Kemenkes
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MAKASSAR CARDIOVASCULAR UPDATE - XXIII 2025

CLARO HOTEL, JULY 10-13TH, 2025

ABSTRACT BOOKLET

ORIGINAL RESEARCH

SYSTEMATIC REVIEW & META-ANALYSIS

CASE REPORT

Salamakki' Tapada Salamak

MCVU Makassar MCVU_2025 Perki Makassar 082190615922

MAKASSAR CARDIOVASCULAR UPDATE - XXIII 2025

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Welcome Message

Dear Colleagues and Friends,

Cardiovascular disease is the leading cause of death globally, with 31% of all deaths in 2012 attributed to it. The number of deaths is predicted to increase, posing challenges for countries like Indonesia. Healthcare providers must utilize advancements to improve patient outcomes.

The South Sulawesi Branch of the Association of Indonesian Cardiologists is organizing the MAKASSAR CARDIOVASCULAR UPDATE (MCVU) XXIII 2025 with the theme “Emerging Paradigms in Acute Cardiovascular Care: Lifelines in Motion, Excellence in Every Beat”

The event will include symposia and workshops aimed at discussing the latest advancements in cardiovascular disease management. The goal is to invite healthcare professionals, researchers, and frontline workers in cardiovascular healthcare to explore and discuss these advancements, as well as the health challenges that arise.

The event aims to update healthcare professionals' knowledge on the latest breakthroughs and evidence-based practices in cardiovascular management. Additionally, it aims to promote collaboration between healthcare professionals, allowing them to discuss challenges and opportunities in the field and work towards positive changes in cardiovascular healthcare.

Akhtar Fajar Muzakkir, MD, FIHA
Chairman of MCVU XXIII 2025

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GUIDED DE NOVO DESIGN OF SELECTIVE FACTOR XA INHIBITORS AS A NOVEL ANTICOAGULANTS: A COMPUTATIONAL APPROACH FOR SAFER ANTITHROMBOTIC THERAPY

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ABSTRACT

Background & Aim: Patients with acute cardiovascular conditions such as Acute Myocardial Infarction (AMI), Atrial Fibrillation (AF), Venous Thromboembolism (VTE); DVT, and PE, anticoagulant are the most prevalent and frequently prescribed medications. In Indonesia, reperfusion therapy was administered to 65.2% of STEMI patients. Despite the availability of various Factor Xa (FXa) inhibitors, their clinical use is often limited by pharmacokinetic challenges and the risk of bleeding complications. In order to provide safer antithrombotic treatment, it is needed to develop novel, highly selective FXa inhibitors. Combining computational drug discovery techniques with guided De Novo design, might presents a promising approach to address this need by enabling the rational design of structurally optimized molecules.
Method: This research was carried out using the In-Silico analysis. Information about the FXa protein was extracted using the Protein Data Bank (RSCB-PDB) and subtitue with AutoDock tools for analysis enrichment. By learning Apixaban as the guided drug, Oxazolidinone Hybrid, Pyrazole Ether, Triazine Sulfonamide, and Spirocyclic Amide were selected following the evaluation of their ADMET profiles. The proposed ligand is then synonymized with the SMILES. Molecular docking of the ligand target was conducted using SwissDock by utilizing the role of computational chemistry. Hydrogen affinity bonding and interactions between therapeutic molecules are then described by Estimated ΔG and bleeding hazard profiling.
Result & Discussion: After the docking process, Hydrogen Bonds, Ionic Interactions, Cation π Interactions, Hydrophobic Contacts, and π-Stacking Interactions of Cyclobutene Amide, Spirocyclic Amide, Pyrazole Ether, and Oxazolidinone Hybrid are well built but with different affinities. The identification of attracting cavities and the estimation of ΔG support the evaluation of interaction strength based on the number of key interactions, complemented by bleeding risk profiling. These findings provide a rationale for the selected compounds to be considered by further evaluation in animal and human trials.
Conclusion: In-silico studies demonstrated that Cyclobutene Amide exhibits the strongest docking interaction among the tested molecules. However, Oxazolidinone Hybrid appears to be a more promising candidate as a novel and safer FXa inhibitor, as supported by its significantly favorable ADMET safety profile.

Keywords: fxa inhibitor; anticoagulant, in silico; pharmacology; docking

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EFEKTIVITAS PEMBERIAN OBAT HERBAL BAWANG PUTIH TERHADAP PENDERITA HIPERTENSI

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ABSTRACT

The various challenges faced by the world are related to health problems, one of which is hypertension, in the form of an increase in systolic blood pressure of around 140 mmHg or diastolic pressure of 90 mmHg. Research by Christina Rahayuningrum, et al (2020) shows that 46% of hypertension sufferers in the world live in areas with low to middle income levels. WHO (2023) Indonesia is a lower middle income country. Data from the Indonesian Ministry of Health (2018) shows that the prevalence of hypertension in the population aged 18 years is 34.1%. Research by Iswahyudi Yasril, et al, 2020. The prevalence of hypertension is 34.1%, 8.8% are diagnosed with hypertension and 13.3% of people diagnosed with hypertension do not take medication, there are 32.3% who do not regularly take medication. This shows that most people with hypertension do not know they have hypertension so they do not receive treatment. Non-pharmacological treatment of hypertension is safer because it causes few or no side effects. Garlic as a herbal ingredient has an antihypertensive effect because it contains allicin and hydrogen sulfide. Garlic's allicin compound can destroy blood clots in the arteries, reducing blood pressure. This research uses the Literature Review method with a Narrative Review design, aimed at identifying and summarizing previously published articles regarding the effectiveness of administering garlic herbal medicine to hypertension sufferers. The results of several studies in the literature showed that there was an effect of giving garlic herbal medicine on hypertension sufferers. The conclusion is that giving steeped garlic water can reduce blood pressure in hypertensive patients.

Keywords : garlic, hypertension

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KARAKTERISTIK PENDERITA SYOK KARDIOGENIK DI RUMAH SAKIT IBNU SINA MAKASSAR DAN RSUD HAJI MAKASSAR TAHUN 2019–2023

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ABSTRACT

Cardiogenic shock is a medical emergency condition with tissue hypoperfusion due to severe cardiac output decrease and hypotension (systolic blood pressure <90 mmHg) with inadequate peripheral tissue perfusion disorders. The purpose of this study was to determine the characteristics of patients with cardiogenic shock at Ibnu Sina Hospital and Haji Hospital. The type of research conducted was a descriptive observational study with a total sampling method. The population of all patients with cardiogenic shock who were hospitalized at Ibnu Sina Hospital Makassar and Haji Hospital Makassar in 2019-2023 amounted to 48 cases, the dependent variables in this study were gender, age, body mass index, history of heart disease, history of hypertension, history of diabetes mellitus, history of dyslipidemia. All patients diagnosed with cardiogenic shock who were hospitalized at Ibnu Sina Hospital, Makassar City and Haji Hospital Makassar in 2019-2023 were 48 patients. Characteristics of patients diagnosed with cardiogenic shock who were hospitalized at Ibnu Sina Hospital, Makassar City and Haji Hospital, Makassar in 2019-2023, the most cases in patients with male gender, dominated by age >65 years, based on Body Mass Index the most in cases of obesity I. Based on the history of the most comorbid diseases, namely Congestive Heart Failure. Cases of the cause of cardiogenic shock are dominated by patients with a history of controlled hypertension, the most cases of the cause of cardiogenic shock in patients with no history of diabetes mellitus, and do not suffer from dyslipidemia.

Keywords: Cardiogenic Shock, Age, Congestive Heart Failure, Body Mass Index

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COMPARISON WEARABLE ECG DEVICES AND STANDARD ECG FOR ACUTE ATRIAL FIBRILLATION DETECTION AND IMPACT ON ANTICOAGULATION INITIATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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ABSTRACT

Background: Atrial fibrillation (AF) represents a growing global health burden, with its prevalence projected to double in the coming decades. It is a major contributor to stroke, heart failure, and mortality, yet often remains undiagnosed due to its paroxysmal and asymptomatic nature. Recently, wearable ECG devices such as smartwatch or smartphone photoplethysmography and wearable patches have emerged as promising tools for AF screening. However, evidence regarding their diagnostic performance and impact on anticoagulation initiation remains limited.

Methods: We conducted a systematic review and meta-analysis in accordance with PRISMA guidelines, searching PubMed, ScienceDirect, Google Scholar, and the Cochrane Library for articles published between 2018 and 2025. Eligible studies included adult patients (≥18 years) with suspected or confirmed AF assessed by wearable ECG devices compared to standard diagnostic methods. Primary outcomes were AF detection rate and initiation of anticoagulant therapy. Data analysis was performed using odds ratios (ORs) for interventions, with the assistance of RevMan Manager software, which facilitated comprehensive meta-analyses and systematic review methodologies.

Results & Discussion: Ten studies (6 RCTs, 4 cohorts) with 42,657 patients were included. Among 20,863 wearable users and 21,794 controls, AF was detected in 749 and 652 patients, respectively. Wearable ECGs significantly improved AF detection (OR 3.23, 95% CI: 1.29–8.08; p = 0.01; I2 = 96%) and increased oral anticoagulation initiation (OR 1.62, 95% CI: 1.18–2.23; p = 0.003; I2 =65%). Most studies showed low-to-moderate risk of bias. Funnel plots suggested mild publication bias.

Conclusion: Wearable ECG devices significantly enhance acute AF detection and are associated with increased initiation of anticoagulation therapy. Despite moderate-to-high heterogeneity, these findings support the integration of wearable ECGs into clinical screening and management pathways, particularly for high-risk populations.

Keywords: Atrial Fibrillation, Wearable ECG, Anticoagulation, Early Detection

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CAN CARDIAC MAGNETIC RESONANCE IMAGING PREDICT IMPLANTABLE CARDIOVERTER DEFIBRILLATOR OR CARDIAC RESYNCHRONIZATION THERAPY-DEFIBRILLATOR BENEFIT? A SYSTEMATIC REVIEW OF MYOCARDIAL SCAR CHARACTERIZATIONS

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ABSTRACT

Background: Implantable cardioverter defibrillators (ICDs) and cardiac resynchronization therapy-defibrillators (CRT-Ds) are guideline-recommended therapies for patients with left ventricular ejection fraction (LVEF) ≤35% at risk for sudden cardiac death. Despite this, many recipients experience inappropriate shocks, psychological distress, or derive no survival benefit. Cardiac magnetic resonance (CMR) imaging, particularly with late gadolinium enhancement (LGE), may improve risk stratification by identifying patients with myocardial fibrosis more likely to benefit from device therapy.

Methods: We systematically searched PubMed for English-language studies evaluating myocardial scar characterization by CMR and its association with appropriate ICD/CRT-D therapy. From an initial yield of 132 articles, five studies met the inclusion criteria for this review.

Results and Discussion: All included studies assessed myocardial scar metrics—scar mass, scar percentage, and border zone (BZ) mass/percentage—using LGE-CMR. These parameters were correlated with appropriate ICD therapies, including anti-tachycardia pacing (ATP) and shocks. Patients who experienced appropriate ICD interventions consistently demonstrated significantly higher total scar and BZ mass. In some studies, specific scar thresholds showed high negative predictive value (up to 100%) for ICD therapy, suggesting strong potential for clinical utility. These findings highlight the role of CMR not only in identifying high-risk individuals but also in potentially avoiding unnecessary device implantation in lower-risk patients, such as selecting CRT-P over CRT-D.

Conclusion: Myocardial scar assessment via CMR offers a valuable tool for improving patient selection for ICD and CRT-D implantation. Incorporating scar quantification into current criteria may reduce overtreatment and optimize outcomes in heart failure populations.

Keywords: Myocardial scar, Cardiac Magnetic Resonance, Implantable Cardioverter Defibrillator, Cardiac Resynchronization Therapy

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SOLUBLE SUPPRESSION OF TUMORIGENICITY 2 LEVELS AND ITS PROGNOSTIC VALUE TOWARDS CARDIOVASCULAR OUTCOMES IN PATIENTS WITH ACUTE CORONARY SYNDROME WHO UNDERWENT PERCUTANEOUS CORONARY INTERVENTION: A SYSTEMATIC REVIEW

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ABSTRACT

Background: Soluble suppression of tumorigenicity 2 (sST2) has been associated with various cardiovascular diseases. However, the prognostic value of sST2 levels for predicting clinical outcomes in acute coronary syndrome (ACS) patients who underwent percutaneous coronary intervention (PCI) remains unclear. This systematic review was conducted to evaluate the utility of sST2 as a predictor of outcomes in ACS patients after PCI.

Methods: A systematic search of PubMed, Scopus, the Cochrane Library, and EBSCO was conducted for studies published through April 2025. Eligible studies were those that measured sST2 levels in adult ACS patients with ST-elevation myocardial infarction (STEMI) or non-ST-elevation myocardial infarction (NSTEMI) who underwent PCI and reported associations with clinical outcomes. Outcomes of interest included all-cause mortality, hospitalization, major adverse cardiovascular events (MACEs), new-onset atrial fibrillation, impaired myocardial reperfusion, and coronary slow-flow or no-reflow. Studies evaluating the predictive value of sST2 were also included. Three reviewers independently performed study selection, data extraction, and quality assessment using the Newcastle–Ottawa Scale. Due to heterogeneity among study designs and outcomes, a qualitative synthesis was performed.

Results: Ten studies (encompassing over 2,400 patients) met the inclusion criteria. Most studies found that elevated sST2 levels were independently associated with a higher risk of all-cause mortality, MACEs, and impaired myocardial reperfusion, even after adjusting for other clinical variables. Several studies also reported that sST2 levels had moderate sensitivity and specificity for predicting adverse outcomes. However, the sST2 cutoff values varied between studies and appeared to differ between STEMI and NSTEMI subgroups. Additionally, none of the included studies examined dynamic changes in sST2 levels over a one-year follow-up period.

Conclusion: sST2 shows promise as a prognostic biomarker for adverse cardiovascular events and all-cause mortality in ACS patients who underwent PCI. A quantitative analysis (e.g., meta-analysis) is warranted to determine an optimal sST2 cutoff value for risk prediction. Furthermore, prospective studies assessing post-PCI changes in sST2 levels are needed to confirm its role in guiding treatment decisions.

Keywords: Acute coronary syndrome, major adverse cardiovascular events, percutaneous coronary intervention, soluble suppression of tumorigenicity 2

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EARLY VERSUS DELAYED CARDIOVERSION FOR RECENT-ONSET ATRIAL FIBRILLATION IN EMERGENCY SETTINGS: A SYSTEMATIC REVIEW

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ABSTRACT

Background: Atrial fibrillation (AF) is the most common arrhythmia encountered in emergency settings and is increasingly regarded as a global health concern. Effective rhythm control is vital to relieve symptoms and reduce thromboembolic risk. However, the optimal timing for cardioversion in recent-onset AF remains uncertain. This systematic review aimed to evaluate the efficacy and safety of early versus delayed cardioversion in patients with recent-onset AF.

Methods: A systematic search was conducted in PubMed, Embase, Scopus, Web of Science, and Google Scholar, following PRISMA guidelines. Studies were included if they compared early cardioversion (within 4–24 hours) with delayed or wait-and-see approaches in adults with recent-onset AF (≤48 hours). The study designs, interventions, outcomes, and adverse events were extracted. Risk of bias was assessed using the Methodologic Index for Non-Randomized Studies (MINORS).

Results: A total of four studies were included, consisting of one randomized controlled trial (RCT) and three prospective cohort studies with 1,487 participants. Both early and delayed cardioversion strategies showed similar efficacy in restoring sinus rhythm at short-term (24 hours) and medium-term (up to 30 days) follow-up. Approximately 69% of patients managed with a wait-and-see approach spontaneously reverted to sinus rhythm. No significant differences in recurrence rates, thromboembolic events, or adverse outcomes were observed between the two strategies. Pharmacological cardioversion using oral flecainide (200–300 mg), propafenone (450–600 mg), or intravenous procainamide (15 mg/kg) was effective and well tolerated, with electrical cardioversion used as either initial or rescue therapy in some cases.

Conclusion: Both early and delayed cardioversion strategies are effective and safe for restoring sinus rhythm in patients with recent-onset atrial fibrillation. A wait-and-see approach is associated with high rates of spontaneous conversion, minimizing unnecessary interventions. Clinical decisions should be individualized, considering patient preference and symptom severity. Further research is needed to explore long-term outcomes and cost-effectiveness.

Keywords: Recent AF, Cardioversion, Emergency Care

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FACTORS ASSOCIATED WITH PREHOSPITAL AND IN-HOSPITAL DELAYS IN ST ELEVATION MYOCARDIAL INFARCTION CARE IN INDONESIA: A SYSTEMATIC REVIEW

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ABSTRACT

Background: Cardiovascular diseases (CVDs) account for 32% of all deaths, with 85% due to ACS and stroke. The One ACS Registry has revealed that as compared to NSTEMI, STEMI has higher mortality (11.7% vs. 6.2%). Timely treatment is crucial, yet nearly half of patients face delays ≥120 minutes from symptom onset to first medical contact. It is necessary to identify the cause of delay, especially in Indonesia. This systematic review aimed to analyze the factors associated with prehospital and in-hospital delays in STEMI care in Indonesia.

Methods: This systematic review followed PRISMA guidelines. A comprehensive search was conducted in five electronic databases (PubMed, CENTRAL, Clinical Key, BioRxiv, and Google Scholar) for studies published up to March 22, 2025. Eligible studies investigated factors related to prehospital or in-hospital delays in ACS or STEMI treatment in Indonesia. Title/abstract screening, full-text review, data extraction, and quality assessment using the AXIS RoB tool were performed independently.

Results & Discussion: Six cross-sectional studies conducted in Indonesia were included, involving a total of 670 patients. Prehospital delays were associated with low education, low socioeconomic status, long distance to hospital, and the use of non-ambulance transport. Behavioral contributors included inappropriate first aid by family, negative family perception, delayed care-seeking, and lack of symptom awareness. In-hospital delays were related to triage inefficiencies and delayed care initiation, including door-to-ECG, transport to ICCU, and fibrinolytic therapy initiation. These results highlight the significant contribution of both patient-related and healthcare system-related factors to treatment delays in STEMI cases. Enhancing public education, improving emergency medical services, and streamlining hospital workflows are critical measures needed to shorten delays and improve patient outcomes.

Conclusion: Prehospital and in-hospital delays in STEMI care in Indonesia are multifactorial, underscoring the need for integrated strategies addressing patient behavior, knowledge, access barriers, and hospital system inefficiencies.

Keywords: STEMI, Prehospital Delay, In-hospital delay, Contributing Factors, Indonesia

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THE ROLE OF MESENCHYMAL STEM CELLS IN ENHANCING RECOVERY POST-ACUTE MYOCARDIAL INFARCTION: A META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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ABSTRACT

Background: Acute myocardial infarction (AMI) continues to represent a substantial global health concern, with more than 7.2 million deaths reported annually according to data from the World Health Organization. Despite significant advancements in reperfusion therapies, a considerable proportion of AMI patients develop heart failure due to irreversible myocardial injury. Mesenchymal stem cell (MSC) therapy has emerged as a promising regenerative approach with the potential to restore cardiac function. This meta-analysis is conducted to evaluate the efficacy of MSC therapy in enhancing left ventricular ejection fraction (LVEF) in patients diagnosed with AMI.
Methods: A comprehensive literature search was conducted across four databases up to May 2025. Random effects model meta-analysis using mean difference (MD) with 95% confidence interval (CI) was conducted. Studies were included if they assessed the effects on LVEF of AMI patients after MSC therapy.
Result and Discussion: A total of 6 RCTs with 264 patients were included in the analysis demonstrated a significant improvement in LVEF in the MSC group compared to the control group (MD: 3.99, 95% CI: 1.51; 6.47, I^2: 76.6%, p= 0.0007). This shows that MSC could be an effective intervention for enhancing cardiac function in patients following AMI. Several factors may contribute to the heterogeneity of MSC therapy in this context. The timing of MSC administration, the source of the stem cells (e.g. bone marrow-derived, umbilical cord-derived, wharton jelly-derived), and the method of delivery (intravenous or intracoronary) could all influence outcomes. Further studies are needed to address these issues.
Conclusion: MSC could be recommended for treatment in AMI patients as it had better improvement in LVEF than the control group. However, to confirm these results and refine treatment strategies, further larger-scale, rigorously designed randomized controlled trials (RCTs) are necessary.

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THE ROLE OF SHOCK INDEX IN ACUTE CORONARY SYNDROME MORTALITY PROGNOSTICATION: A PREDICTIVE PERFORMANCE META-ANALYSIS

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ABSTRACT

Background: Shock index (SI) is a simple parameter in various diseases. Its performance in acute coronary syndrome (ACS) varies across studies. This systematic review evaluates SI's predictive performance for ACS mortality prognostication.
Method: On March 16, 2025, we systematically searched six databases. This study included observational studies examining mortality outcomes in patients with ACS. Using random-effect models, we estimated the pooled odds ratio (OR), sensitivity, and specificity of SI in predicting ACS mortality. Additionally, we generated a summary receiver operating characteristics (sROC) curve and its area under the curve (AUC).
Results: This systematic review included 18 studies with 75,237 patients. High SI was significantly associated with all-time mortality (OR 4.82, 95% CI: 3.75–6.19, I2 = 96%). The association was stronger for in-hospital mortality (OR 6.46) but decreased for long-term mortality (OR 4.00). The sensitivity and specificity of SI in predicting all-cause mortality were 67.11% (95% CI: 61.48–72.74) and 73.21% (95% CI: 67.21–79.22), respectively, with an AUC of 0.69 (95% CI: 0.65–0.72). Its performance was higher for in-hospital mortality (sensitivity 64.22%, specificity 78.96%, AUC 0.71) and long-term mortality (sensitivity 61.23%, specificity 63.99%, AUC 0.70).
Conclusion: High SI was associated and has predictive value for short-term and long-termmortality prognostication in ACS setting.

Keywords: Shock Index, Prognostic, Acute coronary syndrome; Meta-analysis; Mortality

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THE ROLE OF CARDIAC TROPONIN IN PREDICTING ALL-CAUSE MORTALITY AND MAJOR ADVERSE CARDIOVASCULAR OUTCOMES IN PATIENTS WITH PERIPHERAL ARTERIAL DISEASE: A SYSTEMATIC REVIEW AND META-ANALYSIS

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ABSTRACT

Aims: To investigate the performance of cardiac troponin (cTn) in predicting all-cause mortality (ACM) and major adverse cardiovascular events (MACE) in patients with peripheral arterial disease (PAD).
Data Sources and Methods: A systematic search was conducted in major electronic databases including PubMed, Scopus, and Web of Science using a recent search strategy. Statistical analysis was performed to pool diagnostic odds ratio (DOR), hazard ratio (HR), sensitivity, specificity, positive predictive value, negative predictive value, and summary receiver operating characteristic (sROC) curve.
Results: The search identified 11 relevant studies with a total of 6,128 patients with PAD. High cTn levels were significantly associated with higher odds of both early ACM (DOR 4.8, 95% CI 2.2–10.6) and late MACE (DOR 4.3, 95% CI 2.5–7.33). The pooled area under the receiver operating characteristic curve (AUROC) for high cTn to predict early ACM and late MACE were 0.68 (sensitivity 57.9%, specificity 83.6%) and 0.73 (sensitivity 36.4%, specificity 87.9%), respectively. Additionally, high cTn was associated with an increased hazard of ACM (HR 3.78, [95% CI 2.70–5.29]) and MACE (HR 2.47 [95%CI 1.37– 3.39]) among patients with PAD with follow-up periods ranging from 12
months to 7 years.
Conclusion: Our findings demonstrate that elevated cTn levels are associated with increased odds of ACM and MACE, as well as a higher hazard of both outcomes in patients with PAD. While cTn possesses moderate performance in predicting these outcomes, further research is needed to confirm present findings.

Keywords: peripheral artery disease, cardiac troponin, prognostic, mortality, major adverse cardiovascular events, cardiovascular disease

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BEYOND MEAN LIPID LEVELS: VISIT-TO-VISIT LIPID VARIABILITY AS AN ADJUNCTIVEPREDICTOR OF CARDIOVASCULAR EVENTS AMONGST DYSLIPIDEMIA – A SYSTEMATIC REVIEW AND META-ANALYSIS OF 16,904,562 PARTICIPANTS

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ABSTRACT

Background: Despite the use of mean lipid levels as a predictor of cardiovascular events amongst dyslipidemia, worse clinical outcomes due to failure in lipid control remains prevalent. Recent findings spotlights visit-to-visit lipid variability (VLV) as an emerging adjunctive parameter in cardiovascular risk stratification, possibly providing more precision in lipid control management, hence, preventing worse cardiovascular and general clinical outcomes. Current research aims to unravel the reliability of VLV as an adjunctive predictor of cardiovascular events and mortality among dyslipidemia.

Methods: Literature searching was conducted in electronical databases of Pubmed, Scopus, ScienceDirect, and Cochrane, targeting dyslipidemia patients with data on VLV acquired during routine visits, and followed up to define the clinical endpoints of major adverse cardiovascular events (MACE), myocardial infarction (MI), and all-cause mortality. Observed VLVs were total cholesterol (TC), high-density lipoprotein-cholesterol (HDL-C), low-density lipoprotein-cholesterol (LDL-C), and triglycerides (TG). VLVs were quantified as coefficients of variation, in which, the value was gained from the division of standard deviation (SD) with mean of the lipid levels x 100% [(SD/Mean)x100%]. Eligible studies were appraised by Newcastle-Ottawa Scale (NOS). Pooled hazard ratio (HR) was quantified into forest plots in ReviewManager-5.4.1.

Results & Discussion: 16,904,562 patients were acquired. 15 and 2 studies were appraised as good and intermediate in quality, respectively. Higher VLVs were significantly associated with worse clinical outcomes, as depicted by higher MACE in varied TC with the HRs [95%-CI] of (1.43 [1.18–1.74]), HDL-C (1.41 [1.18–1.68]) and LDL-C (1.57 [1.15–2.15]), more MI in varied TC (1.11 [1.08–1.14]), HDL-C (1.25 [1.07–1.47]), and LDL-C (1.38 [1.21–1.57]), as well as worse all-cause mortality in varied TC (1.24 [1.09–1.41]), HDL-C (1.29 [1.27–1.31]) and LDL-C (1.18 [1.00–1.39]). Conversely, non-significant association was observed in TG variability with MACE, MI and all-cause mortality. This results suggest the robustness of VLV by enhancing precision in lipid control which results in lesser cardiovascular events and mortality.

Conclusion: VLV was proven as a reliable adjunctive predictor in forecasting cardiovascular events, providing enhanced accuracy in lipid control and preventing later catastrophic clinical outcomes.

Keywords: risk factors, major adverse cardiac event, lipoproteins, mortality, dyslipidemia.

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ADVERSE EVENTS OF COLCHICINE IN PATIENTS WITH ACUTE CORONARY SYNDROME: A META-ANALYSIS

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ABSTRACT

Background: Colchicine is an anti-inflammatory agent beneficial in preventing atherosclerosis,particularly in acute coronary syndrome (ACS). Previous meta-analyses focused more on efficacy and gastrointestinal safety. This meta-analysis aimed to evaluate the safety (any adverse events) of colchicine use in ACS patients.
Methods: A systematic search was conducted for studies in PubMed, the Cochrane Library, and ScienceDirect databases up to April 2025. Only English-language randomized controlled trials (RCTs) involving colchicine intervention versus placebo in ACS patients were included. The outcomes of interest were adverse events occurring during treatment. Two or more reviewers conducted the study selection, data extraction, and risk of bias assessment.
Results & Discussion: A total of 11 RCTs with a follow-up duration of ≥ 2 days were included, encompassing 15,201 ACS patients. Most studies evaluated efficacy as their primary outcome, while safety was the secondary outcome. Compared to placebo, colchicine was associated with a non-significant increased risk of gastrointestinal events (RR 1.27, 95%CI 0.91-1.76; 8 studies, 14,159 patients, I^2 = 79%), with high heterogeneity due to different definitions of gastrointestinal
events between studies. When the analysis was conducted for individual gastrointestinal outcomes, colchicine was associated with a significantly increased risk of diarrhea compared to placebo (RR 1.57, 95%CI 1.12-2.21; 6 studies, 12,138 patients, I^2 = 74%). For other gastrointestinal events, there were only 2 studies each, with non-significant increased risks of nausea/vomiting (RR 1.61, 95%CI 0.49-5.26, I^2 = 72%) and gastrointestinal bleeding (RR 1.57, 95%CI 0.54-4.57, I2 = 0%). Funnel plot showed a risk of publication bias and small-study effects, which might be caused by the lack of studies with safety as their main outcome.
Conclusion: This meta-analysis suggests that colchicine may increase the risk of diarrhea during treatment in patients with ACS, but more studies are needed to confirm this finding. Observational studies could be used as study designs to assess these safety outcomes.

Keywords: colchicine, adverse event, acute coronary syndrome

MAKASSAR CARDIOVASCULAR UPDATE - XXIII 2025

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COMPARATIVE EFFICACY AND SAFETY OF ZERO-FLUOROSCOPY AND STANDARD TRANSCATHETER VSD CLOSURE: A SYSTEMATIC REVIEW AND META-ANALYSIS

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ABSTRACT

Introduction: The zero-fluoroscopy (ZF) approach has emerged as a promising technique for transcatheter ventricular septal defect (VSD) closure, eliminating the need for fluoroscopy, which exposes patients to radiation. The ZF approach, which utilizes only echocardiography, is particularly advantageous for vulnerable populations, such as infants and children, where minimizing radiation exposure is crucial. Despite its potential benefits, questions remain regarding whether the ZF approach can match the success rate and safety profile of the standard transcatheter approach.

Methods: A systematic review and meta-analysis were conducted using data from PubMed, ClinicalKey, Scopus, Nature, ProQuest, and Cochrane. The review process adhered to the PICO framework and PRISMA guidelines, with 95% CI used in the analysis. Meta-analysis calculations were performed using RStudio.

Results: A total of 64 studies involving 4,996 patients (mean age 11.11 years) were included. Nine studies focused on the ZF approach. The success rate for the ZF group was 0.955 [0.917 - 0.983], compared to 0.980 [0.971 - 0.988] for the Fluoroscopy group. The test for subgroup difference was not significant ($p = 0.08$), indicating non-inferiority of the ZF technique. The incidence of early residual shunt was significantly lower in the ZF group at 0.055 [0.001 - 0.158] compared to 0.208 [0.157 - 0.264] in the Fluoroscopy group ($p < 0.05$). Although the ZF group appeared to have a lower incidence of new-onset conduction block and procedure-related arrhythmias, these differences were not statistically significant ($p = 0.12$ and $p = 0.29$, respectively). The incidence of new-onset valvular regurgitation was also not significantly different between the two.

Conclusion: The success rate and most complications associated with the Zero-Fluoroscopy approach for transcatheter VSD closure are comparable to the standard fluoroscopy-guided method, demonstrating non-inferiority.

Keywords: VSD, transcatheter closure, CHD

MAKASSAR CARDIOVASCULAR UPDATE - XXIII 2025

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WAIT AND TRUST: CONSERVATIVE MANAGEMENT OF TOTAL ATRIOVENTRICULAR BLOCK IN ACUTE MYOCARDIAL INFARCTION: A CASE REPORT IN A RESOURCE-LIMITED SETTINGS

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ABSTRACT

Background: Total atrioventricular block (TAVB) describes a conduction disturbance from the atria to the ventricles via conduction through the atrioventricular (AV) node. The underlying cause of AV blocks is varied, include acute myocardial infarction (AMI). We report a case of TAVB preceded by coronary heart disease in a resource-limited setting, and it resolved by conservative management.
Case Presentation: A 69-years-old female patient was admitted to emergency room (ER) with complained of weakness, worsening for the last three days accompanied by left side chest pain and vomiting. Based on physical examination, blood pressure 126/56 mmHg, heart rate 32x/minutes, respiration rate 22x/minutes, temperature 36,8 C, oxygen saturation 99% on ambient air. Electrocardiogram (ECG) shows a TAVB with ventricular escape rhythm. Laboratory examination showed increase in troponin I (9,87 ng/mL). Regional heart wall motion abnormality was indicated from the echocardiography examination. The patient was then given loading aspirin 160mg, clopidogrel 300mg, intravenous atropine sulfate 1mg repeated every 5 minutes with maximum dose 3mg, norepinephrine continuous intravenous infusion, and intravenous heparin bolus 3600 unit with maintenance of 720 unit/hours. After being treated for 48 hours in intensive care unit (ICU), the ECG converted to normal sinus rhythm 102x/minutes, Q waves in leads III and aVF.
Discussion: Patients with acute inferior myocardial infarction were more likely to develop TAVB. In this case, the initial ECG showed 32 escape beats/minutes with a wide QRS complex (0,19 s). It indicates suspicion of an injury distal AV conduction system supplied by right coronary artery. Aggressive treatment, including early PCI and temporary pacemaker, may be required to improve outcomes in patients with total AV block. In a setting where revascularization strategies and pacemaker implantation are not feasible, administration of antithrombotic agents can be considered to manage TAVB with AMI with close monitoring.
Conclusion: TAVB after AMI is a rare case. Clinical suspicion and proper evaluation of patients is crucial for an early diagnosis and timely definitive treatment to decrease the morbidity and mortality associated with this disease.

Keywords: Total AV Block; Acute Myocardial Infarction

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UNRAVELLING THE DIAGNOSIS: CONGENITAL HEART DISEASE PRESENTING WITH INFECTIVE PERICARDITIS IN PEDIATRIC PATIENT WITH SEVERE DEHYDRATION

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ABSTRACT

Background: Infective endocarditis (IE) is one of the most serious long-term complication of congenital heart disease (CHD) patient. The risk of endocarditis in paediatric patient with CHD may be up 100 times higher compared with the general population. Dehydration results in the reduction of intravascular volume and markedly impair in preload state as determinant of RV myocardial blood flow. In this case report, we present a case of paediatric patient with severe dehydration apparently unmasked her congenital heart disease aggravated by infective pericarditis.
Case Presentation: A 16-years-old female patient was admitted to emergency department with complained of shortness of breath worsened one day before hospitalized and lower leg oedema. Her past medical history was she suffered profuse vomiting for seven days ago. On examination, the consciousness was compos mentis, cold acral, blood pressure 90/60 mmHg, heart rate 122x/minutes with a deep and weak pulse, respiration rate 28x/minutes, temperature 36,8 C, SpO2 93% without O2. Physical examination showed holosystolic murmur found on auscultation, best heard at the fifth intercostal space of left sternal border. Chest X-Ray showed cardiomegaly with pulmonary oedema. On echocardiographic examination, ASD secundum, tricuspid regurgitation severe high probability pulmonary hypertension, RA-RV dilatation, prolapse anterior mitral leaflet with small vegetation, TAPSE 1,2, and EF of 83% were seen. The patient was then given rehydration of crystalloid fluids, 1 g of intravenous ampicillin every six hours, 150 mg of intravenous gentamicin once daily, and treated in ICU.
Discussion: Infective endocarditis in children is a disease affecting predominantly patients with CHD. This is associated with the presence of intracardiac shunts. European Guidelines recommend TTE as the first-line imaging modality in patients with suspected IE. Dehydration results in the reduction of intravascular volume and markedly impair in preload state as determinant of RV myocardial blood flow. Vomiting promotes increased fluid loss and causes of isotonic dehydration. The patients receiving IV fluid therapy have to be adequately monitored in order to avoid volume overload.
Conclusion: Early and accurate diagnosis of IE, particularly in CHD patients is crucial for effective management to improve patient outcomes. Dehydration is a major challenge for clinicians especially in CHD patient. Both overhydration and dehydration are associated with increased morbidity and mortality.

Keywords: Congenital Heart Disease; Infective Endocarditis; Dehydration

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PORTAL VEIN THROMBOSIS IN INTRAABDOMINAL MASS: A CASE REPORT WITH CARDIOMEGALY, PVC, ANEMIA, AND HYPOALBUMINEMIA

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ABSTRACT

Background: Intraabdominal masses can arise from various conditions, including abnormalities in the biliary tract, such as cholelithiasis or gallstones, leading to obstruction. Patients presenting with symptoms of jaundice, abdominal pain, and abdominal enlargement require thorough evaluation to determine the underlying cause. Complications such as portal vein thrombosis and ascites can result from such obstructions, which may worsen the patient's prognosis. Early diagnosis and appropriate management are crucial to prevent further complications.
Case Presentation: A 60-year-old male patient presented with complaints of right upper abdominal pain radiating to the right flank and back, which had persisted for the last three months. He also reported abdominal distension and jaundice, which had developed over the past month. There were no complaints of nausea or vomiting, and both bowel and urinary habits were normal. Physical examination revealed a positive Murphy's sign and muscular guarding on palpation of the abdomen. Electrocardiogram (ECG) showed premature ventricular contractions (PVC) with a heart rate of 85 beats per minute. Abdominal contrast-enhanced CT scan revealed dilatation of intrahepatic and extrahepatic bile ducts, with hyperechoic lesions suggestive of thrombosis in the portal vein, along with massive ascites and cardiomegaly. Laboratory findings showed albumin at 1.86 g/dl (hypoalbuminemia) and hemoglobin at 9.3 g/dl (anemia). The working diagnosis was obstructed common bile duct (CBD) due to intraabdominal mass, portal vein thrombosis, cardiomegaly, ascites, PVC, hypoalbuminemia, and anemia. The definitive diagnosis was obstructed CBD due to intraabdominal mass, ascites, and cardiomegaly.
Discussion: The clinical symptoms experienced by the patient, such as right upper abdominal pain, jaundice, and abdominal enlargement, strongly suggest biliary tract abnormalities, particularly cholelithiasis or gallstones, which can cause biliary obstruction. However, the CT scan findings indicating portal vein thrombosis point to portal hypertension and potential disruption of hepatic blood flow. The presence of ascites further suggests a complication of portal hypertension. Echocardiographic evaluation is planned to assess the cardiomegaly further, while medical management is being undertaken, including albumin administration and symptomatic therapy for ascites. Laparotomy and biliodigestive bypass procedures are postponed due to the patient's unstable condition.
Conclusion: For patients with suspected intraabdominal masses, it is essential to perform detailed imaging, including abdominal CT scans, to assess for potential complications such as portal vein thrombosis and ascites. Medical management focusing on ascites management and cardiovascular assessment is vital to prevent further complications. Early diagnosis and appropriate intervention are critical in improving patient prognosis.

Keywords: Portal vein thrombosis, intraabdominal mass, cardiomegaly, PVC), hypoalbuminemia

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UNRAVELING SPONTANEOUS REPERFUSION: A CASE-BASED INSIGHT INTO STEMI AUTOLYSIS

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ABSTRACT

Background: With primary percutaneous coronary intervention (PPCI) now widely implemented for ST-segment elevation myocardial infarction (STEMI) patients, angiographic data reveals that up to 30% of acute STEMI cases involve spontaneous reperfusion. Patients experiencing spontaneous reperfusion (autolysis) generally present with smaller myocardial infarction areas and more favorable clinical outcomes compared to those without it. However, key aspects such as the characteristics, optimal management, and clinical outcomes of STEMI cases with spontaneous reperfusion remain poorly understood.

Case Illustration: A 52-year-old male presented with sudden chest pain (7/10) lasting over 30 minutes. Initial care at a health center included dual antiplatelets and nitrates, with an ECG showing ST elevation in leads V1-V4. Upon arrival at the emergency unit, his pain decreased to 2/10. Risk factors included smoking and hypertension, but no history of routine medication use. Physical examination revealed high blood pressure; other findings were unremarkable. Repeat ECG demonstrated resolution of ST elevation. Diagnosed with acute anteroseptal STEMI, early PCI revealed 90% stenosis in the distal LAD, which was treated with a drug-eluting stent. His chest pain fully subsided, and he was prescribed dual antiplatelets, isosorbide dinitrate, captopril, bisoprolol, and atorvastatin. Follow-up findings showed Q waves and inverted T waves, with echocardiography indicating preserved ejection fraction (65%) but anterior hypokinesis. He was discharged with medications on day five.

Discussion: Spontaneous reperfusion is characterized by ST-segment improvement and TIMI grade 3 flow in the infarct-related artery before PPCI, often coinciding with symptom resolution. Determinants include endogenous fibrinolysis, platelet activity, thrombotic profiles, premedication, and anatomical factors. Although associated with smaller infarct sizes, reduced hospital stays, and enhanced survival rates, the approach to its management through urgent intervention or conservative treatment continues to be a subject of debate.

Conclusion: Though spontaneous reperfusion in STEMI is incompletely understood, it generally portends better outcomes. Factors such as endogenous fibrinolysis and premedication play key roles, but widely accepted diagnostic criteria are lacking. Definitive coronary anatomy assessment remains essential regardless of management strategy.

Keywords: Spontaneous reperfusion, ST-segment elevation myocardial infarction, Percutaneous Coronary Intervention.

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INFECTIVE ENDOCARDITIS COMPLICATING PERFORATED AND PROLAPSED MITRAL VALVE: DIAGNOSTIC FINDING OF ECHOCARDIOGRAPHY

Raden Achmad Chairum Umam Hasanusi

ABSTRACT

Background: Transthoracic echocardiography (TTE) is the first line imaging modality to visualise heart structures damaged by Infective Endocarditis (IE) as it visualizes valve insufficiency, vegetation, and complications of supporting components. This case highlighted the role of TTE in damaged heart structures in IE.
Case Presentation: A 43-year-old male with prolonged fever for two months and A-50-years-old male with worsening dyspnea 2 hours before admission. Blood tests in case I revealed elevated ESR and CRP meanwhile in case II revealed high neutrophil count. Echocardiographic finding of Case I showed severe mitral regurgitation (MR) with perforated and prolapse of posterior and anterior mitral leaflet (PML and AML), left atrial (LA) dilation, moderate aortic regurgitation meanwhile case II showed severe MR due to prolapse and vegetation in AML and mild mitral stenosis (MS), moderate tricuspid regurgitation (TR), mild AR, LA dilation.
Discussion: Several valve abnormalities in IE can be identified through TTE. In case I, prolapse of the AML and PML were observed, while in case II, vegetations and prolapse of the AML were identified. Prolapse found in 10–20% of IE, often due to valve damage or chordae rupture. Vegetations found in about 60–80% of IE, perforation found in 34% cases while flail found in 10–20% of cases.
Conclusion: TTE has a high prognostic value in IE since it may reveal intracardiaccomplications due to IE therefore aid in surgery timing and thus modify the clinical progression of the disease.

Keywords: Infective Endocarditis, Echocardiography

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A CASE REPORT: EMERGENCY ASSESSMENT OF ACUTE AORTIC DISSECTION WITH CORONARY MALPERFUSION WITH 2D-TRANSTHORACIC ECHOCARDIOGRAPHY

Raden Achmad Chairum Umam Hasanusi

ABSTRACT

Background: Aortic Dissection (AD) is a fatal aortic syndrome presenting with chest pain often mistaken for an acute myocardial infarction. This case highlighted the importance of 2D-Transthoracic Echocardiography (TTE) as first line imaging assessment to visualize the aortic valve and Aortic Ascending structure bedside to rule-out AD.

Case Presentation: A 65-year-old male, admitted to emergency with severe blunted chest pain since 2 days ago. Patient had long-standing uncontrolled hypertension. Blood pressure showed 160/110 mmHg, heart rate was 99 bpm, other within normal limit. End-diastolic murmur heard at the upper level sternal border. Chest X-Ray (CXR) showingprominent Aortic Knob enlargement. ECG showing ST depression in anterolateral. 2D-TTE revealed a break in the intima with a dissection flap suggestive of AD. Chest painresolved and ST-Segment deviation back to baseline after systolic achieved at 100-110 mmHg and heart rate at 50-60 bpm.

Discussion: Initially, it was thought as an ACS but suspected AD when CXR revealed a tortuous aorta. Intimal flap was noted on TTE. TTE had sensitivity of 77% and specificity of 93% to 96% for identification of proximal AD. Symptoms and ECG were improved after systolic and heart rate targets were achieved. Caution in acute Aortic Regurgitaion (AR) should be taken, as an abrupt reduction of heart rate in acute AR may cause severe hypotension.

Conclusion: The use of TTE adds value in the screening of Type A AD with chest pain. Of note, Controlling hemodynamic is main treatment approach in acute proximal AD.

Keywords: Aortic dissection, Transthoracic Echocardiography

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A CASE REPORT: ECHOCARDIOGRAPHY ASSESSMENT OF TETRALOGY OF FALLOT WITH SEQUENTIAL SEGMENTAL ANALYSIS APPROACH

Raden Achmad Chairum Umam Hasanusi

ABSTRACT

Background: A useful echocardiographic technique in Congenital Heart Disease (CHD) is sequential segmental analysis which allows for a systematic and more detailed assessment of the heart. This case highlights the importance of sequential segmental echocardiography assessment in diagnosing Tetralogy of Fallot (ToF).
Case Presentation: A 5-year-old boy presented with shortness of breath accompanied by cyanosis of lips and extremities for 1 hour before admission. Peripheral O2 saturation with room air showing 60%, others were within normal limits. End-systolic murmur heard at upper left sternal border and pansystolic murmur heard best at lower left sternal border. ECG was unremarkable. Lab findings showed polycythemia and compensated metabolic acidosis. CXR showed diminished pulmonary vascular marking. 2D-TTE showing situs solitus from subcostal view, subaortic VSD with ≤50% aortic overriding from PLAX view, Infundibular Pulmonary Stenosis from PSAX view, and confirmed subaortic VSD from apical 4-chamber view.
Discussion: Principally, Sequential segmental approach removes speculative assumption and permits cardiac morphology to be described into cardiac segments (atriums, ventricles, great arteries) and connections (atrioventricular and ventriculoarterial junctions) in a logical narrative through identifying salient morphological features.
Conclusion: Sequential Segmental Analysis is a very crucial practical TTE imaging guidance in assessment of CHD including ToF.

Keywords: Echocardiography, Tetralogy of fallot

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A CASE REPORT : CHEMOTHERAPY INDUCED MYOCARDIAL DYSFUNCTION

Raden Achmad Chairum Umam Hasanusi

ABSTRACT

Background: A careful monitoring of cardiac function during the course of cancer therapy should prevent the onset of severe myocardial dysfunction. This case highlights the important findings of the role of echocardiography in the management of chemotherapy-treated patients.

Case Presentation: A-55 year-old female had worsening dyspnea 1 hours before admitted to emergency. Patient had a history of thyroid cancer and underwent chemoradiation therapy for 3 months with anthracyclines agent. Blood pressure showed 80/60 mmHg, heart rate was 120 bpm, high respiratory rate, and peripheral O2 saturation was 92% with room air. rales and cardiac murmur was obviously heard. ECG was unremarkable and troponin was normal. Echocardiography showed Global Hypokinetic with reduced both LV and RV function (EF 13-15% (simpson), TAPSE 15) with at least moderate to severe mitral and tricuspid regurgitation. Perfusion finally restored with inotropic support and heart failure therapy and successfully discharged.

Discussion: Cardiogenic shock (CS) due to myocardial dysfunction related to cancer therapy found in 3-48% cases worldwide. Previous studies found that LVEF decreased significantly immediately after the completion of chemotherapy, and subclinical myocardial alterations were present in more patients than previously noted. Other authors also demonstrated that LVEF was normal at baseline and in the first months of follow-up in patients treated with anthracyclines then decreased subsequently. Overall, Previous study found the median time to onset of cardiomyopathy was 3,5 months.

Conclusion: CS is increasingly recognized in chemotherapy-treated patients. Baseline and serial echocardiograms performed with a timing decided according to a single patient's clinical conditions is increasingly important.

Keywords: Chemotherapy, Myocardial dysfunction

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A SUCCESSFUL FIBRINOLYSIS IN ACUTE ONSET OF INFERIOR STEMI PATIENT: CRITICAL MANAGEMENT WITH LIMITED SETTINGS

Raden Achmad Chairum Umam Hasanusi

ABSTRACT

Background: Acute ST-Elevation Myocardial Infarction (STEMI) is a life-threatening emergency requiring prompt reperfusion therapy. In resource-limited settings without access to primary percutaneous coronary intervention (PCI), fibrinolytic therapy remains the cornerstone of management.

Case Presentation: We report a 32-year-old male presenting with acute onset of severe left chest pain lasting 30 minutes with onset of pain 3 hours ago, described as dull, persistent, radiating to the back, with associated nausea and cold sweats. The patient was an active smoker consuming one pack per day. Vital signs and physical examination were within normal limits. Laboratory studies revealed leukocytosis. Electrocardiogram (ECG) demonstrated sinus rhythm with ST-elevation in leads II, III, and aVF, and reciprocal ST-depression in V1–V3. The diagnosis of Inferior STEMI Killip I with acute onset (3 hours) class I was made. Immediate treatment included fibrinolysis with intravenous streptokinase (1.5 million IU), dual antiplatelet therapy (aspirin and clopidogrel), atorvastatin, and subcutaneous fondaparinux. Post-fibrinolysis, the patient showed clinical and ECG improvement. He was subsequently stabilized and discharged without complications.

Discussion: In settings where PCI is not readily available, timely fibrinolytic therapy can significantly reduce morbidity and mortality in STEMI patients. Streptokinase, despite its immunogenicity compared to fibrin-specific agents, remains an effective and accessible option. Early diagnosis, rapid initiation of antiplatelet and anticoagulant therapy, and close monitoring are critical for favorable outcomes.

Conclusion: Successful fibrinolysis in acute inferior STEMI can be achieved even in limited-resource settings with prompt diagnosis and appropriate therapy, highlighting the importance of critical early management.

Keywords: STEMI, fibrinolysis, inferior myocardial infarction, streptokinase, limited-resource management

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ATYPICAL EPIGASTRIC PAIN UNVEILING POSTERIOR STEMI WITH MALIGNANT PVCS: A CASE REPORT AND LITERATURE REVIEW

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ABSTRACT

Background: Acute myocardial infarction (AMI) is still a leading cause of death globally and can be difficult to diagnose, particularly in rural areas with few diagnostic resources. Although it is uncommon, posterior ST-Elevation myocardial infarction (STEMI) is frequently disregarded, especially when symptoms are unusual. Premature ventricular complexes (PVCs), particularly malignant ones, can make diagnosis and prognosis even more difficult.

Case Presentation: A 41-year-old woman who experienced nausea, vomiting, and epigastric pain radiating to her neck was seen in the emergency room. Despite her known history of hypertension, she refused to take her medicine as prescribed. A 12-lead ECG revealed ST depression in leads V2–V3 with terminally positive T waves, which raised suspicion for posterior MI despite the initial evaluation's suggestion of dyspepsia. A 15-lead ECG revealed a PVC couplet in lead II and validated ST elevation in leads V7–V9. Since PCI facilities were unavailable, thrombolytic therapy was used, and the patient's symptoms and ECG results initially improved. However, not long after reperfusion, the patient suffered an unexpected cardiac death.

Discussion: This case highlights the challenge of diagnosing posterior STEMI, especially when it presents atypically, such as with isolated epigastric pain. PVCs may be a sign of severe heart damage and an increased risk of deadly arrhythmias. Standard ECGs frequently fail to detect posterior infarction, so posterior leads (V7–V9) are required for a precise diagnosis. A larger infarct size and a higher risk of death are suggested by the co-occurrence of malignant PVCs. Despite the initial improvement in the clinical picture brought about by thrombolytic therapy, the lack of access to PCI may have contributed to the poor outcome.

Conclusion: This case emphasizes how crucial it is to take cardiac etiologies into account in patients, even younger patients, who present with unusual chest or upper abdominal pain. It highlights the necessity of broader ECG lead placement to detect posterior MI and promotes routine ECG screening in patients over 35 exhibiting such symptoms. The case also illustrates the limitations of thrombolytic therapy in situations without access to PCI and the prognostic significance of malignant PVCs.

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DISTINGUISHING SUPRAVENTRICULAR TACHYCARDIA WITH ABERRANCY AND VENTRICULAR TACHYCARDIA: A CASE REPORT AND DIAGNOSTIC APPROACH IN EMERGENCY SETTINGS

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ABSTRACT

Background: Wide QRS complex tachycardia (WCT) is most commonly associated with ventricular tachycardia (VT). However, in certain cases, WCT may also result from supraventricular tachycardia (SVT), particularly in patients with a preexisting bundle branch block. Accurate differentiation between the two is critical due to differences in management strategies. Moreover, diagnosis remains a significant clinical challenge, especially in emergency settings.
Case Presentation: A 72-year-old male presented to the emergency department with complaints of palpitations and dyspnea, which were not relieved by rest. The symptoms were accompanied by nausea, diaphoresis, and coughing, but without vomiting or chest pain. The patient had a medical history of heart failure, atrial fibrillation, and bundle branch block. On examination, the patient was hemodynamically unstable. Electrocardiography (ECG) revealed a regular wide complex tachycardia. A diagnostic approach was undertaken using the Brugada algorithm. Despite the algorithm's complexity, the patient was ultimately diagnosed with SVT with aberrancy. As the patient declined synchronized cardioversion, intravenous amiodarone was administered. Post-therapy, the ECG demonstrated atrial fibrillation with a left bundle branch block pattern.
Discussion: The Brugada algorithm is a widely recognized and frequently utilized tool for differentiating WCTs. However, its application can be time-consuming and less practical in emergency scenarios, particularly when the patient is unstable. Alternative diagnostic strategies such as the Vereckei algorithm, RWPT-II algorithm, and BASEL algorithm may be considered for more rapid assessment.
Conclusion: For rapid and simplified diagnosis in emergency settings, the BASEL algorithm may offer a practical advantage.

Keywords: supraventricular tachycardia, ventricular tachycardia, wide QRS complex tachycardia, diagnostic algorithm

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DOUBLE CULPRIT ST ELEVATION MYOCARDIAL INFARCTION IN A 39 YEAR-OLD PATIENT WITH A PNEUMONIA INFECTION

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ABSTRACT

Background: Acute myocardial infarction (MI) is typically caused by thrombosis in one of the major coronary arteries. The involvement of more than one coronary artery in thrombus formation is rare and associated with high mortality rates. We report a patient with total occlusion of the left anterior descending (LAD) and right coronary arteries (RCA), presenting with chest pain, unstable hemodynamics, and pneumonia infection.
Case Presentation: A 39-year-old male patient presented with a 6-hour history of chest pain, accompanied by a syncopal episode occurring 2 hours prior to his arrival at the hospital. The patient also complained of mild dyspnea and occasional coughing. An initial electrocardiogram (ECG) revealed a junctional rhythm with ST elevation in leads I and aVL, and reciprocal ST-segment depression in leads II, III, aVF, and V2-V6. The patient exhibited hemodynamic instability with a blood pressure of 89/72 mmHg, heart rate of 62 bpm, respiratory rate of 24 breaths per minute, cold extremities, and a capillary refill time (CRT) greater than 2 seconds. Coronary angiography revealed total occlusion of the RCA and LAD. Chest X-ray indicated pneumonia, and Gram sputum culture results were positive for bacterial cocci infection.
Discussion: Several possible mechanisms could explain simultaneous ST-segment elevation. The first is "wrap-around" LAD, the second is an obstruction in a coronary artery leading to hemodynamic instability, causing blood stagnation and exacerbation of pre-existing coronary artery disease, and the most potential causes is concurrent pneumonia infection. Increased macrophage infiltration, reactive oxygen species (ROS) production, and D-dimer and thrombin-antithrombin complexes likely contribute to a pro-coagulant state following pneumonia, potentially exacerbating coronary vessel blockage and leading to myocardial infarction.
Conclusion: Double culprit lesions in myocardial infarction are rare but can lead to fatal outcomes if not managed promptly. Infections, such as pneumonia, may trigger dysregulation of the inflammatory response, potentially acting as a trigger for multiple coronary artery occlusions and exacerbating clinical outcomes in these patients.

Keywords: Double Culprit ST Elevation Myocardial Infarction, Total Occlusion, Pneumonia infection.

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EVERY MINUTE MATTERS: A CASE SERIES ON REVISITING THE ROLE OF MODIFIED VALSALVA MANEUVER IN EARLY SUPRAVENTRICULAR TACHYCARDIA MANAGEMENT

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ABSTRACT

Background: Supraventricular tachycardia (SVT) is one of a common acute arrhythmia requiring immediate management. The Modified Valsalva Maneuver (MVM) offers a useful non-pharmacologic intervention for acute SVT management. Early diagnosis and timely management are vital to prevent long term cardiac damage and improve overall outcomes for affected patients. This case series highlights how symptom onset timing may influence MVM success, offering insights into time-sensitive approaches within acute cardiovascular care.

Case Presentation: We present three patients with SVT varying onset times and responses to MVM. Case 1: A 38-year-old woman experienced with palpitations and chest discomfort 3 hours prior to admission. MVM failed after 3 attempts, then pharmacologic treatment with digoxin and oral bisoprolol was administered. Case 2: A 54-year-old man suffered from persistent palpitations for over 12 hours before admission. MVM was failed. He then received digoxin, amiodarone, and bisoprolol, leading to gradual rhythm control. Case 3: A 58-year- old man presented 30 minutes after symptom onset with sudden palpitations. MVM successfully restored sinus rhythm without pharmacologic intervention. All patients showed clinical improvement and were discharged with oral beta-blockers.

Discussion: This case series highlights the time sensitive nature of SVT management. MVM was effective only in patient with the shortest symptom onset (<1 hour), underscoring the importance of early recognition and immediate non-pharmacologic intervention. Pharmacologic therapy remains essential when MVM fails, especially in delayed presentations. In our setting, the unavailability of adenosine a recommended first-line agent necessitated reliance on alternative medications such as digoxin and amiodarone. Despite our urban location, adenosine remains difficult to access in Indonesia.

Conclusion: The effectiveness of MVM in terminating SVT may correlate with the timing of intervention, suggesting that every minute counts in restoring rhythm. These cases reinforce the need for early detection and prompt action in SVT to maximize non-invasive success, reduce dependence on medications and enhance better overall outcomes.

Keywords: supraventricular tachycardia, modified Valsalva maneuver

MAKASSAR CARDIOVASCULAR UPDATE - XXIII 2025

Claro Hotel Makassar, July 10-13th 2025

WELLENS SYNDROME IN PATIENT WITH STABLE ANGINA PECTORIS: A CHANGES FROM A TO B PATTERNS

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ABSTRACT

Background: Wellens syndrome (WS) is a pre-infarction stage of coronary artery disease and is associated with significant stenosis of the left anterior descending (LAD) artery. It is characterized by specific changes on an electrocardiogram (ECG), most notably biphasic or deeply inverted T waves. This condition carries a high risk of developing an extensive anterior myocardial infarction if left untreated.
Case presentation: A 50-year-old male came to the cardiologist with repeated chest pain lasting for >1 week. The symptoms occurred during ordinary physical activities and were sometimes triggered by emotional states such as sadness or anger. The patient had a medical history of hypertension. He was also a smoker and an alcoholic. The first ECG showed biphasic T waves in leads V2– V4 and a treadmill test (TMT) was suggested, which turned out positive. The patient was treated with some medications, and then a coronary angiography was performed, which revealed a critical stenosis in the LAD. A subsequent ECG showed deeply inverted T waves in leads V2–V4. The patient underwent successful percutaneous coronary intervention (PCI) with stent placement.
Disscusion: Wellens syndrome also known as "Anterior Descending Coronary T-wave syndrome" was first described in 1982 by Wellens, et al. The incidence of WS ranges from 10-15% of all acute coronary syndrome cases. The risk factors of WS included hypertension, diabetes, hyperlipidemia, smoking etc. The important ECG findings in WS such as biphasic T waves in V2-V3 (Wellens type A) an deeply inverted T waves in V2-V3 (Wellens type B). The management of WS requires holistic management, including medical and intervention management.
Conclusion: Early detection of Wellens syndrome is crucial, as the condition can progress to a life- threatening stage. Prompt recognition based on clinical presentation and ECG findings allows for appropriate treatment, which can reduce patient morbidity and mortality.

Keywords: Wellens syndrome, LAD, Angina Pectoris, Intervention

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Claro Hotel Makassar, July 10-13th 2025

UNCOMMON PRESENTATION OF PLASMODIUM VIVAX MALARIA: A CASE OF ACUTE MYOCARDIAL INFARCTION

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ABSTRACT

Background: Malaria is a widespread infectious disease with various systemic complications. However, cardiovascular involvement, particularly acute myocardial infarction (AMI), is extremely rare and not well documented.
Case Presentation: A 57-year-old male presented with a six-hour history of low-grade fever, myalgia, and epigastric discomfort radiating to the chest. His medical history was significant for hypertension and type 2 diabetes mellitus. Initial laboratory investigations confirmed Plasmodium vivax infection, and anti-malarial therapy was initiated. Subsequently, the patient developed worsening epigastric pain radiating to the left side of the chest. Electrocardiography revealed ST- segment elevation in leads II, III, and aVF, consistent with an inferior ST-elevation myocardial infarction (STEMI). He was referred to a tertiary care center with cardiology services for further management. Cardiac enzyme levels were elevated, and transthoracic echocardiography demonstrated hypokinesia of the inferior wall of the left ventricle. The patient was managed with dual antiplatelet therapy, anticoagulation, and supportive care. Revascularization was not performed due to the patient's refusal of the procedure.
Disscusion: This case illustrates the diagnostic and therapeutic challenges of managing Plasmodium vivax infection concurrently with STEMI in resource-limited settings. Malaria-related myocardial infarction may result from systemic inflammation, endothelial dysfunction, microvascular obstruction, and a prothrombotic state. Clinical improvement with antiplatelet and anticoagulant therapy, along with supportive care, highlights the importance of timely pharmacological treatment when revascularization cannot be performed.
Conclusion: This case highlights the potential for malaria to precipitate acute coronary events, possibly through mechanisms such as endothelial dysfunction, microvascular obstruction, and systemic inflammation. Clinicians should maintain a high index of suspicion for cardiac complications in patients with severe malaria.

Keywords: P. vivax, malaria, AMI

MAKASSAR CARDIOVASCULAR UPDATE - XXIII 2025

Claro Hotel Makassar, July 10-13th 2025

ATYPICAL N-STEMI PRESENTATION: PERFECT CAMOUFLAGE

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ABSTRACT

Background: Non-ST Elevation Myocardial Infarction (NSTEMI) is part of acute coronary syndrome (ACS), which is frequently associated with typical chest pain. Nevertheless, it may also be characterized by atypical presentation, such as epigastric pain that is often described as burning in character or like indigestion. Emergency physicians are occasionally misdiagnosed, which can significantly affect both morbidity and mortality.
Case Presentation: A 43-year-old female was admitted to the ED with the chief complaint of epigastric pain (NPRS: 8/10) since yesterday. The pain feels burning, radiating to the back, and is accompanied by nausea, vomiting, and general weakness. Her medical history includes hypertension, which has been untreated for an extended period. The patient's vital signs show hypertension (BP 151/100 mmHg). ECG revealed sinus rhythm with a regular HR of 88 bpm, left ventricular hypertrophy, a pathological Q wave in septal leads, and ST-segment depression in inferolateral leads. There is elevated troponin I (7.65 ng/mL). The patient was given dual antiplatelet therapy (aspirin 160 mg and clopidogrel 300 mg), atorvastatin 20 mg, ramipril 2.5 mg, and fondaparinux 2.5 mg subcutaneously.
Discussion: Atypical NSTEMI presentation can vary widely, from non-chest pain to syncope. In this case, the patient could be misdiagnosed as having a gastrointestinal disorder due to her symptoms. Risk factors of atypical presentation are old age, female gender, comorbidities, smoking, and mental illness. An electrocardiogram (ECG) should have been done within ten minutes of a patient with acute chest pain or suspected cardiac ischemia. In NSTEMI occurrences, cardiac troponin levels are useful to differentiate between myocardial infarction and unstable angina. But this test has only limited added value with non-chest pain ACS. In cohort studies, 1-2.2% of diagnoses of ACS are missed by emergency physicians. Possible explanations include atypical symptoms, non-diagnostic ECG, and failure to recognize slight ECG changes.
Conclusion: Patients with atypical presentation of NSTEMI are frequently misdiagnosed and inadequately treated, resulting in increased complications and a higher mortality rate. A comprehensive medical history and examination are essential for accurate diagnosis. An ECG must be carried out directly, and timely treatment implemented.

Keywords: Atypical presentation, ACS, NSTEMI, ECG

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ST-ELEVATION MYOCARDIAL INFARCTION IN A 24-YEAR-OLD PATIENT WITH HIGH-DEGREE ATRIOVENTRICULAR BLOCK, VENTRICULAR STANDSTILL, AND NEPHROTIC SYNDROME

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ABSTRACT

Background: Myocardial infarction (MI) in young individuals is rare but has shown a rising trend over time.
Case Presentation: A 24-year-old male was referred to Wahidin Sudirohusodo Hospital with a 14-hour history of typical chest pain. He had been an active smoker for 9 years and had a history of alcohol abuse and nephrotic syndrome. Electrocardiography (ECG) revealed a ST-elevation myocardial infarction (STEMI) in the high lateral wall. Prior to referral, the patient had received loading doses of aspirin 160 mg and clopidogrel 300 mg, as well as nitroglycerin 3 mcg, isosorbide dinitrate 5 mg, fondaparinux 2.5 mg, and lansoprazole 30 mg. Fibrinolytic therapy with streptokinase was administered at the initial facility, resulting in greater than 50% resolution of ST-segment elevation. Laboratory findings showed leukocytosis, elevated liver enzymes, hyponatremia, high-sensitivity troponin I (hs-Troponin I) levels exceeding 50 ng/mL, and dyslipidemia. Bedside echocardiography demonstrated a reduced left ventricular ejection fraction of 38%. Upon admission, coronary angiography revealed 60–70% stenosis with thrombus formation in the proximal left anterior descending (LAD) artery. The patient underwent early percutaneous coronary intervention (PCI) using a combination of drug-eluting stent (DES) and drug-eluting balloon (DEB), achieving Thrombolysis in Myocardial Infarction (TIMI) grade 3 flow. Post-intervention ECG showed extensive anterior wall myocardial infarction, incomplete left bundle branch block (ICLBBB), and a high-degree atrioventricular (AV) block with episodes of ventricular standstill. A temporary pacemaker (TPM) was inserted on the second day of hospitalization and was removed the following day. After six days of inpatient care, the patient was discharged in stable hemodynamic condition.
Discussion: The patient's risk factors included cigarette smoking, alcohol abuse, and dyslipidemia. Although nephrotic syndrome is rarely a direct cause of MI, it may contribute to increased cardiovascular risk through mechanisms such as hypercoagulability and hyperlipidemia. Premature MI poses a significant long-term burden on health, particularly in younger individuals.
Conclusion: Early prevention and management of cardiovascular risk factors in young adults are crucial to reduce the incidence, morbidity, and mortality associated with premature MI.

Keywords: ST-elevation myocardial infarction, acute coronary syndrome, high-degree atrioventricular block, ventricular standstill, nephrotic syndrome

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OPTIMAL MEDICAL THERAPY IN MULTIPLE-VALVULAR HEART DISEASE WITH ATRIAL FIBRILLATION IN SECONDARY REFERRAL HOSPITAL

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ABSTRACT

Background: According to the EuroHeart Survey, 20.2% of patients with valve disorders had multiple valve disorders. The therapeutic approach depends on the type and degree of severity; especially in severe cases, surgical intervention is required. Theoretically, there is no scientific evidence to support the effectiveness of drug therapy in heart valve disease. Therefore, this article aims to evaluate pharmatherapy with a focus on administering drugs to prevent worsening of clinical symptoms and readmission.
Case Presentation: A 59-year-old woman complained of shortness of breath for 4 days. The patient feels weak and complains shortness of breath when lying down and with light activity. Sometimes patients wake up from sleep because of shortness of breath. Vital signs showed tachycardia and tachypnea. Swelling on both legs, a grade III ICS II diastolic murmur right parasternal line, and a grade III ICS V systolic murmur left midclavicular line. The patient experienced readmission four times. ECG showed AF, LAD, LVH, septal wall infarction, and lateral wall ischemia. Results of echocardiography examination: AR and MR severe, Moderate Pericardial Effusion, EF 39%. The patient was treated with furosemide and digoxin intravenously, then given additional therapy with nospirinal, spironolactone, captopril, and bisoprolol.
Discussion: Hospitalized heart failure patients have a high risk of readmission, ranging from 50% to over 66%. Patients were treated with pillars of heart failure drugs. Captopril 50 mg, Spironolactone 25 mg, and Bisoprolol 2.5 mg form a key pillar in heart failure management, working synergistically to reduce fluid overload, prevent cardiac remodeling, and improve survival outcomes. The dosage of Captopril was increased up to three times daily to optimize therapeutic response and better manage persistent symptoms. Digoxin was administered to control the ventricular rate in atrial fibrillation and indirectly reduce thrombus formation through improved hemodynamic stability. Patients had optimal medical therapy and clinical symptoms showed significant improvement. Surgical intervention is necessary for definitive treatment to improve the patient's prognosis.
Conclusion: In conclusion, the patient has received optimal therapy with pillars of heart failure, effectively helping to prevent clinical worsening and reduce the risk of readmission.

Keywords: Multiple VHD, Optimal Therapy, Heart Failure, Atrial Fibrillation

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ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION IN PATIENT WITH MULTIPLE RISK FACTORS IN PRIMARY FACILITY: STREPTOKINASE AS THE LIFE-SAVING DRUG

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ABSTRACT

Background: STEMI reached 5.8 million new cases in Indonesia with a 48.8% mortality rate. Reperfusion therapy is the gold standard. In this case, our facility does not support primary PCI; thus, reperfusion relies on administering streptokinase. Streptokinase is the recommended fibrinolytic agent. Therefore, this article aims to evaluate the administration of streptokinase in a patient with STEMI who has multiple risk factors in a primary facility.

Case presentation: A 69-year-old male, active smoker, complained of chest pain like beingcrushed within 1 hour which did not improve with rest. Physical examination was unremarkable. ECG showed ST elevation V1-V6, I, AVL, reciprocal ST depression II, III, AVF with a "tombstone appearance", implied STEMI extensive anterior wall. CBC examination showed hemoglobin 21.6 g/dL and WBC 10.800/µL. HS troponin I showed >50,000 ng/ml. A fibrinolytic protocol using streptokinase 1.5 million IU was initiated within 90 minutes. Post-fibrinolytic evaluation showed a KILLIP 1 with significant clinical improvement, although the ECG did not show ST segment resolution ≥50%. However, post-thrombolytic angiography examination showed partial occlusion of the LAD artery with TIMI 2. Furthermore, primary PCI was planned to restore complete perfusion.

Discussion: This case illustrates the administration of fibrinolytics with streptokinase as therapy of choice in a patient with multiple risk factors. The evaluation of this therapy was conducted by comparing clinical, ECG, and angiography before and after administration of streptokinase. Clinical improvements were assessed by the degree of chest pain, which showed significant improvement. However, the post-fibrinolytic ECG did not show significant improvement. According to PERKI, the successful criteria of fibrinolysis include clinical improvement and ST segment resolution ≥50%, assessed 60-90 minutes from the start of fibrinolysis. According to the TIMI Study Group, successful criteria of fibrinolysis can also be assessed by an increase in the reperfusion grade. In this case, there was an improvement from TIMI 0 (total occlusion) to TIMI 2 (partial perfusion).

Conclusion: In this case, although fibrinolysis with streptokinase did not show significant ECG changes. Interestingly, significant clinical improvement and improved coronary blood flow were obtained.

Keywords: STEMI, Fibrinolytic, Streptokinase

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Claro Hotel Makassar, July 10-13th 2025

ECHOES FROM THE PERIPHERY: SUSPECTED COR PULMONALE IN A TUBERCULOSIS-ENDEMIC REGION DIAGNOSED BY A GENERAL PRACTITIONER USING FOCUSED CARDIAC ULTRASOUND

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ABSTRACT

Background: Pulmonary hypertension (PH) and cor pulmonale are life-threatening complications of chronic lung disease, particularly in tuberculosis-endemic countries like Indonesia. Early diagnosis is crucial but often delayed in rural areas due to limited access to advanced diagnostics. This case highlights the role of a general practitioner utilizing focused cardiac ultrasound (FoCUS) in detecting signs of cor pulmonale in a resource-limited setting.

Case Presentation: A 53-year-old male presented with a one-year history of chronic cough, worsening exertional dyspnea, orthopnea, and paroxysmal nocturnal dyspnea. He had no prior history of cardiovascular disease and his tuberculosis status was unknown. Physical exam revealed jugular venous distention, bilateral lower limb edema, and ascites. Chest X-ray showed bilateral infiltrates suggestive of pneumonia or tuberculosis or pulmonary oedema, and cardiomegaly. ECG showed sinus rhythm with poor R-wave progression and occasional premature ventricular contraction (PVCs). In the absence of chest CT or formal echocardiography, bedside FoCUS revealed severe right atrial and right ventricular dilatation, no pericardial effusion, and a dilated inferior vena cava (2.47cm) with <50% collapsibility-indicating elevated right atrial pressure. These findings were consistent with cor pulmonale likely due to chronic pulmonary disease (Type III Pulmonary Hypertension). During hospitalization, the patient developed decreased consciousness, suspected to be tuberculosis meningoencephalitis. Despite initiation of antitubercular therapy, the patient died on
the third day.

Discussion: Chronic pulmonary tuberculosis can lead to pulmonary vascular remodeling and hypoxic vasoconstriction, resulting in Type III pulmonary hypertension and cor pulmonale. Late-stage disease often leads to irreversible right heart failure with poor prognosis. Neurological complications, such as TB meningoencephalitis, further increase mortality. In resource-limited settings, FoCUS empowers general practitioners to detect cardiac involvement early, which may improve triage, referral, or palliative decisions.

Conclusion: This case hightlights the utility of focused cardiac ultrasound in rural settings for early recognition of cor pulmonale in patients with suspected pulmonary TB. ECG findings and bedside imaging can guide diagnosis and management even in the absence of advanced diagnostics.

Keywords: Cor pulmonale, Pulmonary hypertension, tuberculosis, Focused Cardiac Ultrasound, Rural Medicine

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WHEN WIDE COMPLEX TACHYCARDIA IS NOT VENTRICULAR TACHYCARDIA: A CASE OF ANTIDROMIC ATRIOVENTRICULAR REENTRANT TACHYCARDIA IN WOLFF-PARKINSON-WHITE SYNDROME

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ABSTRACT

Background: Wolff-Parkinson-White (WPW) syndrome is a congenital anomaly characterized by an accessory pathway (AP) that bypasses the AV node's decremental properties. Atrioventricular Reentrant Tachycardia (AVRT), a key arrhythmia in WPW, has two types based on antegrade conduction: orthodromic (via AV node) and antidromic (via AP). Antidromic AVRT presents as a wide-complex tachycardia and can be misdiagnosed as ventricular tachycardia (VT).

Case Presentation: We report a 52-year-old woman with recurrent emergency visits for palpitations. ECG during an episode showed regular wide-complex tachycardia, successfully managed with intravenous amiodarone. Baseline sinus rhythm ECG revealed a short PR interval and delta wave, suggesting WPW syndrome with a right posteroseptal AP. Antidromic AVRT was diagnosed based on the wide-complex tachycardia pattern and WPW features. VT was excluded using the Brugada and Brugada-Stuerer algorithms. Electrophysiological study demonstrated A-V fusion in the right posteroseptal region. Despite multiple radiofrequency ablation attempts, fusion persisted, indicating an epicardial AP. The procedure was aborted due to prolonged duration.

Discussion: This case highlights antidromic AVRT as a rare but important differential diagnosis of wide-complex tachycardia. Recognition of a patient's WPW history and the application of algorithms like Brugada and Brugada-Stuerer are valuable for differentiating SVT with aberrancy and pre-excited SVT from VT. Epicardial accessory pathways, although uncommon, pose challenges during catheter ablation and may require epicardial access or surgical intervention.

Conclusion: WPW syndrome may manifest with diverse arrhythmias, significantly affecting patient outcomes. Antidromic AVRT, although rare, must be considered when diagnosing wide- complex tachycardias. Catheter ablation remains the definitive therapy, although epicardial APs complicate procedural success.

Keywords: WPW, antidromic AVRT, wide complex tachycardia, catheter ablation

Kemenkes
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