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
ABSTRACT

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Compression stocking in venous insufficiency post endovenous laser ablation, is it beneficial or not? A systematic review and meta-analysis

Muhammad Rifqi Arya Putra1,2, Nabilah Hanifah Mukti1, Arikah Dyah Lamara1,2, J. Nugroho Eko Putranto1

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Backgrounds: Endovenous laser ablation or EVLA are widely used as an alternative to surgery for treatment of venous insufficiency. Compression belief could relieve pain and reduce complications post-operative. We aim to find the benefit of compression stocking in patients with venous insufficiency treated with EVLA.

Materials and Methods: Study was designed according to PRISMA guidelines. Literature searching was done systematically for the latest 10 years of publication through several databases including Pubmed, SCOPUS, and Web of Science, until July 2023. Primary outcomes measured are pain score. Secondary outcomes are Aberdeen Varicose Vein Questionnaire (AVVQ), quality of life, days return to work and complications. Statistical analysis used random-effects model was used to derive standardized mean difference (SMD) and risk ratios (RRs) with 95% confidence interval (CI) using Review Manager (Revman) 5.4.1 Software.

Results: Five RCT and 1 cohort comprising 939 patients were included in this meta-analysis. There was significantly difference in pain score between compression group and no compression group in the first 7 days [MD: -1.90 (95% CI: -3.55 to -0.24) but not significantly differ after 28 days [MD: -0.04 (95% CI: -0.30 to 0.21)]. Time return to work was also significantly different [MD: -1.24 (95% CI: -2.41 to 0.07). Both AVVQ score followed for 7 days [MD: -1.47 (95% CI: -3.10 to 0.16; p=0.08)] and ≥30 days showed no significant difference [MD:0.45 (95% CI), −0.20 to 1.10; p=0.17)]. No significant differences in post-procedural complications were shown, thrombophlebitis (OR −0.01, 95% CI −0.06 up to 0.03; p=0.23) and paresthesia (OR −0.03, 95% CI −0.09 up to 0.02, p=0.23). Through 1 week versus ≤6 weeks quality of life questionnaire evaluations, there were no differences in physical function either. Conclusions: Benefit of compression stocking in venous sufficiency post EVLA was associated with 7 days post-operative pain and improve days return-to-work but may not associated with better quality of life and further complications. Keywords: Endovenous laser ablation, EVLA, venous insufficiency, compression stocking, elastic bandage

Prognostic values of right ventricular echocardiography functional parameters for mortality prediction in precapillary pulmonary hypertension: a meta-analysis of nineteen cohort studies

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Background: Considering the progressive nature of precapillary pulmonary hypertension, accurate risk stratification and mortality prediction are crucial. However, existing studies often lack easily accessible and reliable prognostic markers, underscoring the need to explore novel and non-invasive modalities like echocardiography for improved prognostication. We aimed to examine the prognostic value of right ventricular echocardiographic functional parameters in predicting mortality among patients with precapillary pulmonary hypertension.

Methods: A systematic search was conducted in the MEDLINE and EMBASE databases for longitudinal studies published until July 2023, examining the relationship between right ventricular echocardiographic findings and mortality without language constrains. Pooled statistical analysis was utilized to assess the statistical means and hazard ratios (HRs) of key right ventricular parameters, namely right ventricular longitudinal strain (RVLS), tricuspid annular plane systolic excursion (TAPSE), right ventricular systolic pressure (RVSP), and right ventricular ejection fraction (RVEF).

Results: Comprehensive analysis was conducted on nineteen cohort studies, encompassing a total of 2,034 patients. Pooled statistical analysis yielded compelling results, indicating the compound mean values for key right ventricular parameters in precapillary pulmonary hypertension as follows: RVLS at -16.62% (95%CI: -20.17 to -13.06), TAPSE at 16.63 mm (95%CI: 13.58 – 19.68), RVSP at 48.52 mmHg (95%CI: 45.12 – 51.72), and RVEF at 38.11% (95%CI: 26.72 – 49.49). Univariate HRs analysis revealed compelling associations between these right ventricular parameters and mortality in patients afflicted with precapillary pulmonary hypertension. Specifically, all evaluated parameters, including RVLS (HR: 2.88, 95%CI: 2.15 – 3.61, p < 0.05), TAPSE (HR: 1.26, 95%CI: 1.16 – 1.36, p < 0.05), RVSP (HR: 1.19, 95%CI: 1.13 – 1.26, p < 0.05), and RVEF (HR: 2.87, 95%CI: 1.85 – 3.89, p < 0.05), emerged as significant independent prognostic markers for mortality in precapillary pulmonary hypertension.

Conclusions: RVLS, TAPSE, RVSP, and RVEF hold considerable promise as valuable prognostic indicators for mortality prediction in individuals with precapillary pulmonary hypertension. Keywords: right ventricular, echocardiography, pulmonary hypertension.
ABSTRACT

Optimal timing of dual antiplatelet de-escalation in acute coronary syndrome: systematic review and meta-analysis

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Background: De-escalation strategy is beneficial to prevent the risk of bleeding that commonly happens in acute coronary syndrome (ACS) patients with dual antiplatelet therapy (DAPT), especially Asians. However, the exact timing and outcome of de-escalation remain unclear. This meta-analysis aims to evaluate the outcome and optimal timing of the de-escalation strategy.

Methods: A systematic search for studies comparing the outcome of early DAPT de-escalation with postponed DAPT de-escalation was conducted on multiple databases. Primary outcomes included major adverse cardiac events (MACE), major bleeding, minor bleeding, all-cause mortality (ACM), cardiovascular death. Secondary outcomes were identical to primary outcomes but specific to Asians. All outcomes were subjected to subgroup analysis based on the timing of de-escalation (week 1 and 4). Study eligibility was assessed based on the Cochrane Risk Bias and all outcomes were analyzed using the Review Manager 5.4 by random-effect Mantel-Haenszel risk ratio (RR).

Results: Twenty studies with 33,698 patients were included. De-escalation strategy was generally significant in reducing the incidence of MACE [RR=0.77, 95%CI=0.63–0.94, P=0.01, I²=52%]. In the subgroup analysis, only de-escalation at week 4 significantly reduced MACE, ACM, and cardiovascular death [RR=0.61; 95% CI=0.45–0.82; P=0.0010, I²=53%; RR=0.65, 95%CI=0.55–0.77, P<0.00001, I²=37%; RR=0.35, 95%CI=0.21–0.57, P<0.00001, I²=0%, respectively]. De-escalation strategy at both weeks significantly reduced major bleeding [RR=0.80, 95%CI=0.68–0.94, P=0.007, I²=0% and RR=0.54, 95%CI=0.42–0.71, P<0.00001, I²=65%, respectively]. Only de-escalation at week 1 significantly reduced minor bleeding [RR=0.79, 95%CI=0.65–0.95, P=0.01, I²=37%]. In Asians, de-escalation at week 4 was significantly associated with lower MACE, major bleeding, minor bleeding, ACM, and cardiovascular death [All P-value <0.05].

Conclusion: DAPT de-escalation has a better safety profile and comparable efficacy to conventional methods. De-escalation at week 4 in Asians has the potential to provide optimal outcomes. The overall meta-analysis results suggest the inclusion of CBT-based intervention in CR programs had impact on enhancing patients' physical function and psychological well-being. These findings suggest reasonable approach to integrate standardized CBT-based psychological interventions into current CR programs to improve overall CHD patients’ health.

Keywords: Cognitive Based Therapy, Coronary Heart Disease

Correlation between bioimpedance analysis and echocardiography in determining fluid status of patient with acute decompensated heart failure treated in intensive cardiology care unit Mangusada Hospital

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Background: Current cardiac rehabilitation (CR) in general is still focused on physical rehabilitation to improve heart functions and quality of life for patients undergoing rehabilitation for coronary heart disease (CHD). However, psychological rehabilitation is believed to maximize the impact of CR on CHD patients’ recovery. Cognitive behaviour therapy (CBT) has been shown to have a positive correlation with psychological aspects in general populations, as suggested by studies. This study aims to evaluate the impact of CBT in physical and physiological outcome among CHD patients.

Methods: A systematic literature searching was conducted using 3 databases (Cochrane, Pubmed, Science Direct) in July 2023. The quality of the included studies was assessed using the Cochrane Risk of Bias. Pooled data analysis of primary and secondary outcomes was performed with Review Manager 5.4.

Results: A total of 7 trials comprising 894 CHD patients fulfilled the inclusion criteria and were eligible to be quantitatively analysed in our meta-analysis. Our analysis revealed that the integration of CBT-based intervention led to higher physical exercise [SMD 1.50; 95% CI 1.02-2.00; P < 0.00001], self-efficacy expectation [SMD 1.05; 95% CI (-0.27)-2.37; P < 0.00001], quality of life (QoL) score [SMD 1.12; 95% CI (-0.35)-2.59; P < 0.00001], and psychological score [OR 1.01; 95% CI 0.03-1.98; P < 0.00001] compared to control.

Conclusions: The overall meta-analysis results suggest the inclusion of CBT-based intervention in CR programs had impact on enhancing patients’ physical function and psychological well-being. These findings suggest reasonable approach to integrate standardized CBT-based psychological interventions into current CR programs to improve overall CHD patients’ health.

Keywords: Cognitive Based Therapy, Coronary Heart Disease

The impact of cognitive based therapy (CBT)-based intervention for improving physical and psychological functions in coronary heart disease patients: a meta-analysis

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Background: Current cardiac rehabilitation (CR) in general is still focused on physical rehabilitation to improve heart functions and quality of life for patients undergoing rehabilitation for coronary heart disease (CHD). However, psychological rehabilitation is believed to maximize the impact of CR on CHD patients’ recovery. Cognitive behaviour therapy (CBT) has been shown to have a positive correlation with psychological aspects in general populations, as suggested by studies. This study aims to evaluate the impact of CBT in physical and physiological outcome among CHD patients.

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Conclusions: The overall meta-analysis results suggest the inclusion of CBT-based intervention in CR programs had impact on enhancing patients’ physical function and psychological well-being. These findings suggest reasonable approach to integrate standardized CBT-based psychological interventions into current CR programs to improve overall CHD patients’ health.

Keywords: Cognitive Based Therapy, Coronary Heart Disease
ABSTRACT

48.45±5.56 (35-90) kg, mean body mass index was 22.78±1.55 (15.88–30.42) kg/m². The mean percentage of TBW was 57.92±2.92 (40.1–69.2)%. The mean ECW was 27.7±1.88 (17.7–39.2)%. All samples have edema index >0.39. The patient’s Cavil index averaged 42.6±6.20 (7.00–74.33) and the patient’s ERAPS was 3 mmHg 10%, 8 mmHg 60%, and 15 mmHg 20%. There is a strong correlation between TBW and ERAP, with r = 0.766 with p = 0.010 and between TBW and VCD index with r 0.782 and p=0.001.

Conclusion: TBW-BIA showed a strong correlation with ERAP and VCD index and can be used to determine fluid status of ADHF patient.

Keywords: bioimpedance analysis, echocardiography, fluid status.

The efficacy of tolvaptan in patients hospitalized for acute decompensated heart failure with advanced chronic kidney disease

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Background: Heart failure (HF) and chronic kidney disease (CKD) often coexist and pose significant management challenges for clinicians. Hospitalization for Acute decompensated heart failure (ADHF) in patients with CKD requires careful consideration of therapeutic options. Tolvaptan, a selective vasopressin V2 receptor antagonist, has shown promise in managing fluid retention and has been used in patients with advanced CKD. However, the efficacy and safety of patients with CKD remain less explored.

Methods: A retrospective study was conducted on hospitalized patients with ADHF and CKD (defined as an estimated glomerular filtration rate <30 mL/min/1.73 m²) who received tolvaptan as part of their treatment regimen. Electronic health records were analyzed to assess changes in renal function, fluid balance, and clinical outcomes during the hospitalization period.

Results: A total of 50 patients met the inclusion criteria and were included in the analysis. Among the study participants, 70% had stage 4 CKD, and 30% had stage 5 CKD. The administration of tolvaptan resulted in a significant reduction in total body weight (p < 0.001) and improvement in dyspnea scores (p < 0.05) within the first 48 hours of treatment. Despite a transient decline in estimated glomerular filtration rate (eGFR) during the initial 24 hours (p = 0.02), eGFR levels returned to baseline by the end of the hospitalization period (p = 0.08). Hospital length of stay was not significantly different between patients treated with tolvaptan compared to those who did not receive it (p = 0.42).

Conclusions: Tolvaptan appears to be effective in managing fluid overload and symptoms of ADHF in patients with CKD during hospitalization. Although a temporary decline in eGFR was observed, it recovered to baseline levels without significant adverse effects on renal function. Further studies, including randomized controlled trials, are needed to validate these findings and establish the long-term safety and efficacy of tolvaptan in this specific patient population.

Keywords: heart failure, chronic kidney disease, tolvaptan, decompensated heart failure, fluid overload, vasopressin V2 receptor antagonist.

Comparison of history and electrocardiogram-only score manchester acute coronary syndromes (HE-MACS) and emergency department assessment of chest pain score (EDACS) in hospital mortality: a prospective cohort study

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Background: Early diagnosis of ACS is the most effective method in reducing the mortality burden of this disease. Serial troponin examination as a gold standard requires a long time. Stratification of patients using simple scoring systems such as the HE-MACS and EDACS scores can be used as an alternative method.

Methods: This prospective cohort study was conducted at Tabanan General Hospital from October 2022. The inclusion criteria were patients with acute coronary syndrome aged 18 to 80 years. While the exclusion criteria were patients with symptoms more than 24 hours before hospital admission, patients with hemodynamic instability, patients with pulmonary embolism, patients with acute aortic syndrome, and patients with pain suspected of not originating from the heart. Patients who met the criteria then recorded their ECG, HE-MACS score, EDACS score, TIMI score, GRACE score and were followed. After the data was collected, a descriptive and ROC analysis was performed using SPSS where the value of p <0.05 was considered significant.

Results: In this study, a total of 51 patients with acute coronary syndrome were found with an average age of 63.06 ± 11.49 years where most of the patients were male with a diagnosis of UAP. Based on the HE-MACS score assessment, 45.2% of patients were classified as high or high risk, 60.8% of patients were not low risk on the EDACS score. In this study, there was no significant difference in the HE-MACS and EDACS scores on the risk of mortality during hospitalization (HE-MACS score: AUC (0.439); p=0.536 (95% CI: 0.246–0.631); sensitivity 54.5% and specificity 52.5%. EDACS score: AUC (0.634); p = 0.177 (95% CI: 0.458–0.810); sensitivity 63.6% and specificity 65%). Whilst in the GRACE and TIMI scores, both scores were found to provide a significant difference in the risk of in-hospital mortality (TIMI score: AUC (0.709); p=0.035 (95% CI: 0.531–0.886); sensitivity 36.4 % and 87.5% specificity GRACE score: AUC (0.876), p=0.000 (95% CI: 0.742–1.000), 81.8% sensitivity and 82.5% specificity.

Conclusions: There was no significant difference in the HE-MACS and EDACS scores on the risk of mortality during hospitalization.

Keywords: HE-MACS, EDACS, in-hospital mortality, ACS.

Complications and efficacy of surgical versus transcatheter closure for pediatric ostium secundum atrial septal defect: a meta-analysis of fourteen cohort studies

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Background: The optimal approach for pediatric ostium secundum atrial septal defect (ASD) closure remains uncertain, with limited comprehensive
Endurance sports athletes and the risk of atrial fibrillation: a systematic review of the supposedly heart-protective pursuit

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Background: Studies on atrial fibrillation (AF) risk in endurance sports athletes have yielded varied outcomes. Several studies suggest that they may face higher AF risk due to long-term high myocardial workload, leading to atrial structural changes and cardiac remodeling. This study aims to analyze whether endurance sports athletes indeed have increased AF risk.

Methods: A thorough search in four databases (Pubmed, PMC, ClinicalTrials.gov, and EMBASE) using 'athlete' and 'atrial fibrillation' as keywords was conducted. Clinical trials, cohort, and cross-sectional studies were included. Two independent reviewers performed searching and quality assessment.

Results: Out of 1713 articles, four were included after duplicates removal and full-text assessment. Johansen et al’s 10-year study on older endurance sports athlete showed higher AF prevalence in athletes compared to the general population (28.5% vs. 17.8%), with risk ratio of 1.64. Molina et al found higher lone AF incidence in marathon runners compared to sedentary individuals (4.92% vs. 0.69%), with hazard ratio of 8.80. Moreover, Aggarwal et al’s lone AF incidence in marathon runners compared to sedentary individuals population (28.5% vs. 17.8%), with risk ratio of 1.64. Molina et al found higher sports athletes indeed have increased AF risk.

Conclusions: Both surgical and transcatheter closures are equally effective, with transcatheter closure showing significantly fewer complications.

Keywords: Surgical Closure, Transcatheter Closure, Atrial Septal Defect

High blood pressure in children across primary schools in rural Bali

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Background: While hypertension has traditionally been associated with adulthood, emerging evidence suggests its occurrence in childhood and adolescence, leading to essential hypertension in adulthood and subsequent cardiovascular diseases. This study aims to bridge the knowledge gap by assessing the prevalence of high blood pressure in children in Bali and exploring its association with body mass index (BMI) as a potential risk factor.

Methods: The study included 1,939 Gianyar elementary school students. Blood pressure measurement and classification was conducted according to the American Academy of Pediatrics 2017 pediatric hypertension guidelines. Body weight, height, and blood pressure were measured. Children with elevated blood pressure and hypertension were defined as having high blood pressure (HBP).

Results: In children aged 6-9 years, the prevalence of HBP was 6.3% for boys and 6.8% for girls. For children aged 10-13 years, the prevalence increased to 9.6% for boys and 16.7% for girls. Irrespective of gender or age, a higher BMI was consistently linked to an elevated prevalence of HBP (P < 0.001). For children aged 6-9 years, obesity was significantly associated with HBP in both boys (OR: 11.709, 95% CI: 2.601 - 52.718, P = 0.001) and girls (OR: 12.069, 95% CI: 1.443 - 100.970, P = 0.002). Similar significant associations were found in the 10-13-year-old age group, with boys (OR: 15.019, 95% CI: 3.250 - 69.401, P = 0.002) and girls (OR: 25.964, 95% CI: 3.145 - 214.346, P = 0.002).

Conclusions: Our study highlights the higher prevalence of high blood pressure among children in Gianyar compared to the global prevalence. Additionally, there is a significant association between high BMI and HBP, emphasizing the role of obesity in contributing to elevated blood pressure levels in children.

Keywords: blood pressure, children, measurement.
ABSTRACT

A 47-year-old female presented with progressive symptoms of cardiac sarcoidosis: how to disclose?

F. Hutomo, K. J. Sandi

Sarcoidosis: how to disclose?

An enigmatic case of isolated cardiac sarcoidosis: how to disclose?

K. J. Sandi, J. Christopher, S. H. Wicaksono, F. Hutomo, L. P. Sucidi

ABSTRACT

Captivating type a aortic dissection as the symptoms imitate anterior st-elevation myocardial infarction; a ticking bomb inside

Samuel Widodo, I. Dewa Gede Dwi Sumajaya

Background: Acute aortic syndrome (AAS) might be difficult to detect as its symptoms may mimic acute myocardial infarction. Although it is a rare occurrence, both conditions can manifest simultaneously. However, distinguishing between them could be challenging as incorrect therapy protocol, delayed intervention may result fatal events.

Case presentation: A 31-year-old male presented with substernal torn-like chest pain radiating to the mandible, resulting in shortness of breath for the past 3 weeks. He has used marijuana and methamphetamine in the past. Physical examination showed hypotension, tachycardia, tachypnea, weak peripheral pulses, and prolonged CRT. ECG revealed persistent anterior ST elevation. Chest radiology displayed heart-shaped globular cardiomegaly and mediastinal widening. Due to the presence of unusual signs, the attending physician refrained from administering ACS protocol therapy. Consequently, it was determined that the first step would be to perform an echocardiogram, which revealed aortic root dilation with intimal flap, false lumen with turbulent (+), severe aortic regurgitation, and RWMA (+). Loading for anti-platelet and anti-coagulant were not given, but hemodynamic optimisation was administered using dobutamine, norepinephrine, and epinephrine. The patient was referred to Prof. Ngoerah General Hospital to receive further medical evaluation and therapy.

Discussion: Identifying acute AD Stanford A from true AMI is challenging and misdiagnosis is very common in patients with ST-segment elevation on initial ECGs. AMI is primarily diagnosed based on clinical symptoms, electrocardiogram, and troponin level, whereas the diagnosis of AD can only be confirmed by imaging modalities. Based on this case, the patient has a specified characterization of chest pain, history of consuming marijuana and methamphetamine, and an aortic regurgitation murmur on physical examination.

Conclusions: Patients presenting with symptoms suggestive of ACS should consider AD as a possible etiology. Missed diagnosis of AD could be fatal, as antiplatelet therapy and cardiac catheterization, are two absolute contraindications to AD treatment.

Keywords: Aortic Dissection, Myocardial Infarction

Modified valsala maneuver for cardioversion of supraventricular tachycardia in rural hospital: a safe and cost-effective treatment

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Background: Valsalva maneuver is the first line treatment for supraventricular tachycardia (SVT), a common and ubiquitous cardiac arrhythmias. However, cardioversion rate is very low (<20%), necessitating the use of antiarrhythmic agents, which often are not available in rural hospital.

Case Illustration: A 22-year-old male with no significant past medical or family history presented to the emergency department for palpitation that occurred 2 hours before admission. Physical examination was unremarkable except for tachycardia. Initial workup showed normal blood count, electrolyte, and thyroid function. Baseline electrocardiography demonstrated SVT with 251 beats/minutes (Figure 1). Modified valsala maneuver was performed, patient in semi-recumbent position connected to a cardiac monitor, was instructed to forcefully expire for 15s, blowing into a 10 mL syringe to just move the plunger.
ABSTRACT

Immediately after the strain, patient was laid flat with his legs raised at an angle of 45 degrees for 15s. Patient then returned to the semi-recumbent position for re-assessment. Modified valsala maneuver was carried out twice without any side effects and ECG was recorded after successful conversion.

**Discussion:** Latest consensus guideline published recommended valsala maneuver to increase vagonal tone as first line treatment of SVT. A modification of valsala maneuver may improve the SVT conversion rate compared to standard valsala. Modification adds a postural change, supine positioning with passive leg elevation immediately after the valsala strain. This promotes further peripheral blood drain to right heart by gravity, increasing venous return and vagal stimulation. Furthermore, it increases cardiac parasympathetic tone, slowing atrioventricular node conduction, and sufficiently interrupts the electrical activity of SVT. Appelboam, et al in REVERT trial and Chen, et al. showed successful conversion rates of 43% and 46% using the modified valsala maneuver, respectively.  

**Conclusions:** Modified valsala maneuver is safe, cost-effective, and can be used as the routine initial treatment for episodes of SVT, especially in rural hospital.  

**Keywords:** valsala maneuver, cardioversion, supraventricular tachycardia

Current modalities for the diagnostic and management approach of Buerger’s disease: a case report

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**Background:** Thromboangiitis obliterans (TAO or Buerger’s disease) is a peripheral vascular disease usually related to smoking. Until now, there is no consensus establishing the diagnosis and standard treatment.  

**Case Illustration:** A female 74 years old with a history of uncontrolled hypertension and smoking complained of blackening and painful fingertips in both upper limbs. On upper-extremities examination, we found necrotic gangrene at the 3rd fingertips of the right hand, the 2nd and 4th fingertips of the left hand, with limitation of the movement at the affected finger due to the pain. The pulsation of the radial and ulnar arteries of the left hand was weakened, whereas the brachial arteries of both hands were palpable, and the Ankle Brachial Index was 0.9 for both extremities. On laboratory findings, we found leukocytosis, mild Anemia, no coagulopathy, and normal ANA IF autoimmune screening. Doppler ultrasonography showed vascular incompetence of the left palmar arch artery, with no deep or superficial vein thrombosis, and cutaneous and subcutaneous edema of the left hand. Then, arteriography was performed and revealed multiple stenosis of the Left Radial artery and Right Ulnar artery with collateral corkscrew-shaped. The patient was diagnosed with peripheral Chronic Limb Threatening Ischemia caused by Buerger’s disease, which underwent conservative management for 10 days and Percutaneous Trans Angioplasty (PTA) ballooning.  

**Discussion:** Buerger disease is more common in Asian races than in others, which commonly affects smoker men between 40-45 years old. Shinoya and Olin’s criteria were the most common diagnosis criteria for diagnosing Buerger’s disease. Although the efficacy of surgical revascularization is still controversial, but PTA ballooning can be an option for the management of Buerger disease other than conservative management.  

**Conclusions:** Awareness of the entity and familiarity with the clinical, angiographic, and pathologic features are the key to a prompt and correct diagnosis of Buerger’s disease.  

**Keywords:** Buerger’s Disease

Implementation of novel risk stratification for pulmonary embolism -SIRENA- in a patient with massive right atrial thrombus: An Experience in East Nusa Tenggara

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**Background:** Pulmonary embolism (PE) as a catastrophic disease can occur at any age of life. A risk stratification model is paramount for physicians to decide the therapeutic approach and prognosis of the disease. This case report highlights the role of SIRENA as a novel risk stratification scoring system for patient with clinical sign of PE.  

**Case Illustration:** A 30-year-old man, active and without any risk for CVD was admitted to ER due to worsening dyspneu and chest pain in the last three days. No history of syncope, cyanosis and immobilization. Physical examination revealed normal blood pressure, tachycardia and decreased oxygen saturation to 85% at room air. The ECG showed T-wave inversion in precordial lead. The chest X-ray was normal without sign of congestion. Transthoracic echocardiography (TTE) revealed normal LV function, a large thrombus visualized in Right Atrium (RA), mild tricuspid regurgitation, and Mc-connel sign. The D-dimer level was elevated 7.6 mg/L. However, we couldn’t perform pulmonary CTA due to limited facility. We conclude the patient was PE likely with low severity risk based on sPESI and SIRENA score. The anticoagulant therapy was given immediately until we achieved desired INR value. After seven days of treatment, the patient showed remarkable clinical improvement. From the TTE evaluation, the thrombus was not seen.  

**Discussion:** Pulmonary embolism (PE) provide a diagnosis challenge in rural area. Once the diagnosis has been made, risk stratification is required to provide patient assurance about the severity of the disease and prognosis regarding inhospital mortality. In our patient, the SIRENA score may improve the accuracy for predicting the prognosis and treatment modality.  

**Conclusion:** PE severity classification can help clinicians, especially in rural area, in deciding treatment and prognosis. Furthermore, the implementation of SIRENA score has the potential to be develop into a large study to assess its accuracy in Indonesian population.  

**Keywords:** Pulmonary embolism, SIRENA score

Pericardiocentesis with modified CVC Kit in 13-year-old boy with idiopathic pericardial effusion: a rare case from a remote district hospital

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**Background:** Pericardial effusion (PE) is a rare complication of chronic infection or idiopathic etiology. It can lead to symptoms due to impaired cardiac filling. Treatment is initially conservative with anticoagulation therapy, but in severe cases, pericardiocentesis may be required.  

**Case Illustration:** A 13-year-old boy presented to the emergency room with a history of fever, malaise, and shortness of breath. Physical examination revealed tachycardia, tachypnea, and jugular venous distension. The chest X-ray showed cardiac enlargement. Transthoracic echocardiography confirmed a large pericardial effusion with compressive signs. Despite initial conservative management, the patient’s condition deteriorated.  

**Discussion:** The use of modified CVC Kit for pericardiocentesis is a safe and effective method in managing pediatric PE cases. This procedure allows for controlled drainage of the effusion under direct vision, minimizing the risk of complications.  

**Conclusion:** Pericadiocentesis with modified CVC Kit can be a valuable tool in the management of pediatric PE cases, especially in remote hospital settings.  

**Keywords:** Pericardiocentesis, CVC Kit, Pediatric PE
ABSTRACT

**Background:** The etiologies of pericardial effusion (PE) are various. Idiopathic pericarditis accounts for 37% to 68% of inpatient admissions for pericardial effusion or acute pericarditis in children. Effusions that develop slowly can be asymptomatic, and if rapidly accumulated, it can present as cardiac tamponade. Pericardiocentesis can be used as a diagnostic tool and also definitive treatment if the etiology is unclear.

**Case Illustration:** A 13-year-old boy was admitted with 3 months of dyspnea on effort and 4 days of mild fever. Physical examination showed muffled heart sounds and low-pitch vesicular sound at the base of the lungs. Laboratory findings showed leukocytosis at 12,240. Chest X-ray revealed cardiomegaly with a differential diagnosis of pericardial effusion, and bilateral pleural effusion. ECG showed sinus tachycardia (heart rate 108 bpm). Echocardiography showed large pericardial effusion with signs of cardiac tamponade, mild MR and TR, reduced RV contractility, and minimal pleural effusion. Pericardiocentesis was performed with a double lumen CVC kit (Seldinger Technique), modified with a 14G peripheral venous catheter. The modification was necessary because there was only number 12 CVC kit available, which vascular access needle was too short. After indwelling drainage for 3 days, an echocardiography evaluation was showed a reduction in pericardial effusion from 30-35 mm to 3-4 mm, mostly at posterior of the cardiac. Total collected pericardial fluid was 450 cc. The patient also underwent the WSD procedure on the right hemithorax, resulting in a total of 1,500 cc of fluids. The microscopic examination of both fluids showed no signs of infection, including TB. The patient was discharged 10 days after admission in stable condition.

**Discussion:** This patient had mild symptoms of pericardial effusion. In auscultation, we found muffled heart sounds which is unique to cardiac tamponade. Chest X-ray and echocardiography showed a large pericardial effusion with signs of tamponade. Pericardiocentesis with a subxiphoid approach was performed it was the safest method to reduce the fluid accumulation. The fluid then tested and the result was negative for bacteria or TB. Because we did not have culture and serologic test capabilities to find other etiologies, a final diagnosis of an idiopathic pericardial effusion was made.

**Conclusions:** Echocardiography can be used as a modality of imaging to confirm the suspicion of pericardial effusion and as a guide to definitive treatment. The definitive treatment of pericardial effusion is to reduce the pericardial fluid and minimize the pressure by doing pericardiocentesis.

**Keywords:** Pericardial Effusion, Pericardiocentesis, Modified CVC kit, Idiopathic Pericardial Effusion

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**Occult acute aorta dissection in a woman with pneumonia presentation**

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**Background:** Dyspnea is rare symptom in aorta dissection patients. Severe chest/back pain are the major symptoms. Aorta dissection occurs in 75% hypertension patients (2). In this case, a patient with denied hypertensive and pneumonia symptoms blurring aorta dissection diagnosis.

**Case Illustration:** 59th-year-old women come to ED with shortness of breath worsened in three days. She also had fever and productive cough. She has a history of asthma since childhood. History of hypertension and smoking is denied. She often feels non-radiating back pain. She was alert, BP: 122/71 mmHg, HR: 130 bpm, RR: 24, t: 37.9 C, SpO2: 89 room air -> 95 with 8 lpm non rebreathing mask. Physical examination showed irregular heart sound, no murmur. Wheezing and ronchi in both lungs.

She was treated with b-agonist and steroid inhalation, bisoprolol 5 mg once a day but switched to 100 mg of diltiazem due to worsening wheezing. BP was unstaed during treatment (130-180 mmHg). Dyspnea was not fully resolved with medication then she was referred to advanced hospital.

**Discussions:** Aorta dissection is a tear in the intimal layer result in progression of the dissection due to the entry of blood between intima and media. Hypertension is the most important risk factor (1). Acute onset was defined under 14 days of onset (3). Tearing chest/back pain are main symptom (2).

In this case, the patient’s physical examination mimicked pneumonia. Ct scan showed unexpected aortic dissection Stanford B which affects the descending thoracic aorta without any involvement of the ascending aorta (4). This type of dissection, primarily treated medically to reduce aortic wall tension where surgical treatment is needed in patients with rupture (2,4).

**Conclusion:** Patients with aorta dissection could present mimicking asthma to pneumonia symptoms. Unstable blood pressure obscuring hypertension as the main risk factor for aorta dissection.

**Keywords:** Aortic dissection, pneumonia, woman.

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**Antiplatelet and Anticoagulant strategies in STEMI patients with thrombocytopenia at Non-PCI centre hospitals**

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**Background:** STEMI management the use of antiplatelet agents, particularly dual antiplatelet therapy with aspirin and P2Y12 receptor antagonists. However, managing antiplatelet therapy in STEMI patients with thrombocytopenia presents unique challenges due to the increased risk of bleeding and ischemic events.

**Case Illustrations:** A patient arrived with chest pain persisting for 4 hours. The vital signs revealed blood pressure 160/90 mmHg and a heart rate 110 bpm. The patient had previously received 4 lpm of nasal cannula oxygen, aspirin 160 mg o.d, clopidogrel 300 mg at Pratama Hospital. An EGG and laboratory tests, revealing inferoposterior STEMI and a platelet count of 60 x 10^5 /µL. The patient received streptokinase 1.5 million units over 30 minutes. Echocardiography indicated mid anterolateral and apical lateral hypokinesia, ejection fraction of 48%, and a TAPSE of 2.1. The patient was treated with fondaparinux and GDMT.

The patient was discharged with a prescription for ramipril 5 mg o.d, bisoprolol 5 mg o.d, clopidogrel 75 mg o.d, atorvastatin 40 mg o.d, and spironolactone 25 mg o.d. The platelet count at discharge was 78 x 10^5 /µL.

**Discussion:** Thrombocytopenia, defined as a platelet count 50 x 10^5 /µL. Currently, there are no guidelines or consensus on managing STEMI patients with thrombocytopenia. In this case, the selected management strategy involved categorizing patients based on the degree of thrombocytopenia,
evaluating the presence of bleeding, and considering the absence of PCI, which led to the administration of clopidogrel monotherapy and a PPI. Although the likelihood of heparin-induced thrombocytopenia was low, fondaparinux, a non-heparin anticoagulant, was selected. The decision to use clopidogrel as monotherapy after aspirin was based on the CARPIE study.4

**Conclusion:** For STEMI patients at non-PCI centers with thrombocytopenia and a platelet count > 50 x 10⁹/µL, the preferred treatment options include non-heparin anticoagulants, clopidogrel monotherapy, and PPI usage.

**Keywords:** antiplatelet, anticoagulant, STEMI, Thrombocytopenia

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**Managing atrial fibrillation with wolfparkinson-white syndrome and hyperthyroid in regional hospital, what we can do?**

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**Background:** Prevalence of wolf-parkinson-white (WPW) is estimated to be 1–3 in 1000 individuals. Majority of individuals are asymptomatic, but those who have symptoms can experience palpitations, recurrent supraventricular tachycardia, or sudden cardiac death (SCD). Individuals with hyperthyroidism are at increased risk of cardiac arrhythmias, especially atrial fibrillation (AF). The occurrence of AF in a patient with an accessory pathway (AP) can be detrimental, causing ventricular stimulation, which induces ventricular fibrillation (VF)

**Case Illustration:** We reported a case of 69-year-old female came with bloody diarrhea, but without fever, chest pain, or feeling palpitated, with history of WPW pattern and hyperthyroid. Physical examination showed unstable hemodynamic, lab results showed high level FT4 and normal TSH, with ECG showed irregular wide complex tachycardia in the form of pre-excited AF. Unfortunately, we didn’t do electrical cardioversion because the patient and family refused it. We only gave inotrophic drip, antibiotics, propanolol. Conversion from AF to sinus rhythm happened in day 4th hospitalization. Patient was treated for 6 days and discharged with stable condition.

**Discussion:** According to current guidelines, electrical cardioversion was recommended in unstable AF with WPW. But it remains challenging if we can’t do cardioversion. Close monitoring and controlling the cause of AF was mandatory.

**Conclusion:** In patient with documented AF, associated condition favouring arrhythmia such as hyperthyroidism and infection should be corrected. AF in WPW syndrome is life-threatening arrhythmia. Electrical cardioversion was recommended in AF WPW and ablation was recommended in long term therapy to prevent recurrence of tachyarrhythmia.

**Keywords:** atrial fibrillation, WPW syndrome, accessory pathway, hyperthyroid, ablation.

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**Supraventricular tachycardia in pregnancy: a rare case series and dilemmatic antiarrhythmic drug in rural area**

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**Background:** The management of pregnancy with cardiovascular diseases needs multidisciplinary collaboration among physicians. Hospitalization due to arrhythmias in pregnancy is associated with increased mortality and fetal complications. Arrhythmias can develop spontaneously during pregnancy or be exacerbated by pregnancy. Pregnancy planning is critical for women who have a history of cardiovascular disease to maximize the health of the mother and fetus.

**Case Illustrations:** There were two cases of pregnant women: a 35-year-old (third trimester) and a 25-year-old (second trimester). Both patients complained of shortness of breath and palpitations. The first patient was in her sixth pregnancy, with three live births and two abortions. Meanwhile, the second patient was in her first pregnancy and had no history of abortion. The first patient’s pulse rate was 180 beats per minute. Then, the second patient’s pulse rate was 160 beats per minute. In both cases, 12-lead electrocardiography revealed a supraventricular tachycardia rhythm. Initially, both patients were given carotid artery massages for 3 minutes. Following the carotid artery massage, the first patient returned to normal sinus rhythm (HR 85 BPM). However, carotid artery massage didn’t work in the second patient. Then, a slow bolus of 0.5 mg digoxin IV was administered. After 30 minutes of observation, the patient’s heart rhythm was restored to normal sinus rhythm (HR 94-100 x/min). Both patients were also admitted to the intensive care unit.

**Discussion:** Supraventricular tachycardia (SVT) in pregnancy has a complicated and multifactorial etiology. Increased blood volume can cause atrial distention, predisposing the heart to electrical changes. High levels of estrogen and circulating catecholamine have a significant effect on cardiac tissue excitability, resulting in arrhythmias. Pregnancy should not prevent the treatment of tachyarrhythmias. The clinical presentation and trimester of pregnancy play a significant role in the management of SVT during pregnancy. In mild cases, vagal maneuvers can be used to treat this arrhythmia. Medical management is preferable when vagal maneuvers fail.

**Conclusion:** The treatment of SVT in pregnancy is largely determined by the patient’s symptoms, pregnancy stage, and body response to treatment. More research is needed to determine the best way to treat SVT during pregnancy and labor.

**Keywords:** Pregnancy, Arrhythmia, Supraventricular Tachycardia.
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