontaneous closure: 1. Downward growth of septum secundum, 2. thrombotic plug formation, 3. septal aneurysm formation, 4. fusion of valve-like openings
- Larger defects were more likely to larger growth!

Clinical Presentation
- Impaired exercise capacity
- Atrial fibrillation

Patophysiology and Hemodynamics
- Direction and magnitude of blood flow:
  - Defect size
  - LA-RV pressure → Compliance of LV and RV!
- Any condition modifying ventricular compliances will impact the degree and direction of the interatrial shunt
Secundum ASD case with LV Systolic Dysfunction

ASD with Mitral Regurgitation
- Primum ASD → due to 'Cleft' mitral valve
- Secundum ASD → 30% has MR due to mitral valve prolapse (non-rheumatic)
  - 1. Volume overload in the right side of the heart by ASD → RV enlargement causes
  - 2. Left-side shift of IVS, inward shift of the LV papillary muscle, and...
  - 3. Shortening of the inter-papillary distance causes redundant chordae tendineae, leading to MVP

Cardiac Catheterization...
Flow Ratio 1.29 → 2.75, PAPr 180 → 13 WU, m2, PAP 7.9 → 2.8 WU, PVR/SVR ratio 0.37 → 0.18
Clinical decision?

Secundum ASD with LV Dysfunction and Significant Mitral Regurgitation

ASD with Pulmonary Hypertension
- Poiseuille's law: chronic increase in flow through pulmonary arteries leads to chronic increase in pressure → changes to medium-small PA
- Increased shear stress, endothelial dysfunction, smooth muscle hypertrophy, proliferation and progressive distortion of the pulmonary vasculature
- Progression of PH is multifactorial (idiopathic, genetic, PA thrombosis, Down syndrome, anorexigenic drugs)
Hemodynamics of ASD in Children

- High pulmonary vascular resistance, low RV compliance → sometimes R to L shunt
- Aging → lower PVR, LV/RV compliances reduced
- L to R shunt mostly occurred during late ventricular systole and early diastole period (atrial contraction)
- Increased intrathoracic pressures (expiration) → the left-to-right gradient increases
- Decreased intrathoracic pressures (inspiration) left-to-right gradient decreases

What Condition Increases Left to Right Shunting?

- Hypertension
- Ischemic heart disease
- Cardiomyopathy
- Aortic stenosis/regurgitation
- Mitral valve stenosis/regurgitation
- RV enlargement → altered left ventricular geometry (reverse Barnheim effect)

What Condition Caused Right to Left Shunting? (result in cyanosis)

- Pulmonary stenosis
- Pulmonary hypertension (pulmonary vascular disease)
- RV fibrotic process

'Reverse Barnheim Effect' in ASD

- Septum bulging to LV / diastolic flattening of septum LV and circular during systole
- Tricuspid regurgitation
- Impaired ventricular interdependence
- Less distensible LV and underfilled
- Leftward and upward shift of diastolic pressure-volume relationship in ASD

ASD Case with Underfilled LV

ASD and LV Disease

- L to R shunt → reduced LV preload and reduced LV end diastolic volume
- Right sided volume overload → myocardial injury due to hemodynamic stress, increased angiotensin II and catecholamines
- Diastolic heart failure
- LV diastolic stiffness and left ventricular abnormal relaxation contribute to transient heart failure after the shunt closure
- Shunt closure in older patient → increased LAp (with chronic HT and decreased LVEF)
**Pathophysiology of PH Related ASD**

- ASD with post capillary PH (PAWP >15 mmHg, PVR >3 Wood unit)
- ASD with Mitral stenosis (Lutembacher syndrome), Mitral regurgitation
- ASD with elevated LVEDP
- ASD with pre-capillary PH (PAWP ≤15 mmHg, PVR >3 Wood unit)
- Primary PAH or Eisenmenger?
- Associated with symptoms → aggravating right heart failure → Eisenmenger syndrome
- Worse prognosis than post-tricuspid shunts with PH

**Case Illustration**

- Female, 30 y.o
- Fatigue, Functional class II-III
- BP 110/70 mmHg, wide fixed S2 splitting, grade III holosystolic murmur (+) at LL5B, increased P2 intensity
- Peripheral SpO2 92%
- No ronchi or wheezing

**Echo**

**Case of ASD with severe PH**

- Flow ratio (Qp:Ao): 1.7 → 2.2
- PAP: 37.4 → 7.6 WU/m²
- PVR: 11.2 → 11.9 WU
- PAP/VR ratio: 0.37 → 0.27
- Clinical decision?

**TAKE HOME MESSAGES**

- Direction and magnitude of ASD blood flow depends on both the size of the defect and the relative atrial pressures, which relate to the compliances of the left and right ventricles
- Condition modifying the ventricular compliances or intracardiac pressures will impact the shunt nature, survival and morbidity
- Understanding natural history and hemodynamic of ASD will guide physician for appropriate clinical decision making

**Thank You!**

*Every cloud has a silver lining. Difficult times lead to better days.*

*Be Optimistic.*

*Difficult times are like clouds that pass over head and block the sun.*
23rd - 26th August 2023 | The Westin Nusa Dua, Bali

Guideline into Real-World Experience

"Improving Knowledge on Latest Cardiovascular Disease: Translating

Workshop of All About Atrial Septal Defect: From Diagnosis to Intervention

in the 12th Bali Cardiology Update 2023

SPEAKER

K. Ped. P.J.B. (K), FIHA

Dr. Made Satira Yudha Dewangga, Sp. JP

This certificate is proudly presented to

CERTIFICATE
**SURAT TUGAS**

Nomor : 451/UN14.2.2.V.23/PD/2023

Dalam rangka Tri Dharma Perguruan Tinggi Program Studi Spesialis Jantung dan Pembuluh Darah Fakultas Kedokteran Universitas Udayana, bersama ini Dekan Fakultas Kedokteran Universitas Udayana menugaskan Dosen Program Studi Spesialis Jantung dan Pembuluh Darah Fakultas Kedokteran Universitas Udayana sebagai Pelaksana Kegiatan atas nama:

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<td>198201032008121002</td>
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<td>2.</td>
<td>Dr.dr. Bagus Ari Pradnyana Dwi Sutanegara, Sp.JP(K), FIHA</td>
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<td>dr. Ida Bagus Rangga Wibhuti, M.Biomed, Sp.JP(K), FIHA</td>
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<td>dr. A.A.Ayu Dwi Adelia Yasmin, M.Biomed, Sp.JP(K), FIHA</td>
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<td>9.</td>
<td>dr. Made Satria Yudha Dewangga, M.Biomed, Sp.JP(K), FIHA</td>
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<td>dr. Rani Paramitha Iswari Maliawan, M.Biomed, Sp.JP, FIHA</td>
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Untuk mengikuti kegiatan The 12th Bali Cardiology Update, yang akan diselenggarakan pada:

Tanggal : 23 - 26 Agustus 2023
Tempat : Hotel Westin, Nusa Dua, Bali

18 Agustus 2023
a.n. Dekan Fakultas Kedokteran
 Koordinator Program Studi Spesialis Jantung dan Pembuluh Darah
FK Universitas Udayana,

I Made Putra Swi Antara
NIP 198201032008121002