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ANNUAL SCIENTIFIC MEETING OF  
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**The 1<sup>st</sup> ASMIHA Digital Conference**

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**Abstracts: Original Articles**



## 1. Prediction of 10-year Atherosclerotic Cardiovascular Disease (ASCVD) Risk for Primary Prevention and Their Implications in Statin Therapy Among Prolanis Patients at Sikumana Public Health Center, Kupang City

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**Background:** Prevention of atherosclerotic cardiovascular disease (ASCVD) can be achieved with early detection, such as prediction the risk level and their implications in Statin therapy. This study aims to describe the ASCVD risk profile and their implications for statin therapy among participants of chronic disease management program (Prolanis) in Kupang Regency.

**Method:** This was a descriptive cross sectional study in adults aged 50 - 75 years whose participated in Prolanis at Sikumana Public Health Center Kupang in the period of July – September 2019. The total CVD risk was estimated by ASCVD Risk Estimator Plus and ESC 2016 CVD Risk Categories.

**Results:** Among of 100 participants, 58% were female and 42% were male. ASCVD risk factors were dominated by hypertension as much as 91%, high total cholesterol (46%), diabetes (42%), hypertriglyceridemia (41%) and obesity (34%). For LDL cholesterol levels, most of participants (53%) were in borderline high. According to 2019 AHA/ACC guidelines, the statin benefit group in this study was dominated by non diabetes group with LDL cholesterol level 70 -189 mg/dl (57%), followed by diabetes group (40%) and three participant with very high LDL cholesterol, respectively. ASCVD 10-year risk level stratification of the non diabetes group was dominated by Intermediate risk (43.8%). According to 2016 ESC CVD risk categories, there were 40 (48.7%) subjects categorized as very high risk, then high risk (32.9%), moderate risk (15.9%) and low risk (2.4%), respectively. There were 67 subjects whose haven't reached LDL cholesterol target. Less than half of this study population were receiving statin treatment as indicated.

**Conclusion:** Approximately half of the study population had a very high cardiovascular risk. Hypertension, dyslipidemia, diabetes and obesity were the main modifiable risk factors. Most of the study population haven't received Statin therapy as indicated.

**Keywords:** Atherosclerotic cardiovascular disease, CVD risk categories, Primary Prevention, Statin

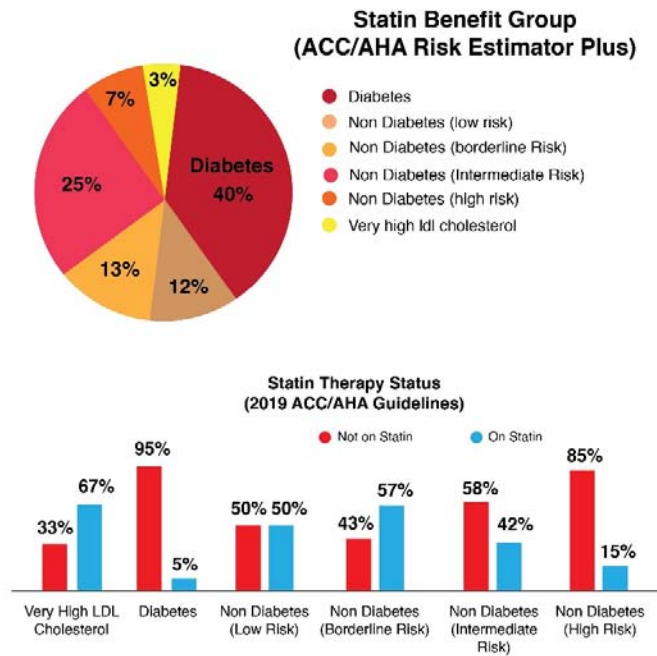


Figure 1. Statin benefit group and therapy status (2019 ACC/AHA Guidelines)



## 2. Comparison of Two Scoring Models for Predictor Treatment and Outcome in Patient with AHF in JKN Era

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**Background:** Acute heart failure (AHF) is defined as quick appearance or worsening of symptoms and signs of heart failure and is one of the biggest causes of hospitalization and death. Some scoring systems are available to predict in-hospital mortality for patients with acute heart failure. In the JKN era, proper risk stratification can improve clinical outcomes, resource allocation and avoid inappropriate management cost of patients. There is currently no study on scoring ratings in the JKN era. The study aims to find out the best scoring model that can use for predictor treatment dan outcome in patients with acute heart failure in the JKN scheme.

**Methods:** This is a retrospective cohort study conducted at Prima Husada Hospital Malang. Patient data were obtained from the medical records for the period of April - October 2019. The inclusion criteria were patients diagnosed with acute heart failure (N = 74). This research used GWTG-HF and OPTIMIZE-HF scoring which were assessed for their sensitivity and specificity using ROC statistical analysis. The correlation and predictive values of the scoring methods in relationship to clinical outcomes were analysed by the Spearman correlation and binary logistic regression test.

**Results:** Both GWTG-HF and OPTIMIZE-HF scoring systems were found to have high sensitivity (90% vs 60%) and high specificity (73.4% vs 89.1%) value at a cut-off value of 40,5 and 37, respectively. Both systems provide significant correlation to mortality outcomes ( $p < 0.05$ ) at their respective cut-off values. GWTG-HF had better values of in-hospital mortality prediction model.

**Conclusion:** GWTG-HF scoring, using resources available in the JKN scheme, is the best predictor of in-hospital mortality for patients with acute heart failure with high sensitivity and specificity values, significant correlation, and best predictive value in relationship with mortality outcomes.

**Keywords:** Acute Heart Failure, GWTG-HF, OPTIMIZE-HF, JKN, Score



### 3. Total Events Of Heart Failure with preserved Ejection Fraction In Patients With Type 2 Diabetes Treated In Internal Medicine Clinics In Bogor, Indonesia: Buitenzorg Study

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**Background and aims:** Heart Failure (HF) is common in patient with diabetes that caused increasing of mortality risk. HFpEF identifies a systemic pro-inflammatory state induced by comorbidities as the cause of myocardial structural and functional alterations that Type 2 Diabetes (T2DM) is one of the most. This study intended to provide and present data as an insight for a comprehensive management of diabetes and heart disease.

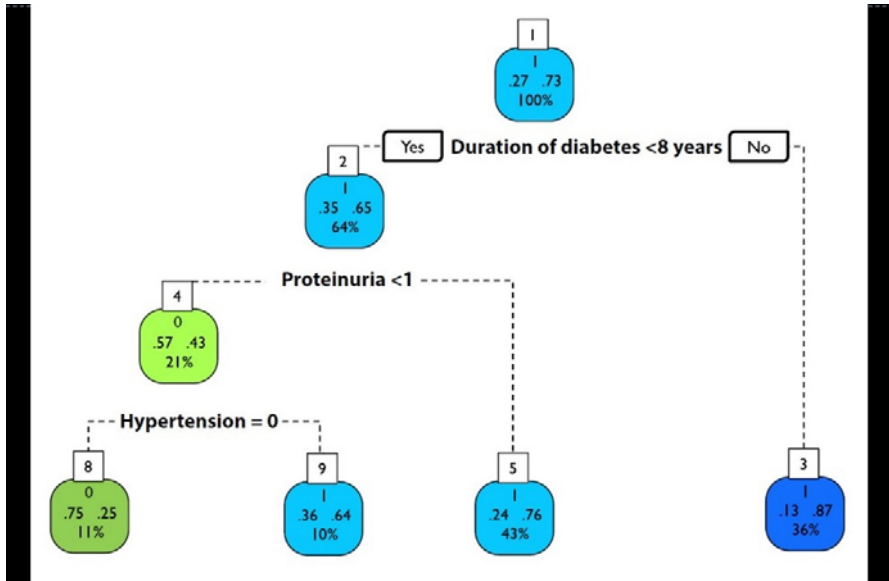
**Materials and methods:** A cross-sectional, observational study 153 T2DM patients from multi-center hospital. Data collected from medical record like duration of diabetes, age, BMI, HbA1C, renal function, albuminuria and echocardiography which had already performed that showed normal or mildly abnormal Left Ventricle (LV) function and evidence of abnormal LV relaxation, filling, diastolic distensibility and stiffness. We also observed the HF symptoms, diabetic and hypertension medication.

**Results:** 64 subjects had a HF symptoms which 67% of these patients had normal ejection fraction (EF) but showed diastolic dysfunction. Out of 153 subjects' echocardiogram, 65% showed a diastolic dysfunction whereas 57% had no symptoms. The patients with no symptoms but have a diastolic dysfunction and normal EF evidently in older group, mostly overweight-obese, 16% had reduced renal function but 79% had HbA1C below 9 and 47% had < 5 years duration of diabetes.

An advance test using Unpaired T followed by Decision Tree Method, patients with duration of diabetes > 8 years, 36% found with diastolic dysfunction, and for the patient with duration of diabetes < 8 years with proteinuria, 43% would have a diastolic dysfunction. Patients with duration of diabetes < 8 years but with hypertension the probability having a diastolic dysfunction is 10%.

**Conclusion:** HFpEF is oftenly found among T2DM patients in Bogor that needs more concern in managing diabetes patients comprehensively and prevent incidence of fatal complications.

**Keywords:** Buitenzorg, Diabetes, Diastolic Dysfunction, Heart Failure.





#### 4. The Clinical Profile of Atrial Fibrillation in Tertiary Care Centre in Urban Area

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##### Background

Atrial fibrillation (AF) is most common sustained arrhythmia encountered in clinical practice associated with frequent emergency department visits, hospitalization, morbidity, and mortality. The aim of this study is to identify different presenting forms, patient's clinical characteristics, associated conditions of AF in hospitalized patients.

##### Method

All inward patients admitted consecutively in Bambu Dua Clinic with AF were conducted to this study during period January 2019 to December 2019. There were no exclusion criteria of this study. The diagnosis of AF was made based on history, examination, documentation in continuous patient's medical chart, clinic notes, electrocardiogram. Echocardiography was performed on atrial fibrillation patients.

##### Result

During study period, 50 hospitalized patient's clinical profile were assessed. Out of 50 AF patients, 28 (56%) were female and 22 (44%) were male (1,27:1). In this study, patients were aged 32 to 97 with an average of 66.88. Highest number of patients with atrial fibrillation was seen in group age of 60-69 30% followed by age of 70-79 22%. The most common presenting chief complaint was palpitation followed by dyspnea. Permanent AF was seen in 36% patients with most common associated condition was valvular heart disease accounted for 36%. Left atrial dimension exceeded 4 cm in 74% of cases.

##### Conclusion

This study provides a glimpse of most common cause of AF is valvular heart disease. Female and the age group above 60 are tend to develop atrial fibrillation with main chief complaint is palpitation. Left atrial enlargement plays a significant role in AF development.

Keywords: Atrial fibrillation, Clinical profile, Echocardiography



## 5. In-Hospital Outcomes in Acute Coronary Syndrome Patient with Stress Hyperglycaemia: Insight from West Sumatera Acute Coronary Syndrome Telecardiology Network Registry

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**Background** Hyperglycaemia is associated with in-hospital and long-term mortality in patients with myocardial infarction (MI). Unfortunately, there were only few reports about the relationship between glycaemia and prognosis in the acute phase of MI. We aim to assess the relationship between blood glucose level on admission and in-hospital major adverse cardiac event (MACE; cardiac death, acute heart failure, cardiogenic shock) in acute coronary syndrome patients treated with percutaneous coronary intervention (PCI).

**Methods** Data were derived from the iSTEMI Network West Sumatera database between 1<sup>st</sup> Jan 2019 to 31<sup>th</sup> December 2019 with inclusion criteria is nondiabetic patients with ACS with random blood glucose level >200 mg/dL when admitted in emergency room. All of patients underwent PCI with successful result and the incidence of in-hospital MACE during the follow-up was documented.

**Results** Among 317 patients, most of them are male (88%) with mean age  $57.43 \pm 10.4$  years, 287 (90.5%) were STEMI and 30 patients were UA/NSTEMI (9.5%). Seventy nine (24.9%) patient had hyperglycaemia. Incidence of in-hospital major adverse cardiac events 42 (13.2%) with cardiac death 19 (6.0%), acute heart failure 10 (3.2%), cardiogenic shock 33 (10.4%). Patient with hyperglycaemia remained associated with increased risk for MACE 22 (27.8%) with odds ratio 4.2 (CI 95%, 2.148-8.239)

**Conclusion** Elevated blood glucose level on admission predicts increased risk of in-hospital MACE in ACS patients whose underwent PCI. The study results could be used to guide risk assessment among ACS patients using admission glucose.

**Keywords.** Hyperglycaemia, acute coronary syndrome, major adverse cardiac event.





## 6. YOUNG ARMY CANDIDATES ECG CARDIAC SCREENING FOR SUDDEN CARDIAC DEATH AT EAST NUSA TENGGARA

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### Introduction

Screening for the risk of sudden cardiac death (SCD) in young individuals has proven to be the most important pre-participation standard among army candidates. Although cases of sudden cardiac death (SCD) in a young individuals are rare event, non-traumatic sudden death is almost certainly originates from the cardiac, often as a result of an underlying cardiac abnormality. The purpose of this study is to use ECG screening provides to identify the level risk of cardiac abnormalities conditions and reduce the risk from occurring of future cardiac events in asymptomatic and healthy young individuals especially in army academy.

### Objectives and Methods

This study was designed with cross sectional analysis to evaluate the rate of cardiac abnormal findings on pre-participation in 1,236 young military candidates.

### Results

A total of 1,236 ECGs were performed 6 days from 16<sup>th</sup> Nov-22<sup>nd</sup> Nov 2019 on young men individuals aged between 17-18 years of those undergoing screening participated in Army candidates selections. Of these, 1205 (97.49%) were interpreted as normal. 31 (0.25%) subjects were abnormal. The most common abnormalities identified were: Suggestive ischemic cardiac and Cardiomyopathy, Brugada syndrome, Atrial and Ventricular extrasistole, AV Blok type 2 and Pre-excitation syndrome (Wolf-Parkinson-White and Lown-Ganong-Levine Syndrome).

### Conclusions

This study confirmly answers the question regarding ECG screening to discover the level risk of SCD between young army candidates in East Nusa Tenggara.

Keywords: Sudden cardiac death, screening, young army candidates, East Nusa Tenggara, ECG



## 7. Association Between Sleep Quality and Blood Pressure Among Women In East Semarang

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**Background:** High blood pressure affects more than a quarter of adults worldwide and is a global public health epidemic that contributes to cardiovascular morbidity and mortality. An additional modifiable hypertension risk factor that often overlooked is sleep quality. Individuals with inadequate sleep quality may experience altered cardiac modulation and neuroendocrine pathway. Several studies show that female population experience worse sleep quality than their male counterpart, and women who sleep for 5 hours or less are at a higher risk to develop high blood pressure.

**Methods:** This cross-sectional study is conducted in East Semarang sub-district in June 2019 with 75 women are purposely sampled during their district monthly cadre meeting. Sleep quality is assessed using a modified Pittsburgh Sleep Quality Index (PSQI), and participants with a score of 6 or higher are classified as poor sleep quality while blood pressure is classified according to the Eighth Report of the Joint National Committee (JNC). Data distribution normality is analyzed with the Kolmogorov-Smirnov test, then the association between sleep quality and blood pressure is analyzed using non-parametric Mann-Whitney U test.

**Results:** The majority of the samples have prehypertension (33.3%) and stage II hypertension (36.0%), while most of them self-reported to experience poor sleep quality (77.3%). Individuals who reported good sleep quality have a mean blood pressure of  $133.00 \pm 12.30/89.00 \pm 10.90$ , while individuals who reported poor sleep quality have a mean blood pressure of  $132.91 \pm 16.16/87.09 \pm 11.07$ . Data normality using Kolmogorov-Smirnov test demonstrates that our study data distribution is not normal ( $p=0.00$ ; 95% CI). Non-parametric Mann-Whitney U test shows that there is no statistically significant association between sleep quality and blood pressure ( $p=0.995$ ; 95% CI).

**Conclusion:** There is no statistically significant association between sleep quality and blood pressure among women in East Semarang.

**Keywords:** sleep quality; blood pressure; women; east Semarang



### 13. Antihypertensive Medication Adherence and Associated Factors Among Hypertensive Patients at Primary Health Care in Bontang, East Borneo

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**Background:** Adherence to antihypertensive medications is crucial to control blood pressure in hypertensive patients. Poor medication adherence leads to uncontrolled hypertension and increased risk of cardiovascular complications. A better understanding about factors associated with antihypertensive medication adherence will contribute to improve hypertension management.

**Objective:** To investigate antihypertensive medication adherence and associated factors in hypertensive patients.

**Methods:** This was a cross-sectional study conducted at Puskesmas Bontang Utara II from August to September 2019 with consecutive sampling technique. Hypertensive patients who had received antihypertensive medication for at least 3 months were included. Antihypertensive medication adherence was assessed using the modified 8-item Morisky Medication Adherence Scale (MMAS-8). MMAS-8 score <6 was considered as non-adherent and score ≥6 was considered as adherent. Socio-demographic status, clinical status, medication status, knowledge of hypertension, access to health services, self-motivation, healthcare worker support, and family support were assessed by interview and validated questionnaire. Bivariate and multivariate logistic regression analysis were used to examine the factors associated with antihypertensive medication adherence.

**Results:** A total of 158 hypertensive patients were included in this study, 91 (57.6%) of them were female, with mean age was  $59.93 \pm 10.95$  years, 85 (53.8%) of them were non-adherent to antihypertensive medication. The low level of education (odds ratio (OR) = 6.94; 95% CI = 1.34-35.87;  $p = 0.021$ ), unaware of hypertension (OR = 3.64; 95% CI = 1.18-11.27;  $p = 0.025$ ), limited access to health services (OR = 3.70; 95% CI = 1.12-12.18;  $p = 0.031$ ), low self-motivation (OR = 4.56; 95% CI = 1.14-18.31;  $p = 0.032$ ), and lack of family support (OR = 23.48; 95% CI = 7.45-74.04;  $p < 0.001$ ) were significantly associated with non-adherent to antihypertensive medication.

**Conclusion:** More than half among hypertensive patients were non-adherent to medication. The low level of education, unaware of hypertension, limited access to health services, low self-motivation, and lack of family support were significantly associated with lower medication adherence. Patients with non-adherent behavior should be more closely monitored to have better adherence.

**Keywords:** Hypertension, medication adherence, primary health care



#### 14. Evaluation of Therapeutic Delay in Patients With Acute ST-Elevation Myocardial Infarction at Rural District Kudungga General Hospital

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**Background:** Delayed reperfusion is associated with worse outcomes in ST-segment elevation myocardial infarction (STEMI). This study was conducted to assess the components and determinants of therapeutic delay in STEMI patients of our state.

**Methods :** This study included consecutive patients of STEMI admitted to the Kudungga Hospital between 2016 to 2019. The duration from onset to FMC (First Medical Contact), FMC to Kudungga Hospital, door to ECG time, and door to needle time was reviewed. The outcomes of the delayed treatment were also analyzed in this study.

**Result:** During a period of 3 years, 49 patients were enrolled in this study. Fibrinolytic was administered to 42.9% of patients, while 57.1% of patients could not be thrombolysed because of late presentation. We found that time from onset to FMC mostly more than 12 hours (34%) and time from FMC to Kudungga Hospital is mostly between 1 to 6 hours (73.5%). About 36.7 % of Patients have a delay in door to ECG time. Only 9.5 % of patients receive fibrinolytic within 30 minutes. Out of 28 patients who not received fibrinolytic 3 of them have death complication with a p value of <0.039.

**Conclusion:** The standard of STEMI management in our state is far from ideal, and needs a lot of improvement. Major efforts to reduce prehospital and in-hospital treatment delays are urgently needed.

Keywords: ST-Elevation myocardial infarction, Fibrinolytic, Treatment delay, Outcomes



### 15. Clinical Characteristics of Heart Failure with Different Ejection Fraction at Heart Failure Clinic in Cipto Mangunkusumo National Hospital Indonesia.

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**Background:** Heart failure is a global health burden affecting at least 26 million people in the world and is increasing in prevalence. According to national data from Basic Health Research in Indonesia, the prevalence of heart failure of the population or about 229.696 people. This study aimed to determine the demographic and clinical characteristic of patients with different ejection fraction.

**Methods:** A retrospective cross sectional study was conducted at Heart Failure Clinic of Cipto Mangunkusumo National Hospital, Indonesia.

**Results:** 140 patients were included. The mean age was 57,38 years old, occurred in the age group above 60 years old (48.64%). Regarding all patients, the prevalence of HFrEF was 73%, 79.6% male, HFmrEF was 17.1%, 54% male, and HFpEF was 9.3%, 54% male. Ischemic cause was the most prevalent etiology in HFrEF and HFmrEF (81.5%, 79.16%) and hypertension in HFpEF (30.7%). At first outpatient visit, 30.4% were NYHA class I, 52% class II, 16,21% class III, and 1,35% class IV. In HFrEF, there are 25 patients with NYHA class I, 56 NYHA class II, 21 NYHA class III, and 1 NYHA class IV. In HFmrEF, there are 7 with NYHA class I, 14 NYHA class II, 2 NYHA class III, and 1 NYHA class IV. In HFpEF, there are 2 patients with NYHA class I, 7 NYHA class II, and 1 NYHA class III. In patients with improved NYHA, 43.8% were classified as HfmrEF.

**Conclusions:** Different ejection fraction classification gave different effect on NYHA functional class.

**Keywords:** Heart failure, ejection fraction, clinical characteristics



**16. Analysis of Thromboelastography in the Administration of Double Antiplatelet and Single Antiplatelet in Patients with Coronary Heart Disease Undergoing Percutaneous Coronary Intervention in Dr. Saiful Anwar Hospital Malang**

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**Background** DAPT guidelines ESC 2017 state that it is recommended for dual antiplatelet administration, namely aspirin and ADP receptor blockers for at least 12 months after PCI or dual antiplatelet administration can be extended up to 24-30 months if there is a high risk of thrombosis. Examination of platelet function in CAD patients undergoing antiplatelet therapy needs to be monitored, especially the effect of antiplatelet in response to antiplatelet therapy, in preventing the risk of thrombosis. Researchers feel the need to compare the examination and therapeutic response between a double antiplatelet and a single antiplatelet with a Thromboelastography (TEG) examination.

**Methods** This study uses a comparative analysis test with a cross-sectional study. The data source used in this study is divided into primary data that is data obtained from the examination of TEG in patients with coronary heart disease (CHD) who received antiplatelet therapy after undergoing percutaneous intervention therapy (IKP). While secondary data were obtained from the patient's medical records to determine the sample to fit the inclusion and exclusion criteria.

**Result** Patients who received single antiplatelet therapy with normal TEG results were 8 patients (32%), the risk of bleeding was 17 patients (68%), patients who received dual antiplatelet therapy with normal TEG results were 7 patients (28%), the risk of bleeding was 18 patients (72%), there were no patients with a risk of thrombosis in either group. Chi square test results showed no significant relationship ( $p > 0.05$ ) on the TEG risk of bleeding ( $p = 1.00$ ) and normal TEG results ( $p = 1.00$ ) between the two groups of patients

**Conclusion** The administration of single anti platelet and double antiplatelet therapy had no significant relationship with TEG results

**Keyword** Thromboelastography, Dual antiplatelet, Single Antiplatelet, Percutaneous Coronary Intervention



## 17. Echocardiography Findings in Patients with Atrial Fibrillation at Cibabat General Hospital Cimahi

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**Background** : Atrial fibrillation (AF) is the most commonly treated arrhythmia in daily practice. Echocardiography has an essential role in AF risk stratification and management. This study aimed to assess the echocardiography findings of patients with AF. The patients' demographic profiles (i.e. age and gender) and the cardiac diseases accompanying AF were also reported.

**Method** :A single-centre, cross-sectional study involving 156 patients with AF was conducted. Echocardiography report and demographic profiles of the patients at Cibabat General Hospital Cimahi from 1 January to 31 December 2019 were collected. A descriptive analysis was run to assess patients' demographic profiles and echocardiographic findings.

**Result** :A total of 156 reports were analyzed. Fifty percent (n=78) of the subject were female, and the rest (n=78; 50%) were male. The mean of the patients' age was 61.40±8.08 years old. CHF was the most common heart disease found in patients with AF (n=73; 46.80%). Among the patients, 42 (26.92%) had more than one heart diseases. A combination of CAD and CHF was most commonly encountered (n=22; 52.38%). Study of the heart chambers indicated 104 patients (66.67%) had LVH, 20 (12.82%) patients had LVD, 40 (25.64%) had LAD, and 31 (19.87%) patients had all chamber dilated. MR were found in 45 (28.85%) patients, followed by AR (n=15; 9.62%), and TR (n=12; 7.69%); no PR case was found. The median LVEF of the patients was 48.50% with a minimum of 22% and a maximum of 67%.

**Conclusion** :In conclusion, AF incidence in this study was equal between gender with the mean age of the patient was 61.40±8.08 years old. CHF was the most commonly found heart disease in this study, and a combination of cardiac diseases is possible. LVH and MR were the most commonly encountered echocardiography findings, with median LVEF of 48.50%.

**Keywords**: Atrial fibrillation, echocardiography



## 18. The Success Rate of Fibrinolytic Therapy in Raden Mattaher General Hospital Jambi

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**Background:** Acute myocardial infarction (IMA) is one of the main cardiovascular diseases that often causes death in the world. Management of STEMI is reperfusion therapy consisting of fibrinolytic therapy and primary percutaneous coronary intervention. The purpose of this study was to determine the value of white blood cells, heart enzymes, glomerular filtration rate and fibrinolytic success rates in patients with acute myocardial infarction with ST elevation.

**Method:** This research was conducted at Raden Mattaher Regional Hospital in June-December 2019. This research was an observational descriptive study using a retrospective approach. Sampling uses a total sampling technique with a sample size of 20 respondents.

**Result:** This study showed that from 20 patients, 90% male and 10% female, who received fibrinolytic therapy, 50% were aged 50-59 years old, 75% had increased white blood cells, 100% had increased CKMB cardiac enzyme, 85% had increased troponin I enzyme, and 60% had decreased glomerular filtration. The success rate of fibrinolytic therapy was only 35%, seen from 65% of patients that did not fulfill the three criteria of successful fibrinolytic. It may be because the fibrinolytic was given to 75% of patients with > 3 hours onset. All patients who received rescue PCI showed a TIMI flow of 3, which marked fibrinolytic success. The mortality rate of patients with fibrinolytic therapy was only 5%.

**Conclusion:** The success rate of reperfusion therapy that only used fibrinolytic therapy was lower, i.e. only 35%. This was due to 75% of fibrinolytic was given to patients with > 3 hours onset. However, rescue PCI results showed TIMI flow 3, which marked successful fibrinolytic therapy. The success rate of fibrinolytic and PCI would be comparable with < 3 hours onset. Fibrinolytic therapy followed by rescue PCI is the optimal strategy to reduce the mortality of STEMI patients.

**Keywords:** STEMI, Fibrinolytic, Rescue PCI





### 19. Comparison of EuroSCORE II, STS and Ambler Scoring Systems in Predicting In-hospital Mortality among Patients Undergoing Heart Valve Surgery -St. Luke's Medical Center-Quezon City Experience-

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**Background :** The risk models are helpful in planning perioperative care in patients undergoing heart valve surgery. In the absence of local risk model, EuroSCORE II, STS, and Ambler scores were frequently used in our institution to predict in-hospital mortality after heart valve surgery. Our objective is to compare EuroSCORE II, STS, and Ambler scoring systems regarding their accuracy to predict in-hospital mortality among patients who underwent heart valve surgery.

**Methods :** From January 2008 to December 2015, 162 patient's data who underwent heart valve surgery were collected through medical record review. EuroSCORE II, STS and Ambler scores were calculated for each patient. Calibration of these scores were assessed by the Hosmer–Lemeshow test (p value). Discrimination was tested by calculating the area under the receiver operating characteristic (ROC) curve.

**Result :** The overall observed mortality was 6.17%. The EuroSCORE II, STS and Ambler scores underestimated in-hospital mortality (4.13%, 3.47%, and 4.12% respectively,  $p < 0.05$  each) but have good discriminative power (ROC area 0.82, 0.88, and 0.77, respectively) in patients who underwent single heart valve surgery. In subgroup analysis who underwent isolated mitral valve, EuroSCORE II, STS and Ambler scores underestimated in-hospital but have good discriminative power. In subgroup analysis who underwent aortic valve surgery EuroSCORE II, STS and Ambler scores showed good calibration in predicting in-hospital mortality, but only STS score showed excellent discrimination. For dual valve surgery (observed mortality 4.0%), the EuroSCORE II and Ambler score showed good calibration (2.58% and 2.6%,  $p > 0.05$  each) and discrimination (ROC area 0.83 and 0.85) in predicting in-hospital mortality.

**Conclusion :** EuroSCORE II, STS and Ambler scores underestimate overall in-hospital mortality after heart valve surgery. All three scores have good discriminative power, however STS score showed better performance compared to EuroSCORE II and Ambler score in identifying surgical risk individuals who underwent heart valve surgery.



**20. Relationship of Angiographic Finding of Total Occlusion versus Non-Total Occlusion Infarct-Related Artery and In-hospital Outcomes in Patients with Acute ST Elevation Myocardial Infarction who Underwent Primary Percutaneous Coronary Intervention**

**- St. Luke's Medical Center-Quezon City Experience -**

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**Background:** Angiographic finding of non-total occlusion infarct related artery prior to primary percutaneous coronary intervention in STEMI patients is associated with spontaneous reperfusion. Little is known whether this spontaneous reperfusion will affect their in-hospital outcomes. Our study is to determine the relationship between pre intervention angiographic finding of non-total occlusion versus totally occluded infarct related artery and their in-hospital outcomes in STEMI patients who underwent primary angioplasty.

**Methods :** From January 2014 to August 2018, the data of 120 STEMI patients who underwent primary angioplasty were collected through medical record review. Patients were divided into two groups based on angiographic findings of total occlusion (pre-intervention TIMI flow 0 and 1) and non-total occlusion (pre-intervention TIMI flow 2 and 3) infarct-related artery.

**Results :** Baseline characteristics were similar between the two groups. Final TIMI 3 flow was frequently achieved in non-total occlusion group compared to total occlusion group (81.13% vs. 56.71%, p 0.005). The primary endpoint composite of mortality, respiratory failure, acute kidney injury and stroke, was significantly different between total and non-total occlusion group (29.85% vs. 13.2%, p 0.030). However, there was no significant difference in per-variable analysis for mortality, respiratory failure, acute kidney injury and stroke between the two groups. Other secondary endpoints including significant arrhythmia (31.34% vs. 15.09%, p 0.039) and hospital-acquired infection (25.37% vs. 7.54%, p 0.11) were higher in total occlusion group.

**Conclusion :** Angiographic finding of non-total occlusion infarct related artery prior to primary angioplasty due to spontaneous reperfusion is associated with better in-hospital outcomes in terms of mortality, acute respiratory failure, acute kidney failure and stroke. It is also associated with better final TIMI flow, lower incidence of significant arrhythmia and hospital-acquired infection post primary percutaneous coronary intervention compared to patients with totally occluded infarct-related artery.



**21. Comparison of In-Hospital Outcomes Between TIMI 2 versus TIMI 3 Coronary Flow after Successful Primary Percutaneous Coronary Intervention in Patients Presenting with Acute ST- Elevation Myocardial Infarction- St. Luke's Medical Center-Quezon City Experience -**

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**Background :** Achieving final TIMI 3 and TIMI 2 flow post primary angioplasty in STEMI patients are considered as successful angioplasty. However, it is unclear whether there is a difference between those two groups in terms of mortality and other in-hospital outcomes. Hence, this study was conducted to identify factors and difference in the outcomes between final TIMI 2 and TIMI 3 flow post primary angioplasty among STEMI patients.

**Methods:** From January 2014 to August 2018, the data of 120 STEMI patients who underwent primary angioplasty were collected through medical record review. Patients were divided into two groups based on post angioplasty final TIMI 2 and final TIMI 3 flow.

**Results :** The baseline characteristics were similar. There was more involvement of the RCA as infarct related artery in the final TIMI 2 group (53.84% vs. 29.62%). Most of TIMI 2 group had prior TIMI 0 flow (71.7%) before the intervention and have high thrombus burden (58.97% vs. 6.17%) of the infarct related artery. In term of outcomes, the primary endpoint (composite of mortality, respiratory failure, acute kidney injury and stroke) was seen more in TIMI 2 group (30.76% vs 18.51%, p=0.048), mostly driven by respiratory failure (28.20% vs. 12.34%, p=0.032), as well as hypotension episodes (64.10% vs. 39.5%, p=0.012) and the need for intra-aortic balloon pump (IABP) insertion (12.8% vs 2.46%, p=0.023). However per-variable analysis of mortality showed no significant difference between the 2 groups as well as survival rate up to 60 days.

**Conclusion :** Final TIMI 3 infarct-related artery flow after primary angioplasty was associated with less respiratory failure, hypotension and need for IABP insertion. There was no difference in terms of mortality and survival rate up to 60 days compared to STEMI patients with final TIMI 2 flow.



## 22. Inflammatory Cell Ratios as Mortality Predictor in Patients with Acute Coronary Syndrome

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**Introduction.** Inflammation plays important role in atherosclerosis as the primary mechanism in acute coronary syndrome (ACS). Neutrophil to lymphocyte ratio (NLR), platelet to lymphocyte ratio (PLR) and Red Cell Distribution (RDW), as an indication of systemic inflammation has been researched to be associated with morbidity and mortality in ACS. There are little data available about the association between NLR, PLR and RDW levels with GRACE and TIMI risk score. Purpose of this study was to determine the association of concomitant hematological indices such as NLR, PLR and RDW with GRACE and TIMI score in ACS patients.

**Method.** A total of 800 ACS patients were recruited into this study retrospectively from patients that admitted to Cardiology Department at Dustira Army Hospital. Patient assessment and medical record review were performed from January 2019 to January 2020.

**Result.** The GRACE risk score was significantly higher in the group with high NLR value compared to those with moderate and low NLR value respectively ( $162.5 \pm 41.2$ ,  $131.2 \pm 32.5$ ,  $122.8 \pm 33.7$ ,  $p < 0.001$ ). Similarly, TIMI risk score was significantly higher in the the group with high NLR value compared to those with moderate and low NLR value respectively ( $6.7 \pm 2.2$ ,  $4.6 \pm 2.1$ ,  $2.5 \pm 1.6$ ,  $p < 0.001$ ). Moreover, both GRACE ( $r = 0.512$ ,  $r = 0.351$ ,  $r = 2.314$ ,  $p < 0.001$ ) and TIMI ( $r = 4.311$ ,  $r = 3.214$ ,  $r = 2.431$ ,  $p < 0.001$ ) score showed a significant positive correlation with NLR, PLR, and RDW respectively.

**Conclusion.** NLR, PLR and RDW are convenient, inexpensive and reproducible biomarker for ACS prognosis.

**Keyword.** Neutrophil to lymphocyte ratio, platelet to lymphocyte ratio, red cell distribution, acute coronary syndrome, GRACE score, TIMI score



### 23. The Prognostic Value of Leukocytosis in Patient with ST-segment elevation Acute Myocardial Infarction

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**Introduction and Objectives:** Leukocytosis is commonly associated with infection or inflammation. Systemic inflammation is triggered by myocardial infarction which is associated with the release of hematopoietic precursor cells from bone marrow into blood stream. Meanwhile, the relationship between leukocytosis and mortality in patients with ST-segment-elevation myocardial infarction (STEMI) has been reported more than half a century. In this study, the correlation between leukocytosis and mortality at 30 days in patients with STEMI in Raden Mattaher Hospital was investigated.

**Methods:** The study sample included 60 consecutive patients who were admitted with the diagnosis of STEMI between January 2019 until December 2019 in Raden Mattaher Hospital. The WBC was measured in the 24 hours following admission. Patients were divided into 2 groups: WBC1 (count  $\leq 11 \times 10^9$  cells /L) and WBC 2 (count  $> 11 \times 10^9$  cells/L). Mortality rate was determined and their correlation with leukocytosis was analyzed up to 30-days of follow up. Binary logistic regression analysis was applied between factors mortality rate and WBC count.

**Results:** The study population consisted of 50 men and 10 women with mean age of the patients was  $55.97 \pm 8.95$  years (range from 32 to 78 years) hospitalized with validated STEMI aggregated into quintiles based on WBC count obtained at the time of hospital admission. 63.3% of patients had leukocytosis. Leukocytosis was significantly correlated with mortality in 30 days period ( $P < 0.05$ ). In binary logistic regression analyses patients STEMI in groups WBC 2 count were at increased risk of 30 days early mortality (odds ratio [OR] 54.715, 95% confidence interval [CI] 3.594 to 832.978),  $P = 0.004$ .

**Conclusion:** In patients with STEMI have greater risk for 30 days early mortality. These findings suggest that the WBC count should be considered as a poor prognostic factor correlated with 30 days early mortality in patients with STEMI.

**Key Words:** STEMI. Leukocytosis. Mortality Rate. Prognostic Factor.



#### 24. Clinical Profile and Risk Factors of Patients with Acute Coronary Syndrome in RSUD Kabupaten Jombang, 2019

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**Backgrounds:** Cardiovascular disease is one of the most cause of morbidity and mortality globally. The Health Ministry of Indonesia showed data of 478.000 patients diagnosed with acute coronary syndrome (ACS) and the prevalence of acute myocardial infarction increased from 25% to 40%. Based on Jakarta Acute Coronary Syndrome in 2016, 3015 patients diagnosed with ACS and 1024 patients diagnosed with STEMI. The high prevalence of ACS and lack of data regarding the clinical profile of ACS in Indonesia encourage us to research it.

**Methods:** This descriptive study was conducted in RSUD Kabupaten Jombang through medical records from January-December 2019. Sex, age, clinical profile of ACS, ECG characteristics, risk factors, and complications were studied and documented.

**Results:** A total of 206 patients diagnosed with ACS. The patients are predominantly male (73,7%), with the average age is 58,86 years old. Most of the patient have STEMI (74,3%) and chest pain is the most common presenting symptom (66,5%). Most of the patient presented to ED 0-6 hours after onset of symptom (45,9%). On arrival to ED patients had cardiogenic shock (12,6%) and had PCI, POBA, and fibrinolitik each 18%, 1%, and 23,8%. Majority of infarction or ischemia occurred on inferior wall (26,7%) with normal sinus (69,4%). Hypertension is the major risk factors that contributes to ACS (53,8%).

**Conclusions:** STEMI is the common type of ACS with cardiogenic shock is the most frequent complication. Most of the patients are male with chest pain is the most common presenting symptoms. The most common risk factor contributing to ACS is hypertension.

**Keywords:** Clinical Profile, Risk Factor, Acute Coronary Syndrome



## 25. The Role of GRACE, HEART, and TIMI Score for Severity of Non-ST-Elevation Acute Coronary Syndrome. Focused on Hemodynamic, Organ Damage, and Mortality

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**Aims or Background:** Ischemic risk score give important role to assess the outcome of non-ST-elevation acute coronary syndrome (NSTEMACS). The severity of the event determines the invasiveness of the treatment. This study aims to determine the role of GRACE, HEART and TIMI score for severity of NSTEMACS focused on hemodynamic, organ damage, and mortality.

**Methods:** The study was done at Abdul Wahab Sjahranie Hospital Samarinda based on retrospective study using medical record data during period January to December 2016. The patient with NSTEMACS spectrums was included in this study. The performance and correlation of GRACE, HEART, and TIMI to hemodynamic parameters, organ damage (eg. renal function) and mortality during hospitalization were assessed. The performance was assessed using area under the curve (AUC) and correlation test.

**Results:** The Study included 58 subjects consisting of 3 non-survivor subjects during hospitalization. The subject with history of diabetes mellitus and the appearance of ST-depression has higher ischemic score. The mean of GRACE, HEART and TIMI score of the non-survivor subjects were higher than survivor subjects  $170 \pm 47$  vs  $101 \pm 33$   $p=0.001$ ;  $7 \pm 2$  vs  $4 \pm 2$   $p=0.014$ ;  $2 \pm 1$  vs  $1 \pm 1$ ;  $p=0.056$ , respectively. The GRACE score (AUC=0.912, 95% CI:0.805-1.000) had the best performance than the HEART (AUC=0.876, 95% CI:0.723-1.000) and TIMI score (AUC=0.782, 95% CI:0.490-1.000) for predicting in-hospital mortality. The correlation of the ischemic score with troponin-T, creatinine, killip class, and systolic blood pressure (SBP) were variable between GRACE ( $r_s$  troponin-T:0.367  $p=0.005$ ;  $r_s$  creatinine:0.320  $p=0.014$ ;  $r_s$  killip class:0.310  $p=0.018$ ;  $r_s$  SBP:-0.406  $p=0.002$ ), HEART ( $r_s$  troponin-T:0.829  $p=0.0001$ ;  $r_s$  creatinine :0.204  $p=0.125$ ;  $r_s$  killip class:0.055  $p=0.681$ ;  $r_s$  SBP:0.100  $p=0.453$ ), and TIMI score ( $r_s$  troponin-T:0.630  $p=0.0001$ ;  $r_s$  creatinine:0.101  $p=0.450$ ;  $r_s$  killip class:0.020  $p=0.881$ ;  $r_s$  SBP:-0.022  $p=0.870$ ).

**Conclusion:** The GRACE score had the best performance for predicting in-hospital mortality, but for the hemodynamic and organ damage parameters, the ischemic risk scores showed variable correlation.

**Keyword:** GRACE; HEART; TIMI; NSTEMACS



## 26. The Association Between Arterial Stiffness And Toe Brachial Index In Asymptomatic Peripheral Arterial Disease Patients With Diabetes Mellitus Type 2

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### Background and Objective

Arterial stiffening is known as a consequence of aging and significantly increase the risk of cardiovascular events. Peripheral Arterial Disease (PAD) is the narrowing of vessels by the buildup of atherosclerotic plaque. PAD can be predicted with Toe Brachial Index (TBI). Arterial stiffening plays an important role in PAD, because it induce development of atheroma. Diabetes mellitus (DM) has been shown to altering vascular elasticity and also considered as an independent risk factor for PAD. We conduct this study to investigate the relationship between Arterial Stiffness and TBI in Asymptomatic PAD Patients with DMT2.

**Methods:** This was an observational analytic study with cross sectional approach. The subjects were asymptomatic PAD patients with DMT2 who enrolled at Primary Health Care in Special Region of Yogyakarta, Indonesia. Nine primary health care was determined by purposive random sampling. We use Cardio Ankle Vascular Index (CAVI) to measure the arterial stiffness. In this study, the subjects with CAVI >8 was considered to have arterial stiffness. Asymptomatic PAD was diagnosed by TBI < 0.6 in Diabetes Mellitus Type 2 patients aged > 50 years old. We use VaSera VS-1500N to measure CAVI and TBI. To analyze correlation between CAVI and TBI, researchers used spearman correlation test.

**Results:** There were 48 subjects who met the inclusion and exclusion criteria. The subjects consist of 13 male (27.1%) and 35 female (72.9%). The average age of subjects from this study was  $62.38 \pm 15.69$ . From the analysis we found there is no significant correlation between Arterial Stiffness and TBI in Asymptomatic PAD Patients with DMT2 ( $p = 0.4$ ,  $r = -0.36$ ).

**Conclusion:** There is no significant correlation between Arterial Stiffness and Toe Brachial Index in Asymptomatic Peripheral Arterial Disease Patients with Diabetes Mellitus Type 2.

### Keywords

Arterial stiffness, CAVI, TBI, Peripheral arterial disease





## 27. The relationship between Differential Count in Hematologic Routine Assay and SYNTAX SCORE in Acute Coronary Syndrome Complexity

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**Introduction:** Troponin level has been correlated with major cardiovascular event and adverse cardiovascular events, but troponin assay itself is not readily available in country like Indonesia. We assessed the predictor of differential count in hematologic routine assay in acute coronary syndrome and the complexity of acute coronary syndrome (ACS) based on SYNTAX Score

**Methods and Results:** The study was taken retrospectively in 31 patients who undergone percutaneous coronary intervention (PCI) due to ACS were studied (7 females, 24 male, mean age  $57.58 \pm 7.81$  years). The patients are divided according to SYNTAX score which score  $\leq 22$  (n= 16); SYNTAX score 23-38 (n= 6); and SYNTAX score  $> 38$  (n=9). Bivariate analysis using pearson correlation shows no significant correlation between neutrophil, basophil, lymphocyte, platelet, and hematocrit respectively (pearson correlation coefficient: p value; 0,007: 0.971; 0.131: 0.484; -0.14: 0.942; -0.176; 0.344; 0.095; 0.611). Multiple linear regression analysis showed no significant independent predictor of SYNTAX score in ACS patients for neutrophil, basophil, lymphocyte, platelet, and hematocrit respectively ( $p=0.451$ ;  $p=0.391$ ;  $p=0.582$ ;  $p=0.307$ ;  $p=0.877$ ;  $\alpha<0.05$ ).

**Discussion:** This study is taken with the insight of inflammation in atherosclerosis can be expected for predictor of complication in ACS. There are no significant correlation and independent predictor for SYNTAX score after PCI as reliable composite marker of inflammation. In many studies, high sensitive troponin is still the best predictor of significant coronary lesion.

**Conclusion:** Hematologic routine analysis was not significantly correlated with angiography severity assessed by Syntax Score.

**Keyword:** Hematologic routine analysis, SYNTAX Score



## 28. Association Between Risk Factors of Coronary Artery Disease in Women and Its Complexity, Assessed with The Syntax Score

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**Background.** Despite numerous studies conducted on coronary heart disease in women, the number of female mortality due to heart disease is still increasing. It is very important to take prevention action, one of which is by knowing risk factors that influence the incidence of coronary heart disease in women.

**Objective.** In this study we investigate the relationship between traditional and non-traditional risk factors of CAD in women with its complexity using syntax score

**Methods.** We conducted a retrospective study of women patients who had undergone angiography over the past 1 year (2019). From 120 women patients with significant lesions, we got 69 people (57.5%) who are eligible then performed consecutive sampling and got 23 people (33.3%) as samples for this study. In the multivariate logistic regression model, Diabetes mellitus, BMI, and menopause were all positively and strongly associated with a higher SYNTAX score.

**Results.** Diabetes mellitus, BMI, and menopause were identified as significant ( $p < 0.05$ ) independent risk factors. Other coronary risk factors such as hypertension, dyslipidemia, smoking and depression were not identified as significant independent risk factors.

**Conclusion.** There is strong association between diabetes mellitus, BMI, and menopause with complexity of CAD. Therefore, when patients with CAD have these factors, we expect the CAD of the patient to be more complex then it will be necessary to provide more careful medical care.

**Keywords.** Coronary Artery Disease, SYNTAX Score, Risk Factors, Women, Significant Lesion



## 29. Risk Factor of Hypertension in Prolanis Patients: Is Excessive Salt Consumption The Highest Factor? A Study in Coastal Area (Puskesmas Brondong, Lamongan, East Java)

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**Background :** Hypertension is one of the most common diseases found in public health center. Puskesmas Brondong, Lamongan Regency, East Java is located in a coastal area where people tend to consume salty foods frequently. Based on the recommendations of the American Heart Association, sodium consumption in one day should not be more than 2,300 milligrams. This study aims to determine the level of salt consumption which is one of the causes of hypertension and was conducted on respondents who are participant of Prolanis Puskesmas Brondong in November 2019.

**Method :** This was a descriptive study and conducted on respondents who are participant of Prolanis Puskesmas Brondong in November 2019. Blood pressure is measured in patients who have been diagnosed with hypertension and the patients were given a questionnaire about factors related to hypertension and interviewed about salt consumption for the past 24 hours using a Sodium Tracker template from American Heart Association.

**Results :** From the results of the questionnaire with a total 27 respondents from Prolanis Program, obtained 21 women respondents (80.7%) and 6 men (19.3%). 4 people with age under 50 years old (15%) and 23 people above 50 years old (85%). A total of 20 respondents (74%) consuming salt more than the recommendation of the American Heart Association. Other factors were found as many as 18 respondents (60%) had family history of hypertension, Obesity by BMI as many as 10 people (37%), smokers as many as 6 people (22%), and participant with diabetes mellitus 5 people (18.5%).

**Conclusion :** Excess salt consumption is the highest factor related to hypertension beside age and gender, compared to other factors in respondents who are participant of Prolanis Puskesmas Brondong. Excessive salt consumption can increase blood pressure, the incidence of hypertension and other cardiovascular diseases.

**Keywords:** Hypertension, Salt, Sodium, Prolanis, Cardiovascular.



### 30. Neutrophil to Lymphocyte Ratio as Predictor of Amputation in Patients with Acute Limb Ischemia

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#### Aims or Background

Acute Limb Ischemia (ALI) is one of the challenging diseases to manage that has high morbidity, mortality, and often threatening limb viability. Acute limb ischemia requires amputation if not treated properly. Neutrophil to lymphocyte ratio reflects the inflammation status that delivers information on vascular events. In this study, we aimed to determine whether NLR could be used as a predictor of amputation in ALI patients.

**Methods :** Samples were taken from patient data entered into the vascular registry database of Dr. Sardjito General Hospital Yogyakarta from 2014 to 2020. Patient demographic and clinical variables were recorded in 116 patients with ALI. Collected data were analyzed using bivariate and multivariate analysis.

**Results :**Percentage of ALI patients leading to amputation was 25.9%. The optimal cut-off point of NLR in the ALI patients was 5.26. This value had 86.7% sensitivity and 45.3% specificity with Area Under Curve (AUC) 73.3%. There were 65 patients with high NLR ( $\geq 5.26$ ) and 51 patients with low NLR ( $< 5.26$ ). The bivariate analysis shows that high NLR value (OR 7.83, 95%CI 2.52 to 24.37,  $p=0.000$ ) correlates with amputation in ALI patients. Multivariate analysis with logistic regression showed that high NLR can significantly predict amputation in ALI patients (OR 13.96, 95%CI 1.64 to 118.62,  $p=0.016$ ).

**Conclusion :**Neutrophil to lymphocyte ratio was found to be a significant independent predictor of amputation in ALI patients. NLR value of  $\geq 5.26$  can be used as a simple and inexpensive test to assess the risk of amputation in ALI Patients.

#### Keywords

Neutrophil to Lymphocyte Ratio, Acute Limb Ischemia, Amputation



#### 27. 4Vascular Screening Program for Diabetes Mellitus Patient in Yogyakarta City Primary Health Care

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**Aims or Background :** Peripheral Arterial Disease (PAD) is one of the most common diabetes mellitus complications. PAD is usually asymptomatic, so it makes it often underdiagnosed. Peripheral arterial disease has a high mortality rate and requires amputation if untreated properly. Diabetes mellitus increases the risk of amputation in PAD patients. Early diagnosis of PAD is important to prevent mortality rate and increasing quality of life. In this study, we planned to assess peripheral arterial disease screening method based on an ankle-brachial index (ABI), toe brachial index (TBI), and cardio-ankle vascular index (CAVI) examination in diabetes mellitus patients.

**Methods :** We conducted a screening program in primary health care in the City of Yogyakarta, Special Region of Yogyakarta, Indonesia. The primary health care was determined by random purposive sampling. The physical examination, which focused on the ankle-brachial index, toe brachial index, and cardio-ankle vascular index examination, was performed.

**Results :** A total of 92 diabetes mellitus patients from 4 primary health care were included in the study. Eight patients (8.69%) were found to have abnormal ABI values ( $\leq 0.9$ ), 55 patients (59.78%) were found to have abnormal TBI values ( $\leq 0.6$ ), 25 patients (27.17%) were found to have abnormal CAVI values ( $\geq 9$ ) and 47 patients (51.08%) were found to have abnormal TBI values with a normal value of ABI. None of them reported symptoms of intermittent claudication.

**Conclusion :** The vascular screening program in primary health care needs to be continued on a larger population. By using the ankle-brachial index, toe brachial index, and cardio-ankle vascular index the vascular abnormalities can be detected for further examination. We can prevent the complication of peripheral arterial diseases in diabetes mellitus patients by implementing this screening program.

**Keywords**

Peripheral Arterial Disease, Diabetes Mellitus, Screening, Ankle Brachial Index, Toe Brachial Index, Cardio-ankle Vascular Index



## 28. Inflammatory Cell Ratios as Mortality Predictor in Patients with Acute Coronary Syndrome

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**Introduction.** Inflammation plays important role in atherosclerosis as the primary mechanism in acute coronary syndrome (ACS). Neutrophil to lymphocyte ratio (NLR), platelet to lymphocyte ratio (PLR) and Red Cell Distribution (RDW), as an indication of systemic inflammation has been researched to be associated with morbidity and mortality in ACS. There are little data available about the association between NLR, PLR and RDW levels with GRACE and TIMI risk score. Purpose of this study was to determine the association between concomitant hematological indices such as NLR, PLR and RDW with GRACE and TIMI score in ACS patients.

**Method.** A total of 800 ACS patients were recruited into this study retrospectively from patients that admitted to Cardiology Department at Dustira Army Hospital. Patient assessment and medical record review were performed from January 2019 to January 2020.

**Result.** The GRACE risk score was significantly higher in the group with high NLR value compared to those with moderate and low NLR value respectively ( $162.5 \pm 41.2$ ,  $131.2 \pm 32.5$ ,  $122.8 \pm 33.7$ ,  $p < 0.001$ ). Similarly, TIMI risk score was significantly higher in the the group with high NLR value compared to those with moderate and low NLR value respectively ( $6.7 \pm 2.2$ ,  $4.6 \pm 2.1$ ,  $2.5 \pm 1.6$ ,  $p < 0.001$ ). Moreover, both GRACE ( $r = 0.512$ ,  $r = 0.351$ ,  $r = 2.314$ ,  $p < 0.001$ ) and TIMI ( $r = 4.311$ ,  $r = 3.214$ ,  $r = 2.431$ ,  $p < 0.001$ ) score showed a significant positive correlation with NLR, PLR, and RDW respectively.

**Conclusion.** NLR, PLR and RDW are convenient, inexpensive and reproducible biomarker for ACS prognosis.

**Keyword.** Neutrophil to lymphocyte ratio, platelet to lymphocyte ratio, red cell distribution, acute coronary syndrome, GRACE score, TIMI score



## 29. The Level of Calcium Serum in Non-Hyperthyroid Atrial Fibrillation Patient in RSUD RAA Soewondo Pati

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**Background:** Atrial fibrillation (AF) is the most common cardiac arrhythmia, and its prevalence is increasing with the ageing of the population. Some novel researches had shown the importance and relatively multidimensional roles of cellular calcium in AF pathophysiology.

Hyperthyroidism are well-known causes of AF with a 16%–60% prevalence in patients with hyperthyroidism. Hyperthyroidism is one of the major clinical causes of hypercalcemia, possibly related to the stimulation of bone turnover that subsequently elevates the serum calcium level and increase urinary and fecal calcium excretion.

The aim of this study is to find out the prevalence of hypercalcemia and the average level of serum calcium in non-hyperthyroid AF patient.

**Methods:** This is descriptive study using data from the medical records of patients with atrial fibrillation which were admitted to RSUD RAA Soewondo Pati in November 2019 – April 2020 and met certain criteria. There were 40 subjects chosen using consecutive sampling method.

**Results:** Non-hyperthyroid AF patients were 17 (42.5%) men and 23 women (57.5%). The average of age was 60.45 years old (SD 12.07). The average serum calcium level was 9.94 mg/dl with 12 (30%) patients were hypercalcemia, 27 (67.5%) patients were normocalcemia and 1 patient (2.5%) was hypocalcemia. The types of AF were mostly rapid ventricular response with a proportion of 70% while the rest of patients were classified as normal ventricular response. From bivariate analysis, we found that females are statistically significantly more likely to be hypercalcemia with the OR of 5.769 ( $p < 0.05$ ).

**Conclusion:** Most of the serum calcium level in non-hyperthyroid AF patients were normocalcemia (67.5%). The serum calcium level could be the predictor of AF incidence and further investigations are needed to know the mechanism of pathophysiology and the AF management approaches.

**Keywords:** Atrial fibrillation, calcium serum level, hyperthyroid



### 30. Electrocardiographic Findings in Hospitalized Patient with COVID-19: Insight on Mortality

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**Background** Coronavirus disease 2019 (Covid-19) mortality risk may increased due to abnormal cardiac condition cardiovascular disease. Concern has been aroused since we need easily obtainable examination which provide prognostic information. We evaluate the features of electrocardiogram (ECG) on hospitalized patient with COVID-19 and identify its prognostic information toward mortality.

**Methods** Using an observational database from 300 hospitalized patient in East Java COVID-19 registry and electrocardiogram (ECG) database, we evaluated the relationship of electrocardiographic finding with in-hospital death among hospitalized patients with Covid-19 who were admitted between March to July 2020 and were recorded as having either died in the hospital or survived to discharge.

**Results** Out of the 300 hospitalized patients with Covid-19 for whom discharge status was available at the time of the analysis, a total of 108 died in the hospital and 192 survived to discharge. The factors we found to be independently associated with an increased risk of in-hospital death were prolonged ST Segment (mortality of 36.2%, vs. 3% among those without prolonged ST segment; odds ratio, 3.5; 95% confidence interval [CI], 2.55 to 4.9), prolonged QTc interval (bazzet method) (mortality of 13%, vs. 2% among those without prolonged QTc interval; odds ratio, 1.3; 95% confidence interval [CI], 1.18 to 1.45).

**Conclusion** Prolonged QTc interval (bazzet method) prolonged ST Segment findings in the electrocardiogram may increased the mortality risk of the hospitalized patient with COVID-19.





### 31. Cardiovascular Disease Increased Mortality Risk of the Hospitalized Patient with COVID-19

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**Background** Coronavirus disease 2019 (Covid-19) mortality risk may increased due to co-existence of cardiovascular disease. Concern has been aroused regarding a potential harmful effect of COVID-19 in the pathophysiology of cardiovascular disease.

**Methods** Using an observational database from 3411 hospitalized patient in East Java COVID-19 registry, we evaluated the relationship of cardiovascular disease with in-hospital death among hospitalized patients with Covid-19 who were admitted between March to July 2020 and were recorded as having either died in the hospital or survived to discharge.

**Results** Out of the 3411 hospitalized patients with Covid-19 for whom discharge status was available at the time of the analysis, a total of 319 died in the hospital (10,31%) and 3.092 survived to discharge. The factors we found to be independently associated with an increased risk of in-hospital death were an age greater than 60 years (mortality of 17.0%, vs. 3% among those  $\leq 6$  years of age; odds ratio, 2.9; 95% confidence interval [CI], 2.60 to 3.2), heart failure (19%, vs. 2,1% among those without disease; odds ratio, 3.1; 95% CI, 2.5 to 3.9), hypertension (23%, vs. 1,1% among those without hypertension; odds ratio, 2.48; 95% CI, 1.62 to 3.79).

**Conclusion** Hypertension and heart failure comorbidities increased the mortality risk of the hospitalized patient with COVID-19.



### 34. Correlation between Left Ventricular End Diastolic Volume and T Peak to End Interval in Ischemic Cardiomyopathy Patients

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**Background:** Ischemic cardiomyopathy has high prevalence and poor prognosis. Its poor prognosis is related to left ventricular remodeling. Few studies showed that left ventricular dilatation was related to ventricular tachyarrhythmia. T peak to end (Tpe) interval, which reflects dispersion of repolarization, is the best ECG marker in predicting ventricular tachyarrhythmia in patients with left ventricular systolic dysfunction. This study aims to assess the correlation between left ventricular end diastolic volume (LVEDV) and Tpe interval in ischemic cardiomyopathy patients.

**Methods:** This was a descriptive analytical cross-sectional study, conducted at Hasan Sadikin hospital, Bandung, in July-September 2019. Measurement of LVEDV was done by echocardiographic examination with biplane (modified Simpson's rule) technique and adjusted by body surface area (LVEDVI). Tpe interval was measured by tangential method in lead V2 and corrected by heart rate (Tpec interval). The correlation between LVEDVI and Tpec interval was analyzed using Pearson correlation test. Linear regression analysis was performed to control confounding factors.

**Results:** A total of 46 subjects were included in this study, with an average age of  $59 \pm 9$  years old and most (80.4%) patients were male. Mean LVEF was  $26.63 \pm 5.85\%$ . The mean LVEDV was  $173.59 \pm 34.75$  mL (LVEDVI  $103.54 \pm 21.06$  mL/m<sup>2</sup>). The mean Tpe interval was  $83.32 \pm 8.81$  ms (Tpec interval  $89.85 \pm 13.46$  ms). Pearson correlation test showed a significant moderate positive correlation ( $r = 0.552$ , 95% CI (0.313 - 0.815),  $p < 0.001$ ) between LVEDVI and Tpec interval in ischemic cardiomyopathy patients. This result remained consistent after linear regression analysis with beta blocker, RAAS inhibitors (ACE-inhibitor, ARB, or ARNI), and MRA as confounding factors ( $r = 0.563$ ,  $r^2$  0.317,  $p < 0.001$ ).

**Conclusion:** There was a significant moderate positive correlation between LVEDVI and Tpec interval in ischemic cardiomyopathy patients.

**Keywords:** Ischemic cardiomyopathy, left ventricular end diastolic volume, Tpe interval



### 35. Early Discharge in Patients with Acute Myocardial Infarction in Tidar General Hospital

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**Background** previous study propose early discharge at 7 to 10 days after myocardial infarction. This study is looking for the potential for earlier discharge for patient with uncomplicated infarction after thrombolysis.

**Objectives** the aim of this study is to apply clinical criteria for early discharge in patient undergo thrombolytic therapy in Tidar General Hospital

**Methods** in this retrospective study, we define uncomplicated infarction as absence of death, reinfarction stroke, shock, heart faikure defibrilation or emergency cathetherization in the first 4 days. We obtained data from STEMI patient in Tidar Hospital from January to October 2019. We examined death at 30 days and 1 year, hospital reinfarction and heat failure, comparing the complicitaed group and uncomplicated group.

**Result** in our study in uncomplicated group there are 39 patients at day 4 with low risk of death and in hospital complication. 30 day mortality rate 2,56% , hospital reinfarction and heat failure is 2,56 %, comparing the complicitaed group and uncomplicated group.

**Conclusion** early discharge could lower the length of stay for patients with uncomplicated acute myocardial infarction. And simple clinical characteristic can be used to identify patient with low risk post myocardial infarction who can be discharge at day 4.

Keywords early discharge, STEMI



37. **ST segment/heart rate hysteresis accuracy in the detection of coronary artery disease :  
An oldschool and robust method**

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**Background** The exercise stress test is the most widely used non-invasive diagnostic method to detect coronary artery disease. Current guidelines on stable ischaemic heart disease recommend exercise test as the initial non-invasive test of choice in patients with intermediate pre-test probability. Because ST segment depression has limited diagnostic performance at exercise electrocardiography (ECG), ST segment depression/heart rate (ST/HR) hysteresis have been proposed as alternatives to diagnose exercise-induced myocardial ischemia. We compared the diagnostic performance of such parameters.

**Methods** We studied 116 subjects (76 men, 40 women, age 54,1±9,3 years) during 2019 referred for suspected exercise induced myocardial ischemia with an ECG exercise test. We performed all the test with a modified Bruce protocol on treadmills. To evaluate the effect of ST-segment measurement point on diagnostic performance of the ST-segment/ heart rate (ST/HR) hysteresis and the end-exercise ST-segment depression in the detection of coronary artery disease. The ST-T segment depression was calculated at 60 ms beyond the J point at peak exercise (ST-max). We adopted standard criteria for test positivity, including horizontal or down-sloping ST depression 1 mm (0.1 mV) at 60 ms after the J point. The patient underwent coronary angiography to identify the absence of coronary artery disease. Analysis using comparative non-parametric study Pearson Chi-Square.

**Results** Of these patients, 68 had CAD and 48 no-CAD according to angiography result. Continuous variables is associated 95% confidence intervals (CI). The ST/HR hysteresis has been shown to have significantly better diagnostic performance with 74,1% accuracy (sensitivity = 82,4% and specificity = 62,5%) in detection of coronary artery disease than the endexercise ST depression with 56,9% of accuracy (sensitivity = 83,8% and specificity = 28,8%). The presence of CAD was associated with higher values of ST/HR hysteresis (P<0.01).

**Conclusion** The studies suggest that the ST/HR hysteresis can significantly improve the diagnostic performance by offers better diagnostic accuracy of coronary artery disease.

**Keywords** : exercise test, ST/HR hysteresis, coronary artery disease



### 38. Hypertension in Urban Areas: Hypertension Risk Factors in the Community of Banjar Pengiasan, Dauh Puri Kauh Village, West Denpasar Municipality, Bali

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**Background:** Hypertension is a serious medical condition that increases the risk of heart, kidney, brain diseases and is a leading cause of premature death worldwide. Differences in the demographics, customs and habits in an area result in differences in the main risk factor for hypertension. Bali has the highest prevalence of hypertension among the southeastern islands of the country (19.9%). Denpasar Municipality has the second highest prevalence of hypertension in Bali (14.25%). Banjar Pengiasan has the most cases of hypertension in West Denpasar with 286 cases. This study aimed to determine the risk factors for hypertension among the people in the Banjar Pengiasan community.

**Methods:** A community based cross-sectional study with a sample of 125 people selected using simple random sampling was conducted among adults 30 years and older living in Banjar Pengiasan in July until October 2019. The study collected data on sociodemographic, stress, food and physical activity using questionnaire. Anthropometric, blood pressure, and total cholesterol measurements were performed following standard procedures. Multiple logistic regression was used for analysis and odds ratios with 95% confidence intervals were calculated to identify risk factors associated with hypertension.

**Results:** The prevalence of hypertension was 67.2%. The logistic regression analysis shows age [OR=18.576(CI95% 2.955-116.782)], family history [OR=10.480(CI95% 1.106-99.288)], total cholesterol [OR=12.628(CI95% 2.406-66.279)], obesity [OR=4.750(CI95% 1.240-20.060)], salt consumption [OR=6.069(CI95% 1.162-31.689)], physical activity [OR=9.191(CI95% 1.360-62.108)] and coffee consumption [OR=5.833(CI95% 1.031-33.009)] significantly associated with hypertension. Smoking, sex and stress are not risk factors for hypertension because all variables were analyzed simultaneously.

**Conclusion:** In this study, it was found that being >60years age, high total cholesterol, family history, low physical activity, high salt consumption, coffee consumption, and obesity are risk factors for hypertension. With these it expected that preventive efforts can be made to reduce the prevalence of hypertension.

**Keywords:** Risk factor, Hypertension, Urban

Table 1. Bivariat analysis

Variable	P	95% CI
Age	0.000	6.089-44.387
Sex	0.015	1.185-5.720
Family history	0.000	4.182-51.473
Total cholesterol	0.000	13.553-113.30
Salt consumption	0.000	10.628-81.606
Obesity	0.026	1.098-5.163
Smoking	0.429	0.315-1.634
Coffee consumption	0.182	0.747-5.401
Physical activity	0.000	2.268-11.795
Stress	0.003	1.411-6.778



Table 2. Bivariat selection of variable

No.	Variable	P	Note
1	Age	0.000	Candidate
2	Sex	0.015	Candidate
3	Family history	0.000	Candidate
4	Total cholesterol	0.000	Candidate
5	Salt consumption	0.000	Candidate
6	Obesity	0.026	Candidate
7	Smoking	0.429	Not a candidate
8	Coffee consumption	0.182	Candidate
9	Physical activity	0.000	Candidate
10	Stress	0.003	Candidate



Table 3. Risk factor for hypertension with logistic regression analysis

Variable	OR	95% CI
≥60years age	18.576	2.955-116.782
Family history	10.480	1.106-99.288
High total cholesterol	12.628	2.406-66.279
High salt consumption	6.069	1.162-31.689
Obesity	4.750	1.240-20.060
Coffee consumption	5.833	1.031-33.009
Low physical activity	9.191	1.360-62.108

**Image 1. Risk factor for hypertension with logistic regression analysis process**



### 39. Correlation of Corrected QT Dispersion with Coronary Artery Disease Severity (SYNTAX Score) in ST-Elevated Myocardial Infraction (STEMI) Patient

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**Background:** Coronary artery disease (CAD) is still number one cause of death in Indonesia. Electrocardiogram (ECG) is a helpful non-invasive tool for the diagnosis of CAD. Early risk stratification using simple diagnostic tool like ECG could minimize the mortality number caused by CAD. Corrected QT dispersion (QTc dispersion) is a simple marker based on ECG to predict adverse cardiovascular outcome. SYNTAX score is angiographic tool to assess vascular lesion complexity. Nevertheless, there are lack of prior knowledge about correlation of the QTc dispersion and severity of CAD using SYNTAX Score.

**Method:** Retrospective studied from single center hospital (Pertamina Central Hospital) in 2017-2019. Inclusive criteria were the patients with STEMI who underwent primary cutaneous intervention (PCI). STEMI diagnosed define as patient with typical chest pain or discomfort chest sensation or any related symptoms with ischemia, ST segment elevation in two consecutive lead, and escalation of cardiac enzyme. QTc dispersion using Bazett's formula. Patient divided in two groups, Group I for low SYNTAX score (0-33) and group II for high score ( $\geq 34$ ).

**Result:** Thirty-five subject meets the inclusion criteria. Group I consist of 17 subjects (48%) and group II consist of 18 subjects (52%). There are no significant different of age and sex between two groups. Death cases only comes from high SYNTAX score group. There is statically significant difference of QTc dispersion between those groups. ( $p < 0.001$ ) QTc dispersion and SYNTAX score has positive moderate correlation and statically significant. ( $r = 0.549$ )

**Conclusion:** Based on our study, there is a moderate positive correlation between QTc dispersion and severity of coronary artery disease using SYNTAX score.

Keyword: QTc dispersion, SYNTAX score, coronary artery disease, electrocardiogram, ST-elevated myocardial infraction.



40. RELATIONSHIP BETWEEN OBESITY AND VASCULAR DISTURBANCE :  
THE STUDY OF HS-CRP ON OBESITY INDIVIDUAL

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**Background :** According to World Health organization, 2,8 million people in the world die every year because of obesity-vascular disturbance correlated disease. Framingham risk score shows that cardiovascular disease event are strongly related to 5 major risk factors which are : diabetes, hypertension, dyslipidemia, obesity and smoking. High sensitive C-Reactive Protein (hs-CRP) is used as marker for cardiovascular predictor. Based on that, to understand the relationship between obesity and vascular disturbance by studying the hs-CRP is the aim of this research.

**Material and Methods :** This research applies observational analysis method with cross sectional study design by using secondary data from InaDOCAR Prevention (Indonesian Diabetes ,Obesity, and Cardiovascular Prevention) that observe cardiometabolic parameter and hs-CRP. For data analysis, Pearson correlation method were used to test each variable.

**Results :** We got 375 samples ; 240 males and 135 females, there is a strong correlation between body mass index and hs-CRP ( $P < 0.000$ ). Strong correlation between total cholesterol and hs-CRP ( $P < 0.005$ ). Strong correlation between LDL cholesterol and hs-CRP ( $P < 0.000$ ). Strong correlation between HDL cholesterol and hs-CRP ( $P < 0.000$ ). And there is also a strong correlation between Triglyceride and hs-CRP ( $P < 0.000$ ).

**Conclusion :** Based on this reserach , we have concluded that there are strong correlations between Body Mass Index, Total Cholesterol, LDL Cholesterol, HDL Cholesterol, and Triglyceride as the cardiometabolic parameter with high sensitive C-reactive protein that cause significant increase risk of Cardiovascular disease event.

**Keywords :** Obesity, high sensitive C-reactive protein, hs-CRP, body mass index , total cholesterol, LDL , HDL , triglyceride, Cardiovascular disease event.





#### 41. Preventive Cardiology In Indonesian Hajj Pilgrims: A three year report

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**Background** Indonesia contributes to the largest single source of pilgrims in every hajj season with total number reaching 10% every year. Despite mitigation measures taken by the government, the cardiovascular attributed mortality rate remains high. The purpose of this report is firstly to collect and analyse basic data on the health of pilgrims and their trends from year to year. Secondly, to evaluate the preventive measure taken particularly in cardiovascular disease.

**Methods** The design of this study is cross-sectional and is a non-intervention descriptive analysis. The sample population represented all hajj pilgrims from East Java 1438 H-1440 H. Data collected included identity, isthitho'ah status, blood pressure measurements, body mass index and diagnoses during hospitalization as well as death. Data collection and data entry is carried out by trained health workers.

**Results** A total of 105.988 pilgrimages from East Java undertook the Hajj during 2017-2019. Mortality rate was decreased as in 28.8% (2017), 11% (2018) and 8% (2019). Approximately 42% of the pilgrimage require health assistance since departure. There was 41.5% high risk pilgrimage with co-morbid reported such as overweight (36.2%) and hypertension (30.1%). 58.2% male were hospitalised with 56.8% in 61-80 years age range. The top five diseases that require hospitalization include pneumonia (249), diabetes mellitus (223), chronic obstructive pulmonary disease (213), heart failure (128), and high blood pressure (122). There was 6.7% mortality rate during the in-hospitalization period. The remaining 63.6% inpatient were recovered and 28.1% referred to a larger health facility.

**Conclusion** : The preventive measures had a positive influence on the health of pilgrims in which morbidity and mortality rates decreased in the last three year. Nevertheless, deeper quantitative and qualitative data collection and analysis are still needed as evaluation material for better strategic planning particularly in cardiovascular disease prevention.

Keywords : preventive, cardiovascular, hajj



#### 42. Association between History of Heart Disease and Stroke Severity Using NIHSS Score on Acute Ischemic Stroke Patients in Atma Jaya Hospital during 2014-2018

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**Background** History of heart disease (Atrial fibrillation, angina pectoris, myocardial infarction, heart failure) has a role on ischemic stroke severity. The objective is to acknowledge relationship between history of heart disease on first-event acute ischemic stroke severity in Atma Jaya Hospital during 2014-2018.

**Methods** This research used cross-sectional method with two-sided fisher's exact test. With total sampling, samples retrieved from secondary sources in Atma Jaya Hospital during 2014-2018 resulting 236 subjects. Stroke severity measured by NIHSS score during admission, categorized with severe stroke (15-42) and non-severe stroke (0-14)

**Results** There is a significant relationship between history of AF ( $p=0,046$ ) on ischemic stroke severity. Ischemic stroke patients who are > 18 years old with history of AF has a tendency of 5.175 (CI 95%: 1,202 – 22,282) times to have severe stroke compared with patients without AF. Other history of heart disease has no significant relationship towards stroke severity.

**Conclusion** There is a significant relationship between history of AF on stroke severity using NIHSS score on first-event acute ischemic stroke in Atma Jaya Hospital during 2014-2018.

Keywords: angina pectoris, atrial fibrillation, heart failure, ischemic stroke, myocardial infarction, NIHSS score



#### 43. Evaluation of Therapeutic Delay in Patients With Acute ST-Elevation Myocardial Infarction at Rural District Kudungga General Hospital

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**Background:** Delayed reperfusion is associated with worse outcomes in ST-segment elevation myocardial infarction (STEMI). This study was conducted to assess the components and determinants of therapeutic delay in STEMI patients of our state.

**Methods :** This study included consecutive patients of STEMI admitted to the Kudungga Hospital between 2016 to 2019. The duration from onset to FMC (First Medical Contact), FMC to Kudungga Hospital, door to ECG time, and door to needle time was reviewed. The outcomes of the delayed treatment were also analyzed in this study.

**Result:** During a period of 3 years, 49 patients were enrolled in this study. Fibrinolytic was administered to 42.9% of patients, while 57.1% of patients could not be thrombolysed because of late presentation. We found that time from onset to FMC mostly more than 12 hours (34%) and time from FMC to Kudungga Hospital is mostly between 1 to 6 hours (73.5%). About 36.7 % of Patients have a delay in door to ECG time. Only 9.5 % of patients receive fibrinolytic within 30 minutes. Out of 28 patients who not received fibrinolytic 3 of them have death complication with a p value of <0.039.

**Conclusion:** The standard of STEMI management in our state is far from ideal, and needs a lot of improvement. Major efforts to reduce prehospital and in-hospital treatment delays are urgently needed.

Keywords: ST-Elevation myocardial infarction, Fibrinolytic, Treatment delay, Outcomes



44. **The Comparison Between Types of Angina with Door-to-ECG Time in Acute Coronary Syndrome Patients in Prof. DR. W. Z. Johannes General Hospital Kupang.**

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**Background:** Angina is the most common presentation of acute coronary syndrome (ACS). However, some patients present with atypical angina and this frequently cause undertreatment. The European Society of Cardiology (ESC) recommended recording and interpretation of electrocardiogram (ECG) within 10 minutes of patient arrival. Prolonged door-to-ECG time has been associated with an increase in poor clinical outcomes. The aim of this study was to evaluate the difference in adherence to the recommended door-to-ECG time between patients with typical and atypical angina.

**Methods:** This was a cross-sectional study on hospitalized ACS patients at Prof. DR. W. Z. Johannes General Hospital Kupang between September 2019 and January 2020. These patients were grouped into typical and atypical angina groups. Definition of typical and atypical angina rereferred to the ESC guideline.

**Results:** A total data of 94 ACS patients were collected. Sixty-nine percent (n=65) presented with atypical angina and 31% (n=29) presented with typical angina. Recommended door-to-ECG time was achieved in 55.4% (n=36) of those presented with atypical angina and 79.3% (n=23) in typical angina. Moreover, finding from our study showed that type of angina was significantly correlated with obtaining ECG within 10 minutes. Those with atypical angina have 2.15 times higher risk of non-adherence to the recommended door-to-ECG time (p=0.027, RR 2.15 [95% CI]).

**Conclusions:** More than two third of ACS patients in this study presented with atypical angina and ECG was not obtained within 10 minutes in nearly half of these patients. ECG should be obtained within 10 minutes even in those presenting with atypical angina.

**Keywords:** acute coronary syndrome, angina, door-to-ECG



#### 45. NT-ProBNP as Potential Marker of Pulmonary Arterial Hypertension in Adult Patients with Uncorrected Atrial Septal Defect

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**Background:** Atrial Septal Defect (ASD) could induce excessive circulation inside pulmonary vessels and increase right heart volume load, which lead to pulmonary arterial hypertension (PAH). N-terminal pro-brain natriuretic peptide (NT-proBNP) has been used as an optional non-invasive tool for assessment and monitoring of pulmonary hypertension patients. This study aims to assess the potential use of NT-ProBNP as screening marker of PAH in adult patients with uncorrected ASD.

**Methods:** The study enrolled 345 patients who are part of COngenital HeART Disease – Pulmonary Hypertension Study (COHARD-PH) at Sardjito General Hospital. Blood test was performed to measure NT-ProBNP. The patients were stratified into two groups based on diagnostic criteria of pulmonary arterial hypertension (PAH) by right heart catheterization. Mean pulmonary arterial pressure (mPaP) was correlated with NT-ProBNP and the levels of NT-ProBNP were compared between two groups. We analyzed the data with SPSS version 22.

**Results:** The study group consisted of 233 patients complicated with PAH (83.3% female and 16.7% male, mean age 35.62 + 12.09 years old), and 112 patients without PAH (82.1% female and 17.9% male, mean age 31.89 + 11.73 years old). The NT-ProBNP values correlated with mPaP in both groups ( $r=0.191$ ,  $p<0.05$  in without PAH group;  $r=0.225$ ,  $p<0.01$  in PAH group). Patients with uncorrected ASD and PAH had statistically higher level of NT-proBNP compared to group without PAH (median 1090.0 vs 150.10 pg/mL,  $p<0.001$ ).

**Conclusion:** NT-proBNP has emerged as an attractive optional tool to assess PAH in ASD. Based on our study, NT-proBNP was positively correlated with mPaP and had higher levels in uncorrected ASD with PAH group. Therefore, it can be use a marker to screen PAH in adult ASD patients.

**Keywords:** Atrial Septal Defect, Pulmonary Arterial Hypertension, NT-proBNP



#### 46. Waist-to-Height-Ratio and Resting Heart Rate: A Simple Marker of Cardiovascular Health in Young Adults

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**Background:** Resting heart rate (RHR) has been linearly associated with the occurrence of metabolic-cardiovascular morbidities and mortality. Obesity is known to contribute to the increase in RHR and its related risks. The latest indicator of obesity, the waist-to-height ratio (WHtR), has several valuable properties including its universality, as well as superiority in evaluating cardiovascular risk compared to previous parameters, specifically BMI and waist circumference.

This study aimed to analyse the association between WHtR and RHR in young adults, as obesity in this particular population is strongly related to adverse cardiovascular events later in life.

**Methods:** A cross-sectional study was performed to young adults in the 18 to 25 age group, with no known metabolic-cardiovascular comorbidities. The measurement was conducted at Universitas Pelita Harapan from February to April 2019. The data included height, waist circumference, and heart rate of 1 minute. Obesity is defined by Ashwell as the value of WHtR  $\geq 0.5$ . Stress and physical activity were assessed using self-reported questionnaires, the DASS-42 and the IPAQ-Short Form, consecutively.

**Results :** A total of 106 subjects with median age 20.0 participated in this study. Based on WHtR, 55 subjects (51.9%) were categorized as non-obese and 51 subjects (48.1%) obese. The mean HR for non-obese and obese group were  $78.33 \pm 9.67$  and  $83.59 \pm 10.14$  respectively. Independent T test resulted in  $p=0.007$ , 95% CI=1.444-9.078. Pearson correlation test produced significant, moderate association between WHtR & RHR as  $p<0.001$ ,  $r=0.336$ . Multivariate analysis showed that RHR was positively associated with WHtR ( $p<0.001$ ) and negatively associated with physical activity ( $p=0.028$ ). No significant association was found between RHR and stress.

**Conclusion:** There was statistically significant correlation between WHtR and RHR. Thus, WHtR might adequately predict increase in resting heart rate, in parallel to its risk of cardiovascular morbidities and mortality.

Keywords: waist-to-height ratio, resting heart rate, young adult



#### 47. The Safety of Right Carotid Artery Surgical Cutdown for Patent Ductus Arteriosus Stenting: A Cardiologist's Perspective

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**Background:** In infants and children, common carotid artery access is advantageous for cardiac catheterization. Its merits include accommodation of larger sheath and more direct route for interventions directed at several cardiac anatomical parts such as left ventricle, aortic valve, aortic arch, and in many cases, arterial ducts. Since first introduced in 1973, surgical cutdown of carotid artery has been used for diverse cardiac catheterization procedures. Alas, it is rarely preferred by pediatric interventional cardiologists due to increased risk of vascular injury and cerebrovascular accidents. This case series is aimed to evaluate the carotid vascular condition of patients undergone the approach of surgical cutdown for Patent Ductus Arteriosus (PDA) stenting.

**Methods:** 4 patients were included in this case series. All patients had undergone PDA stenting. They were intubated and ventilated during the procedure. Through surgical cutdown, right common carotid artery was exposed, and with small arteriotomy, a 5F sheath was inserted into the artery. Carotid Duplex ultrasound (DUS) examination was conducted within 24 hours after the procedure.

**Results:** Median age of the patients was 58,5: 22 – 78 days with median body weight of 3.950: 3400 – 4400 grams. In all patients, right common carotid artery was patent, with smooth and regular anatomical profile. Interrogation of pulsed wave doppler showed laminar flow for both carotid arteries in all patients.

**Conclusion:** Our data demonstrate that after surgical cutdown for PDA stenting, carotid artery is well preserved, shown by normal flow and anatomical condition through DUS examination.

**Keywords:** Carotid Surgical Cutdown, PDA stenting, Duplex Ultrasound



#### 48. The Correlation Between SYNTAX Score and Left Ventricle Ejection Failure in Patient with Chronic Coronary Syndrome

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**Background:** Heart failure (HF) is a serious healthcare problem in today's aging society. Despite significant advances in the treatment of chronic HF, the disease tends to follow a progressive course with high mortality and morbidity rates. Left ventricular ejection fraction (LVEF) is an established predictor of mortality in HF patients and is used to define many drug and device therapeutic indications. Stable Coronary artery disease (SCAD) has contributed to the increased prevalence of HF and is associated with cardiovascular events in patients with HF. The Synergy between Percutaneous Coronary Intervention with TAXus and Cardiac Surgery (SYNTAX) score, a measure of coronary lesion complexity, has been proposed for use in the risk stratification of patients with untreated left main coronary artery disease.

**Objective:** To find correlation between SYNTAX score and LVEF in patients with HF.

**Methods:** This was a comparative study of short term LVEF and SYNTAX after coronary angiography. Data were collected from May to August 2019. There were 61 SCAD patients who met the inclusion criteria underwent coronary angiography. LVEF and SYNTAX score after coronary angiography were analyzed using Spearman Test in SPSS.

**Results:** There were 61 patients who underwent coronary angiography and echocardiography to determine LVEF with prior SCAD who underwent coronary angiography then stratified with SYNTAX score. In statistical analysis, SYNTAX score was significantly associated with LVEF ( $P = 0.017$ ,  $r = -.305$ ). In patients with prior HF and SCAD, high SYNTAX scores correlate negatively with LVEF. These results suggest that the SYNTAX score might be a useful parameter as predictor of HF.

**Conclusion:** There was a significant correlation between SYNTAX score and LVEF as predictor HF.

**Keywords :** SYNTAX Score, Heart Failure, Left Ventricle Ejection Fraction

Variable	Total (N=61)		Sex				P
	$\mu \pm$ SD	Med (Q1;Q3)	Woman (N=21)		Man (n=40)		
	$\mu \pm$ SD	Med (Q1;Q3)	$\mu \pm$ SD	Med (Q1;Q3)	$\mu \pm$ SD	Med (Q1;Q3)	
Age	59.5 $\pm$ 8.3	*	64.2 $\pm$ 6.8	*	57.0 $\pm$ 8.0	*	0.001
BSA (m <sup>2</sup> )	1.8 $\pm$ 0.2	*	1.6 $\pm$ 0.2	*	1.8 $\pm$ 0.2	*	<0.001
BMI	26.3 $\pm$ 3.5	*	26.0 $\pm$ 3.2	*	26.4 $\pm$ 3.6	*	0.694
Uric Acid	7.2 $\pm$ 1.8	*	6.4 $\pm$ 1.7	*	7.7 $\pm$ 1.7	*	0.011
HbA1C	*	6.6 (5.8 ; 8.4)	*	6.1 (5.8 ; 7.3)	*	6.5 (5.8 ; 8.6)	0.271
eGFR	72.7 $\pm$ 22.7	*	67.7 $\pm$ 21.8	*	75.3 $\pm$ 23.0	*	0.215
Total Colestrol	164.5 $\pm$ 46.1	*	168.9 $\pm$ 48.3	*	162.9 $\pm$ 45.3	*	0.593
HDL	*	34.0 (30.0 ; 40.0)	*	40.0 (35.0 ; 44.0)	*	33.0 (29.0 ; 36.0)	0.008
LDL	*	90.0 (70.0 ; 115.0)	*	100.0 (80.0 ; 131.0)	*	83.5 (68.0 ; 107.2)	0.114
Tg	*	143.0 (104.0;203.0)	*	154.0 (110.0;211.0)	*	119.0 (101.2 ; 184.0)	0.205
EF	*	62.0(56.0 ; 70.0)	*	65.0(59.0 ; 71.0)	*	61.2(55.5 ; 68.2)	0.245
SYNTAX	*	18.0 (6.0;30.0)	*	12.0 (3.0;37.5)	*	23.0 (9.5;29.1)	0.538





**49. The Cardioprotective Effect of Carvedilol on Left Ventricular Dysfunction after Chemotherapy of FAC Regimen in Breast Cancer Patients**

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**Background:** Regimen of 5-Fluorouracil, Adriamycin (anthracycline), Cyclophosphamide (FAC) is the first line chemotherapy for breast cancer patients. Carvedilol is a 3<sup>rd</sup> generation beta blocker that can provide antioxidant, antiapoptotic effects and also regulate myocyte calcium cells which exposed to FAC chemotherapy regimens. Global longitudinal strain (GLS) with Speckle tracking echocardiography (STE) technique can be used to detect regional myocardial damage after chemotherapy. The aim this study was evaluate cardioprotective effect of carvedilol in women with breast cancer undergoing chemotherapy with FAC regimen.

**Methods :**The study was a prospective open-label and Quasi Experimental Design at Dr. Hasan Sadikin General Hospital Bandung. Subjects were breast cancer patients receiving complete cycle of FAC chemotherapy regimen from September 2018 until May 2019. The subjects were divided into intervention and control group that was not conducted parallelly. Intervention group were given Carvedilol 2 x 6.25 mg uptitrated every 3 weeks until tolerated dose, follow-up trans-thoracic echocardiography was performed to assess GLS changes of left ventricle using STE technique.

**Result:** Eighty one patients were enrolled to the study, with each group consisted of 31 patients in intervention group and 50 patients in control group. Based on analysis, decrease of GLS was less in the intervention group 0.7 (95% CI – 0.60,3.60) compared to the control group 3.00 (95% CI – 2.16,4.19) and statistically significant different between both groups (p=0.035). Percentage decrease of GLS showed similar findings, where decrease of percentage was less in the intervention group (3.62%) compared to the control group (14.29%) , and statistically significant different between both groups(p=0.050).

**Conclusion:** Carvedilol has a cardioprotective effect to prevent decline of left ventricular function based on GLS with STE technique in women with breast cancer undergoing complete cycle chemotherapy with FAC regimen

**Keywords:** Breast cancer, chemotherapy, carvedilol, global longitudinal strain (GLS), 5-fluorouracil, adriamycin, cyclophosphamide (FAC)



## 50. Profile of Hypertension Patients in Ibnu Sina Padang Hospital

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**Background:** Hypertension is a silent killer that becomes the most prevalence disease in the world and may lead to the conditions such as heart attack, heart failure, chronic kidney disease, and stroke. The aim of this study is to know the hypertension profile in conjunction with characteristics, risk factors, and complications.

**Methods:** This study was a descriptive study. Data were taken from the medical record of those patients that diagnosed as hypertension within the period of January 1<sup>st</sup> to December 31<sup>st</sup> 2019. All of the patients were included in this study (total sampling). Data was analyzed by using univariate analysis.

**Results:** Of 963 fulfilling criterion patients, female patients were more affected than male patients(61% vs 39%). Among hypertension, 57% were aged 61 or older, 37% were aged 41-60, and 6% were aged 18-40. Concerning education level, it appears that those with high school or higher level of education were more exposed to hypertension(78%), following by those with never attained school through primary school(12%) and middle school(10%). Concerning occupational, individuals with working status were more exposed to hypertension(61%) than non-working(39%). Type 2 diabetes mellitus and dyslipidemia had the same percentage as a risk factor (17%). Hypertensive heart disease was the most complications for hypertension(33%), following by atherosclerosis heart disease(23%), congestive heart failure (12%), stroke(6%) and chronic kidney disease (6%).

**Conclusions:** The greatest number of hypertensions were patients aged 61 years or older, female, high school or higher level of education, working, the risk factors were type 2 diabetes mellitus and dyslipidemia, and the complication was hypertensive heart disease.

**Keywords:** hypertension, risk factors, complications



**Table 1.** Frequency and percentage distribution of characteristics of the subjects

Variable	Subgroups	n=963	%
Gender	Female	591	61
	Male	372	39
Age	18-40 years	59	6
	41-60 years	359	37
	61 years or older	545	57
Level of Education	Never attained school through primary school (0-6 years)	112	12
	Middle school (7-9 years)	97	10
	High school or higher level of education	754	78
Occupation	Working	586	61
	Non-working	377	39

**Table 2.** Frequency and percentage distribution of risk factors of the subjects

Variable		n=963	%
Type 2 Diabetes Mellitus	Yes	163	17
	No	800	83
Dyslipidemia	Yes	160	17
	No	803	83

**Table 3.** Frequency and percentage distribution of complications of the subjects

Variable	n=963	%
Hypertensive Heart Disease	315	33
Atherosclerosis Heart Disease/ Coronary Artery Disease	219	23
Congestive Heart Failure	118	12
Stroke	62	6
Chronic Kidney Disease	54	6



### 51. Effects of Preoperative Inspiratory Muscle Training on Right Ventricular Free Wall Longitudinal Strain and ICU Length of Stay in Patients Undergoing Heart Valve Replacement Surgery

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**Background:** The reduction of right ventricular function after heart valve surgery was associated with mortality and morbidity after cardiac surgery, ICU length of stay, risk of nosocomial infection, postoperative pulmonary complications, and hospital cost. Inspiratory muscle training can be considered for improving right ventricular systolic function by optimizing afterload and cardiac contractility. The objective of this study was to investigate the effect of inspiratory muscle training on right ventricular systolic function by using right ventricular free wall longitudinal strain and its impact on ICU length of stay in patients after heart valve surgery.

**Method:** Thirty patients scheduled for elective heart valve surgery on August – November 2019 were randomized into conventional preoperative rehabilitation group and conventional preoperative rehabilitation added high intensity inspiratory muscle training at least 14 days before surgery. Echocardiography examination were performed before rehabilitation and after cardiac surgery.

**Result:** The patients were randomized into 15 patients in control group and 15 patients in intervention group. There were 12 patients on each group completed the preoperative and postoperative echocardiography evaluations. Both groups had no significant differences on RV free wall longitudinal strain ( $-20.2 \pm 3.7\%$  vs  $-20.6 \pm 4\%$ ;  $p=0.794$ ) during the preoperative examination. By using independent t-test, we found significant differences on RV free wall longitudinal strain between intervention and control group ( $-17.7 \pm 3.0\%$  and  $-14.4 \pm 4.0\%$ ;  $p=0.033$ ) on postoperative evaluations. The ICU length of stay in intervention group was significantly shorter than control group ( $3.2 \pm 0.8$  and  $4.2 \pm 1.3$  days;  $p=0.044$ ).

**Conclusion:** Patients underwent conventional preoperative rehabilitation added inspiratory muscle training had better right ventricular free wall longitudinal strain postoperatively and shorter ICU length of stay than patients in control group.

Keywords: right ventricular free wall longitudinal strain, ICU length of stay preoperative rehabilitation, inspiratory muscle training, heart valve surgery



## 52. The Role of GRACE, HEART, and TIMI Score for Severity of Non-ST-Elevation Acute Coronary Syndrome. Focused on Hemodynamic, Organ Damage, and Mortality

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**Aims or Background:** Ischemic risk score give important role to assess the outcome of non-ST-elevation acute coronary syndrome (NSTEMACS). The severity of the event determines the invasiveness of the treatment. This study aims to determine the role of GRACE, HEART and TIMI score for severity of NSTEMACS focused on hemodynamic, organ damage, and mortality.

**Methods:** The study was done at Abdul Wahab Sjahranie Hospital Samarinda based on retrospective study using medical record data during period January to December 2016. The patient with NSTEMACS spectrums was included in this study. The performance and correlation of GRACE, HEART, and TIMI to hemodynamic parameters, organ damage (eg. renal function) and mortality during hospitalization were assessed. The performance was assessed using area under the curve (AUC) and correlation test.

**Results:** The Study included 58 subjects consisting of 3 non-survivor subjects during hospitalization. The subject with history of diabetes mellitus and the appearance of ST-depression has higher ischemic score. The mean of GRACE, HEART and TIMI score of the non-survivor subjects were higher than survivor subjects  $170 \pm 47$  vs  $101 \pm 33$   $p=0.001$ ;  $7 \pm 2$  vs  $4 \pm 2$   $p=0.014$ ;  $2 \pm 1$  vs  $1 \pm 1$ ;  $p=0.056$ , respectively. The GRACE score (AUC=0.912, 95% CI:0.805-1.000) had the best performance than the HEART (AUC=0.876, 95% CI:0.723-1.000) and TIMI score (AUC=0.782, 95% CI:0.490-1.000) for predicting in-hospital mortality. The correlation of the ischemic score with troponin-T, creatinine, killip class, and systolic blood pressure (SBP) were variable between GRACE ( $r_s$  troponin-T:0.367  $p=0.005$ ;  $r_s$  creatinine:0.320  $p=0.014$ ;  $r_s$  killip class:0.310  $p=0.018$ ;  $r_s$  SBP:-0.406  $p=0.002$ ), HEART ( $r_s$  troponin-T:0.829  $p=0.0001$ ;  $r_s$  creatinine :0.204  $p=0.125$ ;  $r_s$  killip class:0.055  $p=0.681$ ;  $r_s$  SBP:0.100  $p=0.453$ ), and TIMI score ( $r_s$  troponin-T:0.630  $p=0.0001$ ;  $r_s$  creatinine:0.101  $p=0.450$ ;  $r_s$  killip class:0.020  $p=0.881$ ;  $r_s$  SBP:-0.022  $p=0.870$ ).

**Conclusion:** The GRACE score had the best performance for predicting in-hospital mortality, but for the hemodynamic and organ damage parameters, the ischemic risk scores showed variable correlation.

**Keyword:** GRACE;HEART;TIMI;NSTEMACS



53.

**Correlation Between Leukocyte Count And Ckmb Level In Acute Myocardial Infarction Patients At General Hospital Prof. Dr. Kandou**

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**Background.** Not all primary care facilities in Indonesia can carry out cardiac enzymes examination to diagnose acute myocardial infarction, in fact early diagnosis is very important to prevent further complications. Leukocyte examination is relatively easy to do. Several studies have shown an increase in leukocyte levels in myocardial infarction. The purpose of this study was to determine the correlation of leukocyte counts with CK-MB levels in patients with acute myocardial infarction.

**Method.** This study uses a cross sectional study design. As many as 40 acute myocardial infarction patients were treated at General Hospital Prof. Dr RD Kandou through July-December 2019 was included in this study. Statistical trial performed with the SPSS program, analyzed the relationship between leukocytes and CKMB in patients with acute myocardial infarction using the Spearman correlation test.

**Results.** A total of 32 male patients and 8 female patients in the range of age 35-85 years in this study. The mean leukocyte count in 40 patients with acute myocardial infarction was  $13980 \pm 4042.67$  and the mean CK-MB level was  $137.30 \pm 114.62$ . Based on the Spearman correlation test found a significant relationship between the levels of leukocytes with CKMB levels in patients with acute myocardial infarction ( $p = 0.006$ ,  $r = 0.43$ ).

**Conclusion.** There is a significant correlation between the number of leukocytes with CKMB levels in patients with acute myocardial infarction. Leukocyte examination may be used as an alternative examination in establishing the diagnosis of acute myocardial infarction.

Keywords: leukocytes, CKMB, acute myocardial infarction



## 55. Identification the Role of Angiotensin Receptor Blockade and Statin on Uremic Toxin- mediated Cardiomyopathy Through Macrophage Cell Fate Regulation

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**Background:** Cardiovascular disease (CVD) still becomes a major cause of mortality in Chronic Renal Failure (CRF) patient. The identification of pharmacological intervention is needed for preventing this issue, but the result has not satisfactory yet. As the possible mechanism, macrophage plays a role not only in the inflammation, but also in hypertension, CRF, and CRF-induced CVD by regulating macrophage polarization.

We previously reported the evidence of Angiotensin II Type 1 Receptor in the RAW macrophage cell and another study also revealed Angiotensin II-induced M1 pro-inflammation in RAW cell suggesting the possible role of Angiotensin Receptor Blocker (ARB) of macrophage repolarizing-mediated Uremic Cardiomyopathy (UC). On the other hand, statin also polarized the phenotype of macrophages toward M2. However, the effects of ARB or statin on UC through a macrophage-mediated resolution of inflammation remain unknown.

**Methods:** Here, we investigated the effect of ARB (Irbesartan) or statin (simvastatin) for improving CRF-mediated cardiomyopathy in the 5/6 Nephrectomy (5/6 Nx) rat model and Indoxyl Sulfate (IS)- treated RAW cell as a uremic model in vivo and in vitro. While the renal failure phenotypes such as oliguria, uremia, and blood pressure elevation were detected in 5/6 Nx group, ARB has improved those renal failure symptoms but not statin.

**Results:** Consistently, the cardiac hypertrophy was developed at 5/6 Nx group at a macro- and microscopic levels and ARB was able to ameliorate these cardiac pathology. However, mechanistically, either of ARB or statin prevented the uremic toxin-induced M1 polarization in macrophage-derived from circulating blood of 5/6Nx rat and RAW cell treated with IS. Moreover, the specific molecular investigations, including the identification of responsible secretome candidate in macrophage identification, are now under investigation.

**Conclusion:** Our temporary finding showed that even both of ARB and statin prevented M1 differentiation, but only ARB could improve CKD-mediated cardiomyopathy possibly through macrophage polarization.



## 56. Role of Short Message System Media to Improve the Medication Adherence In Hipertensive Patients At Pacitan Sukorejo Primary Health Center

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**Background:** Hypertension has become the largest cause of premature death in the world. In Indonesia, the prevalence is 34.1% and in East Java 1.8 million adults recorded with hypertension. This condition is getting worse because hypertension is a major risk factor for cerebro-cardio-vascular disease. In most cases, hypertensive patients require long-term medical therapy so medication adherence is needed. Therefore, effective communication between doctors and patients is pivotal. However, due to the high number of patients daily and limited service hours at the primary health center it is difficult to deliver information and motivation to patients about the disease and its treatment, so other innovation is needed to cover the shortage. This study aimed to identify the role of short message system (SMS) media in an effort to improve medication adherence in hypertensive patients at Pacitan Sukorejo Primary Health Center.

**Method:** This research was an experimental analytic study with a one-group pretest-posttest design conducted in August-December 2019. Data were obtained by conducting interviews using the MMAS (Morisky Medication Adherence Scale) questionnaire. Texting is done twice a week and measurement of the medication adherence is evaluated every two weeks. Then, data were processed statistically by using dependent T-test ( $p < 0.05$ ).

**Result:** There were 25 respondents involved with 17 (68%) were women and 14 (56%) were 46-55 years old. The mean level of medication adherence before intervention was low (score 5.64) and increased to moderate at the next measurements (week 2, 4, and 6) with mean score were 6.97; 7.20; and 7.42. Bivariate analysis showed a significant correlation ( $p = 0.001$ ) of SMS media to medication adherence improvement.

**Conclusion:** Short Message System (SMS) media has a significant impact to improve medication adherence in hypertensive patients and can be considered as a routine program in other chronic diseases.

Keywords: hypertension, medication adherence, short message system media





**58. Clinical Characteristics and Waiting Time for Patients Undergoing  
Coronary Artery Bypass Graft Surgery in Hasan Sadikin General Hospital Bandung:  
One Year Review**

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**Background:** Coronary Artery Bypass Graft (CABG) is an option of revascularization in coronary artery disease (CAD) patients. The lengthy waiting time and long queue for surgery, which may cause increased mortality and morbidity, remained a major concern especially in developing countries. Nonetheless, published study about waiting time for CABG in Indonesia remains scarce.

**Methods:** A descriptive retrospective study inclusive of all CABG surgeries in Hasan Sadikin General Hospital from April 1<sup>st</sup>, 2019 until March 31<sup>st</sup>, 2020 were performed. Those with incomplete records were excluded. Clinical characteristic evaluated were gender, age, traditional CAD risk factors, previous acute coronary syndrome, location of angiography, and angiographic diagnosis. Waiting time was defined as the time between date of CABG and date of angiography report stating suggestion for CABG. Echocardiographic parameter evaluated was Left Ventricular Ejection Fraction (LVEF) recorded before surgery. Data was taken from cardiac surgery reports, surgical conference reports and preoperative coronary angiography reports. No detailed data about health centre resources, queue time needed for supporting exams, and patients' indecisiveness.

**Results:** There were 76 surgeries performed with 1 patients excluded due to incomplete medical records. From remaining 75 surgeries, 81.3% were male, the patients' mean age was 58.22 ( $\pm$  7.99) years at the time of CABG, and smoking was the most frequent risk factor (66.67%). The median LVEF was 53.3 ( $\pm$ 12.5)%, and CAD 3 Vessels Disease was the leading angiographic diagnosis. The median waiting time from angiography to CABG was 274 (8 – 1083) days.

**Conclusion:** The waiting time for CABG surgery are still very lengthy. Multidisciplinary approach and further prospective study must be taken to shorten the waiting period and improve CAD patients' quality of life, especially when awaiting revascularization.

**Keywords:** angina, CAD, CABG, waiting time



**Table 1. Study Results (study population (n)=66)**

VARIABLE	RESULTS (%)
Gender	
- Male	61 (81.3)
- Female	14 (18.7)
Age during Coronary Artery Bypass Graft Surgery	58.2 ( $\pm$ 7.9) years*
Traditional Coronary Artery Disease Risk Factors	
- Smoking	50 (66.7)
- Hypertension	47 (62.7)
- Dyslipidaemia	30 (40.0)
- Diabetes	18 (24.0)
- Family History	8 (10.7)
Previous Acute Coronary Syndrome	36 (48.0)
Location of angiography	
- Hasan Sadikin General Hospital, Bandung	43 (57.3)
- Santosa Bandung Central Hospital	12 (16.0)
- Dustira Hospital, Cimahi	8 (10.7)
- Al-Islam Hospital, Bandung	8 (10.7)
- Others	4 (5.3)
Preoperative Left Ventricular Ejection Fraction	53.3 ( $\pm$ 12.5)%*
Angiographic Diagnosis	
- 3 Vessels Disease	43 (57.33)
- Left Main + 3 Vessels Disease	23 (30.67)
- Others	9 (12)
Waiting Time from Angiography to CABG	274 (8 – 1083) days**

\*Results shown as mean (standard deviation)

\*\*Results shown as median (minimum – maximum)



**59. The Prevalence of Atrial Fibrillation in Patients with Hypertensive Heart Disease  
at M. Djamil Hospital Padang**

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**Background :** Hypertension and atrial fibrillation (AF) are 2 important public health priorities. Both conditions are associated with aging and often coexist. Their prevalence is increasing worldwide, in which hypertensive patients tend to develop remodeling ventricle due to chronic and uncontrolled blood pressure and become one of risk factors of atrial fibrillation. The goal of this study was to determine the prevalence of atrial fibrillation in hypertensive heart patients hospitalized at Dr. M Djamil Hospital Padang.

**Methods :** We retrospectively evaluated baseline ECG and echocardiography in hypertensive heart patients from January to December 2019.

**Results :** This study enrolled 428 patients with hypertensive heart disease who had been hospitalized in the cardiac ward, aged from 46 to 86 (mean 66) years old. These patients been performed electrocardiography and echocardiography and recorded atrial fibrillation as 29 patients. Females were more symptomatic than males which have 51%. The finding of concentric hypertrophy (55%) from echocardiography seems to have a greater risk to develop AF, in which the highest prevalence was AF permanent about 18 patients (62%).

**Conclusion :** In our study, atrial fibrillation prevalence in hypertensive heart disease patients in Dr. M. Djamil Padang Hospital is as high as global data. There were more female patients, and their age means was older. The most common AF was permanent.

**Keyword :** atrial fibrillation, hypertensive heart disease



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**60. Laboratory Characteristics as a Risk Factors of patients with Acute Coronary Syndrome in Prof. Dr.**

**W. Z. Johannes General Hospital Kupang**

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**Background** : Coronary heart disease (CHD) is a disease with many accompanying risk factors. Many Studies show that both elevated blood cholesterol, glucose level and high serum uric acid are modified risk factors of atherosclerosis process, which underlies the development of CHD, including acute coronary syndrome (ACS).<sup>1</sup>

The aim of this study was to evaluate Laboratory Risk Factors which frequently found in patients with ACS in Prof. Dr. W. Z. Johannes General Hospital Kupang.

**Method** : This study was a retrospective descriptive study based on medical records of ACS patients in ICCU Prof Dr. W. Z. Johannes General Hospital Kupang between September to December 2019.

**Result** : During the course of study, there were 71 patients hospitalized with ACS. There were male 46 patients (65%) and female 25 patients (35%), from 30-79 years age group, with mean value of  $56.32 \pm 12.40$ . There were 34 patients (47.89%) with high fasting glucose level ( $\geq 110$  mg/dl) and 29 patients (40.85%) with high glucose 2 hours after meal ( $\geq 140$  mg/dl). The number of patients with high uric acid level ( $\geq 7.0$  mg/dl) was 28 patients (39.44%). There were 11 patients (15.49%) with high total cholesterol ( $> 240$  mg/dl), 9 patients (12.68%) with high and very high LDL cholesterol level ( $> 160$  mg/dl) and 43 patients (60.56%) with low HDL cholesterol level ( $< 40$ mg/dl). The number of patients with high / very high triglycerides level ( $> 200$  mg/dl or 500 mg/dl) was 5 patients (7.04%).

There were 42 patients (59%) with hypertension and currently smoking during the course of study.

**Conclusion** : This study demonstrated that the most commonly laboratory risk factor characteristic found in patient with ACS is low HDL cholesterol level. However, more data are needed in assessing ACS patient characteristics.

Keywords: ACS, Laboratory risk factor characteristic.



**61. Polysaccharide peptide of Ganoderma lucidum Reduce Inflammatory Process and Oxidative Stress In Patient's With Atrial Fibrillation : a Randomized Clinical Trial**

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**Background:** Previous studies shows that atrial fibrillation (AF) triggered by inflammatory process and oxidative stress. Ganoderma lucidum has an active substance in the form of  $\beta$ -glucan that can reduce inflammatory process and oxidative stress in rats. The objective of this study was to evaluate the role of Ganoderma lucidum for controlling the rate, rhythm, inflammatory process and oxidative stress in patients with AF.

**Material and Method :** It was Rndomized Clinical Trial with Single blind method. There were 68 patients with atrial fibrillation that was determined according ECG and medical record. We devided the patients into two group that matced for comorbidity and medicine that they were taken. Ganoderma lucidum extract 750mg was given to Intervention group (IG) in 3 divided dose for 90 days and placebo was given to Controlled group (CG). The parameters were inflammatory marker (HsCRP, IL-1, IL-6, and TNF- $\alpha$ ) and oxidative stress marker (superoxide dimustase (SOD), malondialdehyde (MDA), Transthoracic Echocardiography (Focused on LAVi), ECG (Focused on P Wave Duration and Dispersion) and quality of life (according SF 36 and SAQ) measured at baseline and after 90 day's of treatment.

**Results:** Ganoderma lucidum decrease heart rate significantly compared with placebo ( $-6.13 \pm 9.6/\text{min}$  vs.  $1.43 \pm 3.04/\text{min}$ ;  $P = 0.021$ ). Inflammatory marker such as TNF- $\alpha$ , IL-6, and IL-6 reduce significantly in IG compared with CG ( $-185.34 \pm 164.9 \text{ pg/ml}$  vs  $-21 \pm 87.12 \text{ pg/ml}$ ;  $p = 0.001$ ,  $(-23.03 \pm 107.3 \text{ pg/ml}$  vs.  $58.53 \pm 134.64 \text{ pg/ml}$ ;  $p = 0.000$ ;  $-23.03 \pm 19.46 \text{ pg/ml}$  vs.  $15.7 \pm 28.65 \text{ pg/ml}$ ;  $p = 0.025$ , respectively). Sod level in IG significantly increased compared with placebo,  $p = 0,021$ . MDA concentration significantly reduced in IG compared with placebo,  $p=0.002$ . P wave dispersion and P wave Maximal duration in IG were significantly decrease,  $p=0.046, p=0.004$ , respectively). Physical functioning, Limitation to physical health, Energy fatigue, Pain, and health change were significantly increase in IG ( $P=0.00, P=0.03, P=0.044, P=0.026, P=0.008$ , respectively)

**Conclusion:** Ganoderma lucidum can reduce inflammatory cytokine such as IL-6, IL-1, and TNF-  $\alpha$  production. Its can reduce oxidative stress by increasing SOD level and decreasing MDA level. Its significantly reduce P wave duration and P wave dispersion in patients with AF, and controlling the rhythm was significantly increasing the quality of life.

**Keywords :** Ganoderma lucidum, inflammation, atrial fibrillation, rhythm



## 62. The Effect of Additional Platelet Rich Fibrin (PRF) on Adipose derived Mesenchymal Stem Cells (AMSCs) Differentiation into Cardiomyocytes In Vitro

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**Background:** Coronary artery disease among other cardiovascular disease strongly influenced the quality of life whereas human adult cardiomyocytes has limited capacity for regeneration. Clinically there is no treatment to regenerate the infarcted myocardium. On this basis, cell therapy is an ideal solution to regenerate the damaged cardiac area. Obtaining Adipose-Derived Mesenchymal Stem Cells (AMSCs) increases yields and reduces the pain in a simple procedure compared to Bone Marrow-Derived Mesenchymal Stem Cells (BMSCs). And Platelet Rich Fibrin (PRF) is the newest revolution of platelet therapy which appears to have the ability to induce cardiomyocytes differentiation.

**Methods:** This study is a true experimental randomized post-test design study. AMSCs were isolated from adipose tissues and cultured until 4 passages. The characteristics of AMSCs were measured by the expression of CD 34-, CD 45- and CD 105+ using flowcytometry. The samples were then divided into 3 groups, negative control ( $\alpha$ -MEM), positive control (differentiation medium) and treatment group (PRF). The assessment of GATA-4 marker expression was conducted using flowcytometry on the fifth day and cardiac troponin T (cTnT) conducted using immunocytochemistry on the tenth day to evaluate the differentiation of cardiomyocyte. Data analysis were done using T-test and One-Way ANOVA.

**Results:** Flowcytometry on GATA-4 expression revealed significant difference on PRF group compared with negative and positive controls ( $68.20 \pm 6.82$  vs  $58.15 \pm 1.23$   $p < 0.05$ ;  $68.20 \pm 6.82$  vs  $52.96 \pm 2.02$   $p < 0.05$ ). This was supported by the results of immunocytochemistry on troponin T expression which revealed significant difference between PRF group compared with negative and positive controls ( $50.66 \pm 7.2$  vs  $10.73 \pm 2.39$   $p < 0.05$ ;  $50.66 \pm 7.2$  vs  $26.00 \pm 0.4$   $p < 0.05$ ). **Conclusion:** Additional PRF on AMSCs differentiation significantly improve the differentiation of cardiomyocytes measured by GATA-4 and cTnT expressions.

**Keywords:** Adipocyte-derived mesenchymal stem cells, platelet rich fibrin, growth factor, stem cell therapy



### 63. Predictive Role of Body Mass Index in Evaluating Coincident Peripheral Artery Disease in Coronary Artery Disease Patients

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**Background:** Mortality of coronary artery disease (CAD) was increased in patients with coincident peripheral artery disease (PAD). Early recognition of PAD could be useful in preventing further adverse events. Body mass index (BMI) has long been a traditional CVD risk factor in general population. However, in patients with a known history of CAD, the role of BMI to predict coincident PAD is unclear. This study aimed to investigate the relationship between BMI and PAD in patients with a known history of CAD.

**Methods:** This study was conducted in cardiac clinic, Dr. Soetomo Hospital, in February 2020. Known CAD patients proven by angiography were included. Patients with PAD history or had been undergone diagnostic evaluation for PAD were excluded. PAD was diagnosed by ankle-brachial index (ABI)  $\leq 0.90$  using Vasera VS-1500 (Fukuda Denshi, Tokyo). Correlation between BMI and ABI was evaluated using Pearson correlation test and chi-square test.

**Result:** A total of 50 patients were enrolled. 84% were male. Mean age was  $57.58 \pm 6.96$ . 56% of patients suffer triple-vessel CAD. Mean BMI and ABI were  $27.09 \pm 3.93$  and  $1.05 \pm 0.10$ , respectively. PAD prevalence was 12%. Higher BMI ( $>30 \text{ kg/m}^2$ ) were more likely to have diabetes mellitus ( $p=0.029$ ) and dyslipidemia ( $p=0.045$ ). Mean BMI was higher in PAD compared with non-PAD group ( $28.81 \pm 2.09$  vs.  $26.85 \pm 4.08$ ,  $p=0.256$ ). There was no correlation between BMI and ABI ( $p=0.975$ ) and no significant effect of increase BMI on risk of PAD (OR 1.33 (95% CI: 0.22 to 8.23) in BMI  $>30 \text{ kg/m}^2$  compared with BMI 18.5–29.9  $\text{kg/m}^2$ ).

**Conclusion:** BMI does not correlate with ABI and therefore failed to predict coincident PAD in our known CAD outpatients. A further study with a larger sample size was necessary to ensure the potential role of BMI in predicting coincident PAD in patients with history of CAD.

**Keywords:** body mass index, coronary artery disease, peripheral artery disease.



**64. The Incidence Of Heart Failure In Patient With Non Valvular Atrial Fibrillation At Hadrianus Sinaga Hospital**

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**Introduction** : Atrial fibrillation is an arrhythmia characterized by disorganization of atrial depolarization cause impaired atrial mechanical function. The symptom's such as : palpitation, fatigue, dyspnea, dizziness, chest pain. Heart failure is a condition where the heart cannot pump enough blood to the body's tissues that it caused by disorder diastolic or systolic function, heart rhythm disorders, and incompatibility between preload and afterload. The sign's such as : breathless, perifer edema, tachycardia, tachypnea, crackles, increased JVP. Atrial fibrillation and heart failure are two conditions that associated with high morbidity, mortality, and healthcare cost. Patients presenting with both atrial fibrillation and heart failure have a worse prognosis. This study aims to determine the incidence of heart failure in patients with atrial fibrillation pattern on ECG.

**Methods** : This type of study is descriptive research, the sample population in this study is patient with atrial fibrillation pattern on ECG with a sample size of 68 persons. The study was conducted at Hadrianus Sinaga Hospital Pangururan in November 2018 to June 2020. The data is processed by percentage calculation based on gender and age who have atrial fibrillation, the symptoms, and incidence of heart failure in atrial fibrillation patients.

**Results** : The gender that have atrial fibrillation are same for male and female (50 %). Most patient that have atrial fibrillation aged more than 65 years old (55.88 %). The main symptom of atrial fibrillation is dyspnea (52%). There is 64.70 % of patients with atrial fibrillation experience the incidence of heart failure.

**Conclusion** : The incidence of heart failure increase in patient who experience atrial fibrillation. This happened because both of atrial fibrillation and heart failure have similar risk factors and closely interrelated and shared pathophysiology.

**Keywords** : heart failure, atrial fibrillation.





### 65. Comparison of Heart Rate Recovery in Patients with Positive and Negative Ischemic Responses in Cardiac Treadmill Test

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**Background:** The increase in heart rate that accompanies exercise is due in part to a reduction in vagal tone. Recovery of the heart rate immediately after exercise is a function of vagal reactivation. Slow heart rate recovery (HRR) after exercise is considered to represent impaired parasympathetic tone and to be a predictor of all-cause and cardiovascular mortality, but the independent value of abnormal HRR in predicting the presence of coronary artery disease (CAD) is unknown. This study aimed to evaluate these comparisons in our patients.

**Methods:** This descriptive study using an independent sample T-test, conducted at M. Djamil Hospital in Padang, West Sumatera, from January to June 2020 in 87 patients with complaints of chest pain and a history of heart disease, aged 20 to 69 (mean 47) years. The value for HRR was defined as the decrease in heart rate from peak exercise to one minute and two minutes after the exercise ceased. We compared HRR in patients after exercise using the treadmill test with a positive and negative ischemic response.

**Results:** Positive ischemic response was found in 15 patients (17%), and angiography was recommended. There are differences in HRR in patients with positive and negative ischemic responses where HRR after 1 minute (HRR I) is  $13.4 \pm 5.92$  vs  $20.04 \pm 6.6$  ( $p=0.001$ ), whereas in HRR after 2 minutes (HRR II)  $31 \pm 10.89$  vs  $37.21 \pm 9.79$  ( $p=0.03$ ).

**Conclusions:** There are significant differences in HRR I and HRR II between patients with positive and negative ischemic responses using the treadmill test.

**Keywords:** heart rate recovery, treadmill testing, ischemic responses, coronary artery disease



## 66. Statin Therapy Decreases the Risk for Gastrointestinal Bleeding in Ischemic Stroke Patients with Atrial Fibrillation

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**Background:** Gastrointestinal bleeding (GIB) is a frequent complication and have an impact on poor prognosis. A recent study in stroke patients with atrial fibrillation suggests that concomitant treatment with statin decreases the risk of bleeding. We aimed to assess whether statin use decreases the risk of bleeding in ischemic stroke patients with atrial fibrillation.

**Methods:** The Design of this study was descriptive observational with a cross-sectional study using retrospective data from electronic medical records. We use data from our hospital-based Stroke Registry in Bethesda Hospital Yogyakarta, Indonesia. All patients who had a stroke and who were hospitalized within 7 days of symptom onset in participating hospitals were prospectively registered in this registry between January 2017 and December 2018. GI bleeding was defined as any episode of hematemesis or melena during hospitalization. The factors associated with GI bleeding were investigated using univariate and bivariate analyses. we adjusted for multiple confounding factors including age, gender, risk factors, and medication history. Data were analyzed using SPSS version 21.0 (IBM SPSS, Somers, N.Y., USA).

**Results:** The data were obtained from 96 ischemic stroke cases with atrial fibrillation. The study subjects consisted of 53 (55,2%) male and most of the patients aged more than 60 years old (91,7%). Gastrointestinal bleeding occurred in 8 (8.3%) patients. Patients with GIB complications were older males, had more comorbidities of hypertension and diabetes mellitus, and higher antiplatelet use than those with no GIB. Bivariate analyses revealed Statin had significantly associated with gastrointestinal bleeding. The presence of statin use impact to lower risk of gastrointestinal bleeding compared than AF patient without statin use. (  $p= 0,022$ ,  $OR=0,183$ ,  $95\%CI= 0,039-0,857$ ).

**Conclusion:** Statin therapy may be associated with a decreased risk for gastrointestinal bleeding in ischemic stroke patients with Atrial Fibrillation. Additional research is needed to further explore this putative association.

**Keywords:** statin , gastrointestinal bleeding , ischemic stroke, atrial fibrillation



67. The Survey of Anti Thrombotic Use for Secondary Stroke Prevention in Patient with Atrial Fibrillation: 53 Practicing Neurologist

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**Background** Stroke prevention in atrial fibrillation (AF) patients is very important. The aim of the study to survey the use of antithrombotic therapy patterns and to evaluate the accuracy treatment for secondary stroke prevention in patients with AF in practicing neurologists.

**Methods** This was a cross-sectional study using an online questionnaire distributed using Whats App social media applications. We assessed the antithrombotic use for secondary stroke prevention in a patient with AF in fifty-three practicing neurologist Indonesia then we perform analyses that differentiate the reasoning of antithrombotic use and those appropriate. We collected data about neurologist's gender, long experience, location and type of hospital, type of antithrombotic, type of antiplatelet, type of anticoagulation, reason for choosing the antithrombotic type and AF related stroke case in neurologist's work practices.

**Results** This survey also showed that the prevalence of AF related stroke ranged 5 - 10 % (47.2%). The rate of using anticoagulation for secondary stroke was 56.6% However, there was still using antiplatelet for secondary prevention of stroke (43.4%). The Pattern use of antithrombotic in stroke patients with AF showed that warfarin was the most widely used (41.5%) anticoagulation and using of NOAC were still low ( 17% Dabigatran, 13.2% Rivaroxaban). Reason for choosing the antithrombotic type was based on effectivity (67.9%), comfortable (54.7%), gastrointestinal safety (24.5%), renal function safety (73.6%) and price (50.9%). Bivariate analysis showed that the choosing antithrombotic pattern was not associated with neurologist's gender, long Experience, location and type of hospital, and prevalence of AF related stroke case in neurologist's work practices ( $p > 0,05$ ).

**Conclusion** The pattern use of antithrombotic in stroke patients with AF showed that warfarin was more widely used than NOAC at fifty-three neurologists practicing in Indonesia.

**Keywords:** stroke, atrial fibrillation antithrombotic



## 68. Overview of Causes Fibrinolysis Reperfusion was not Performed in STEMI Patients at WZ Johanes Hospital Kupang

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**Background:** Acute Coronary Syndrome (ACS) is a major cardiovascular problem with a high mortality rate. Myocardial infarction with ST segment elevation (STEMI) is one of the most severe ACS spectrum. The goal of initial treatment in the form of revascularization can be done with primary percutaneous coronary intervention (PCI) or fibrinolytic therapy. At present fibrinolytic therapy is still the treatment of choice in East Nusa Tenggara, but there is no data yet on how much fibrinolytic does not.

**Method:** The method to be used in this study is cross sectional with data taken from the patient's medical record. Samples of patients with ACS from September to December 2019 distinguished STEMI from non-STEMI, and those who received fibrinolysis therapy and those who did not receive fibrinolysis, and the reasons for not being given fibrinolysis.

**Results:** A total of 90 patients overall, with STEMI 41 patients (45.6%) and 23 patients (56.1%) who did not receive fibrinolysis therapy. More than half did not receive fibrinolysis due to an onset of more than 12 hours of 78.3% (n = 18). Most of the onset of more than 12 hours of 77.8% (n = 14) was referral from other hospitals, dominantly derived from referrals from inner-city hospitals 57.1% (n = 8). From hospitals in the city 62.5% (n = 5) had problems with the referral system.

**Conclusion:** From this study there are still many who have not received fibrinolytic reperfusion therapy due to the onset of more than 12 hours as the most cause. A better in-city referral system is needed.

**Keywords:** fibrinolysis, Streptokinase, ACS, STEMI



69. Registry on Acute ST-elevation Myocardial Infarction in Januari – June 2020 at RSUD Bangkinang  
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**Background:** Proper management is needed in treating ST- Elevation Myocard Infarction (STEMI) patients to reduce morbidity and mortality due to myocardial infarction even in non PCI capable peripheral hospitals. Early reperfusion management should be performed to limit the extent of myocardial damage unless clear contraindications are present. The aim of this study is to gather data on the characteristics, management and outcomes of patients hospitalized for STEMI in first semester of 2020 in RSUD Bangkinang.

**Methods :** Consecutive patients with STEMI who treated since cardiovascular services began operating in RSUD Bangkinang were included. Patients referred for primary PCI were excluded from the study. This was a descriptive retrospective study in patient with STEMI who underwent hospitalization in RSUD Bangkinang from January to June 2020.

**Results:** A total of 18 patients were included over the entire recruitment period, mean age was  $55,89 \pm 10,64$  years , 72,22% patients were men, 72,22% patients came to emergency departement within 12 hours onset, 44,44% were inferior STEMI, only 27,78% received intravenous fibrinolysis, smoking 66,67% was the most common risk factor among all patient. Aspirin, clopidogrel, statin, and low weight molecular heparin were given to all patient. Heart failure 61,11% became the most common complication in these patient. Only one patient died during treatment.

**Conclusion :** The first semester of Cardiovascular services in RSUD Bangkinang gave positif effect for outcome in management of STEMI patient. Although there are still many patients management that was incompatible with guidelines due to several reasons, cardiovascular services at RSUD Bangkinang have begun to facilitate cardiac patients who wish to remain treated in this place, especially for patients with acute myocardial infarction who need immediate management.

**Keywords**

STEMI management, Revascularization, RSUD Bangkinang



70. **Prognostic Value of Left Ventricular Global Longitudinal Strain and Fractional Shortening in Addition to Ejection Fraction in Patients with Acute Coronary Syndrome**

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**Background:** Residual left ventricular function will affect acute coronary syndrome (ACS) patient's prognosis. Global longitudinal strain (GLS) was a proved predictor of systolic function improvement and myocardial remodeling after ACS. However, not all echocardiography devices are equipped by speckle tracking (STE) as compare to the availability of M-mode modality which capable on assessing fractional shortening (FS) instead.

**Methods:** This study evaluated clinical and echocardiography parameters on myocardial infarction (MI) and non-MI ACS patients. Clinical outcome was defined as composite major acute cardiovascular event (MACE) on 6 months follow up.

**Results:** Over 145 patients, GLS>-9.4% was found to be an independent predictor of MACE despite of troponin, age, ejection fraction (EF), prior reperfusion and infarct location (HR 1.169; p<0.05). There is negative correlation between FS and GLS (Spearman r -0,717; p<0,01). By using logistic regression analyses, it was found that the addition of FS<25% to biplane EF<50% could be useful to rule in the presence of GLS>-9.4% (AUC 0.858).

**Conclusion:** GLS had a prognostic value in patients with ACS where left ventricular conventional M-mode FS in addition to EF can be considered as an alternative in predicting the incident of MACE.

**Keywords:** global longitudinal strain, prognosis, fractional shortening



**71. In-Hospital Outcomes in Acute Coronary Syndrome Patient with Stress Hyperglycaemia:  
Insight from West Sumatera Acute Coronary Syndrome Telecardiology Network Registry**

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**Background:** Hyperglycaemia is associated with in-hospital and long-term mortality in patients with myocardial infarction (MI). Unfortunately, there were only few reports about the relationship between glycaemia and prognosis in the acute phase of MI. We aim to assess the relationship between blood glucose level on admission and in-hospital major adverse cardiac event (MACE; cardiac death, acute heart failure, cardiogenic shock) in acute coronary syndrome patients treated with percutaneous coronary intervention (PCI).

**Methods :** Data were derived from the iSTEMI Network West Sumatera database between 1<sup>st</sup> Jan 2019 to 31<sup>th</sup> December 2019 with inclusion criteria is nondiabetic patients with ACS with random blood glucose level >200 mg/dL when admitted in emergency room. All of patients underwent PCI with successful result and the incidence of in-hospital MACE during the follow-up was documented.

**Results :** Among 317 patients, most of them are male (88%) with mean age  $57.43 \pm 10.4$  years, 287 (90.5%) were STEMI and 30 patients were UA/NSTEMI (9.5%). Seventy nine (24.9%) patient had hyperglycaemia. Incidence of in-hospital major adverse cardiac events 13.2% with cardiac death 6.0%, acute heart failure 3.2%, cardiogenic shock 10.4%. Patient with hyperglycaemia remained associated with increased risk for MACE 27.8% with odds ratio 4.2 (CI 95%, 2.148-8.239).

**Conclusion :** Elevated blood glucose level on admission predicts increased risk of in-hospital MACE in ACS patients whose underwent PCI. The study results could be used to guide risk assessment among ACS patients using admission glucose.

**Keywords.** Hyperglycaemia, acute coronary syndrome, major adverse cardiac event.



## 72. Waist to Hip Ratio Correlates with Severity of Coronary Artery Lesion in Patients with Stable Coronary Artery Disease

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**Background:** Obesity is still a growing problem of the international population until today. While it had long been established as independent risk factor of Coronary Artery Disease (CAD), recent clinical trials have shown that patients with higher Body Mass Index (BMI) displayed better cardiovascular survival. On the other hand, central obesity determined by waist to hip (WH) ratio has been said to be a more relevant risk factor of CAD. This study aimed to find the relationship between WH ratio and CAD severity in stable patients.

**Methods:** This was a cross-sectional prospective study conducted on May – August 2019 at Prof. Dr. R.D. Kandou Hospital, North Sulawesi. All suspected CAD patients who met the inclusion criteria went through anamnesis and physical examination including measurements of waist and hip circumference to calculate WH ratio. After further examinations, coronary angiography was performed to determine the existence and severity of coronary artery lesion determined by SYNTAX score. Data was statistically analyzed using the Pearson test.

**Results:** From a total of 41 patients, there were 12 female (29.3%) and 29 male (70.7%) with age ranging from 37 to 74 years. The mean WH ratio and SYNTAX score were 0.99 and 21.8 respectively. Statistical analysis showed a significant correlation between WH ratio and severity of CAD according to SYNTAX score ( $p=0.029$ ).

**Conclusion:** Waist to hip ratio is correlated with the severity of coronary artery lesion in stable coronary artery disease patients.

### Keywords:

Waist to hip ratio, SYNTAX score, stable coronary artery disease.

Table

Correlations			
		SYNTAX Score	W/H ratio
SYNTAX Score	Pearson Correlation	1	.341*
	Sig. (2-tailed)		.029
	N	41	41
W/H ratio	Pearson Correlation	.341*	1
	Sig. (2-tailed)	.029	
	N	41	41

\* Correlation is significant at the 0.05 level (2-tailed).





### 73. Risk Factor Profile of Younger and Older Acute Coronary Syndrome Patients in East Nusa Tenggara

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**Background:** The burden of Acute Coronary Syndrome (ACS) remains a public health issue in East Nusa Tenggara as it contributes significantly to patient morbidity and mortality. Identifying risk factor is essential to promote primary and secondary prevention of the disease. This study aims to analyze risk factors of ACS patient in East Nusa Tenggara population based on age group.

**Methods:** This cross-sectional study recruited ACS patients in the intensive cardiac care unit of RSU Prof. Dr.WZ Johannes Kupang between September 2019-January 2020. Demographic data were obtained from medical record. We analyzed the proportion of risk factors between two age groups;  $\leq 55$  years old (n=37) vs  $>55$  years old (n=39) using Chi-Square test.

**Results:** A total of 76 subjects were included in this study. Subjects were predominantly male (73.7%) with a mean age of 55 years old. Among all, 40.3% had previously experienced angina, 2.6% had stroke, 7.8% had heart failure, and 6.5% had family history of coronary artery disease. Modifiable risk factor such as hypertension, smoking, hypercholesterolemia, and diabetes accounted for 44.7%, 41.6%, 28.9%, and 17.1% respectively. There were significant differences of risk factors proportions in patients  $\leq 55$  years old and  $>55$  years old. Smoking and male gender were more associated with patients  $\leq 55$  years old ( $p < 0.001$ ). Hypertension ( $p = 0.04$ ) and hypercholesterolemia ( $p = 0.03$ ) were associated with patients  $>55$  years old. There was no significant difference of diabetes melitus risk in both age group ( $p = 0.42$ ).

**Conclusions:** In East Nusa Tenggara population, being male and smoker presented as the dominant risk factor for ACS in younger adults while hypertension and hypercholesterolemia are more commonly seen in the older population. Early detection of modifiable ACS risk factor need to be assessed and managed as early as possible to prevent the incidence and recurrence of ACS.

Keywords: Acute Coronary Syndrome, Risk Factor, East Nusa Tenggara



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74. **The Relationship Between Hypertension and Left Ventricular Hypertrophy Against The Incidence of Atrial Fibrillation Among Cardiac Arrhythmia Patients at Fatmawati Hospital Jakarta In January – September 2017**

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<sup>2</sup> Presidential Hospital, RSPAD Gatot Soebroto, Jakarta, Indonesia

**Background:** Atrial fibrillation (AF) is the most common type of cardiac arrhythmia found in current medical practice and causes a person go through a hospitalization. Currently, there is increasing evidence of high incidence of AF in patients with hypertension, and highly prevalent non cardiovascular diseases, such as Diabetes Mellitus (DM). On the other side, left ventricular hypertrophy (LVH) is a target organ damage to the heart with a high prevalence of occurrence found in people with hypertension.

**Methods:** The method of this research used to determine the relationship between hypertension and LVH against the incidence of AF in cardiac arrhythmia patients with cross sectional approach.

**Results:** According to Chi Square test, obtained P-value < 0.05 which showed that there was a significant relationship between hypertension and LVH in AF events. According to logistic regression test, patients with hypertension will 0.089 times more likely to develop AF than patients without hypertension and patients with LVH will have 48.021 times more likely to develop AF than patients without LVH.

**Conclusion:** The presence of LVH is known as a stronger risk factor than hypertension, smoking or dyslipidemia and LVH may increase the risk of cardiovascular events by more than two to threefold. Myocardial hypertrophy based on ECG or echocardiography is a strong risk factor for cardiovascular morbidity (including congestive heart failure (CHF), Coronary Arterial Disease (CAD), AF, supraventricular and ventricular arrhythmias, and stroke) and mortality in general population, hypertensive patients, and in patients with CAD

**Keywords:** Atrial Fibrillation, hypertension, Left Ventricular Hypertrophy



## 75. Clinical and Coronary Angiographic Profile in Young Adults Presenting with ST-Elevation Myocardial Infarction: A Single Center Experience

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**Background and Objective:** Myocardial infarction (MI) is one of the leading cause of morbidity and mortality worldwide. Although it is relatively uncommon in young adults as compared to the older population, it is afflicting young individuals more frequently nowadays. Our objective was to assess clinical and angiographic profile in adults aged less than 40 years, presenting with ST-Elevation myocardial infarction (STEMI) as data from our population in Indonesia is rare.

**Methods:** This is a cross-sectional, retrospective, and single centre study with patients  $\leq 40$  years old admitted for STEMI to our hospital (dr. Kariadi General Hospital Semarang) from January 2016 to June 2020. Baseline clinical characteristics, coronary anatomy, and outcome were further analyzed.

**Result:** Of total 1021 patients who admitted with STEMI during the study period, 43 (4.2 %) were  $\leq 40$  years old. The mean age of patients was  $36.69 \pm 3.93$  years, and predominantly male (97.7%). The major risk factor was dyslipidemia, followed by active smoker, obese, and hypertension with prevalence 76.7%, 72.1%, 58.1%, and 37.2% respectively. The most common anatomical location for the MI was the anterior wall. Significant coronary artery disease was found in 90.7 % patients, with most patients had single vessel disease followed by double-vessel disease. Four patients (9.3%) had non significant CAD. Left anterior descending (LAD) was the mostly involved followed by right coronary artery. In-hospital mortality was 9.3%

**Conclusion:** STEMI in young adults almost exclusively occurs in male, and most commonly present as anterior STEMI owing to occluded LAD. Dyslipidemia especially low HDL-C, smoking, and obesity were the most common risk factor. Thus, it is important to identify and implement aggressive measures in tackling these risk factors in order to prevent or halt the development of coronary artery disease, especially in young population.

**KEY WORDS:** STEMI, Young adults, Indonesia



## 76. The Relationship Between Leukocyte Count And Troponin-T Level In Patients With Acute Myocardial Infarction

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Sam Ratulangi University Medical School

**Background.** Cardiac enzymes test to establish the diagnosis of acute myocardial infarction was not readily available in all primary health care facility in Indonesia, although early diagnosis is very important to prevent further complication. Therefore, in some circumstances it is necessary to find easier and cheaper alternatives. LEUKOCYTE count and TROPONIN-T tests are relatively easy to do. Some studies have shown elevated LEUKOCYTE count in myocardial infarction. The purpose of this study was to determine the relationship between LEUKOCYTE count with TROPONIN-T level in patients with acute myocardial infarction.

**Method.** The data in this study were taken according to the cross sectional study design. Data were obtained from 40 acute myocardial infarction patients whom during January-May 2019 were treated at Prof. dr. R.D. Kandou General Hospital. A correlation test with SPSS program was used to find out the relationship between leukocyte count and Troponin-T levels.

**Result.** The study data were taken from 40 patients with acute myocardial infarction, consisting of 32 male patients and 8 female patients, with the age range of 35-85 years old. The mean leukocyte count was  $13.980,0 \pm 4.042,67$  and the average Troponin-T level was  $1180.50 \pm 744.01$ . The data were not normally distributed so the Spearman Correlation Test was used, the results obtained that there was no significant relationship between Leukocyte count and Troponin-T level in patients with acute myocardial infarction (**p = 0.258, r = 0.183**).

**Conclusion.** There was no significant relationship between Leukocyte count and Troponin-T level in patients with acute myocardial infarction. Examination of leukocyte count associated with Troponin-T levels may not be used as an alternative test to the diagnosis of acute myocardial infarction.

**Keywords:** Leukocytes, Troponin-T, acute myocardial infarction



**77. Admission Anemia in Patient with Acute Myocardial Infarction:  
“Does Severity of Anaemia Related to Mortality in Acute Myocardial Infarction Patient?”**

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Dr. Sardjito General Hospital, Yogyakarta, Indonesia.

**Background:** The presence of anemia is common in hospitalized cardiac patients. Many studies have shown that anemia identified as an Independent Predictor of Mortality in Acute Myocardial Infarction patients. The majority of previous studies focused on comparing those with and without anaemia. However, since it is a common condition found in hospitalized patients, severity of anaemia might be important to consider. This study aimed to investigate the association between admission anemia and mortality in Acute Myocardial Infarction Patient.

**Method:** The data was derived from Sardjito Cardiovascular Intensive Care Registry. We enrolled 802 patient with Acute Myocardial Infarction from January 2019 to January 2020. Hemoglobin value was determined on the first admission. We defines anemia as a serum hemoglobin level <13 g/dl for men and a level <12 g/dl for women. Mild anemia was defined as Hb level of 11 to < 12 g/dL in women and 11 to < 13 g/dL in men. Moderate to severe anemia was present when Hb level was below 11 g/dL. Since only 11 patients had severe anemia (Hb < 8 g/dL), no further subdivisions were made.

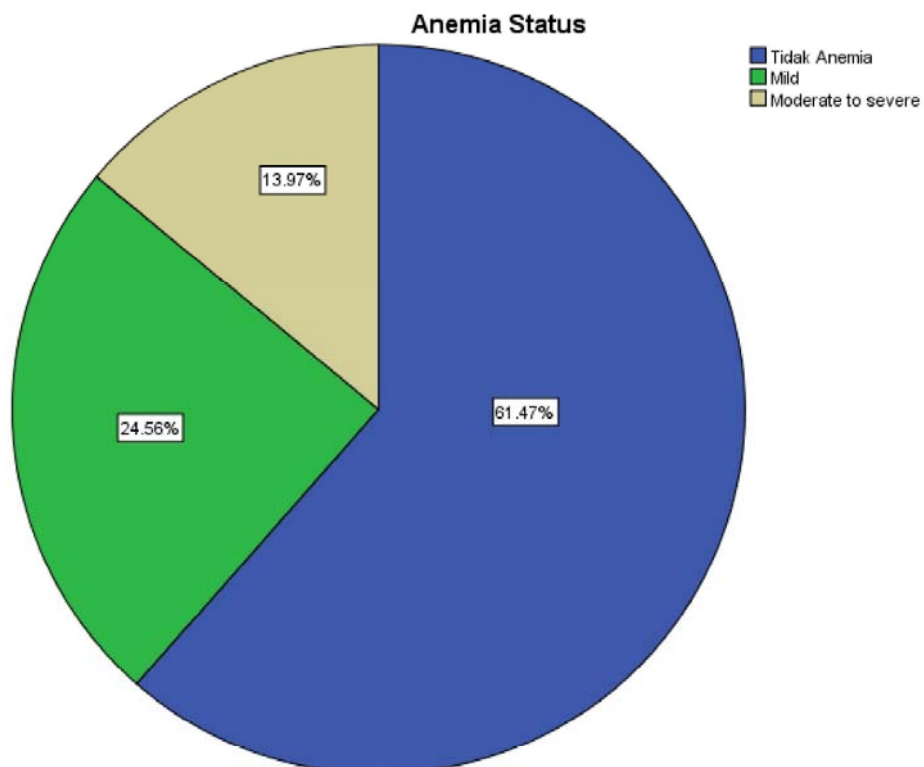
**Result:** In total, 802 Acute Myocardial Infarction Patient, (34%) were considered anemic. Among those patients 161 (20.1%) were mildly anemic, whereas 112 (14%) had moderate to severe. Male patients accounted for 80,4% of the total study population and 420 (52.4%) patients were >60 years old. Based on data analysis we found significant correlation ( $p=0.004$ ) between anemia and mortality. From baseline data we also found those with moderate to severe anemia had a higher percentage of mortality (24,1%) if compared to those in mild group of anemia. Surprisingly, statistically there was no significant correlations between severity of Anemia to Incidence of mortality in this study ( $p= 0.102$ ).

**Conclusion:** In conclusion, presence of anemia significantly associated to mortality. However, even though our result showed there was no significant correlation with its severity, low admission HB level needs to be considered as a predictor mortality in Patient with Acute Myocardial Infarction.

**Keywords:** Anemia, Hemoglobin, Acute Myocardial Infarction, Mortality.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.045 <sup>a</sup>	2	.000
Likelihood Ratio	15.416	2	.000
Linear-by-Linear Association	9.061	1	.003
N of Valid Cases	802		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is .13.





**78. Primary PCI in Acute ST-elevation Myocardial Infarction in Covid – 19 era :  
“ Is Wire Crossing Time Still Important?”**

Khairina.H<sup>1</sup>, Haidar.S<sup>1</sup>, Bagaswoto HP<sup>1</sup>,

<sup>1</sup> Dr. Sardjito General Hospital, Yogyakarta, Indonesia.

**Background:** Primary PCI is the preferred reperfusion strategy in patient with Acute ST-elevation myocardial infarction. In Covid 19- era, patients who undergo primary coronary intervention with unknown COVID-19 status are treated as potential COVID-19, since aerosolization during intubation or cardiopulmonary resuscitation in the catheterization laboratory is possible. Due to health care system factors related Covid-19, time from patient arrival at the catheterization laboratory to successful wire crossing potentially to be delayed. Recent study shown delayed in wire crossing time may worsen the outcome. Hence, this study aims to analyze whether wire crossing time contribute to the worst outcome during pandemic.

**Method:** Data was obtained from Sardjito Cardiovascular Intensive Care Registry. We enrolled 38 patient with Acute ST-elevation myocardial infarction from March 2020 to July 2020 during Covid-19 Pandemic. The current Guidelines recommend Wire Crossing Time  $\leq 120$  minutes from STEMI diagnosis to wire crossing. We grouping wire crossing time into 2 group which is delayed and non delayed. Chi square correlation used to analyze two group of wire crossing time and mortality.

**Result:** In total, from 38 patient that performed primary coronary intervention, data showed that 27 (71,4%) patient had delayed wire crossing time. Among those patients, mean time of wire crossing time was 191 minutes. We also found mortality case in 21,1%. Based on the statistic data we found that 25,9% delayed wire crossing time patient had a higher mortality rate if compared to non delay group. Meanwhile, statistically it didn't show any significant relation in delay status of wire crossing time with mortality ( $p = 0.248$ ).

**Conclusion:** Due to the COVID-19 outbreak, time from patient arrival at the catheterization laboratory to successful wire crossing, were also delayed. However, this study showed insignificant relation regarding wire crossing time toward mortality rate.

**Keyword:** Wire Crossing Time, Covid 19, STEMI, Mortality.



			Mortalitas		Total
			Meninggal	Tidak Meninggal	
delay_status	No delay	Count	1	10	11
		% within delay_status	9.1%	90.9%	100.0%
	Delay	Count	7	20	27
		% within delay_status	25.9%	74.1%	100.0%
Total		Count	8	30	38
		% within delay_status	21.1%	78.9%	100.0%

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.333 <sup>a</sup>	1	.248		
Continuity Correction <sup>b</sup>	.512	1	.474		
Likelihood Ratio	1.508	1	.219		
Fisher's Exact Test				.395	.245
N of Valid Cases	38				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.32.  
b. Computed only for a 2x2 table





### 79. Acute Coronary Syndrome During The Pandemic: What Changes?

Haidar S<sup>1</sup>, Bagaswoto HP<sup>1</sup>, Khairina H<sup>1</sup>  
Sardjito General Hospital, Yogyakarta

**Background:** Acute coronary syndrome (ACS) is a common reason for hospital admission. During the pandemic, studies have shown decline in hospitalization for ACS globally. There are concerns about fear of getting infected and economic lockdown that may prevent/delay patients from going to the hospital. Other concern is about how the infection prevention and control may affect the management of ACS patients. This study aimed to evaluate the impacts of the pandemic in ACS presentation and management.

**Methods:** This is a cross-sectional, observational study. The population of the study is 422 patients with ACS in Sardjito General Hospital divided into two groups: before COVID-19 pandemic (November 2019–February 2020) and during the pandemic (March–June 2020). Variables are presented in absolute numbers and percentages. Chi square test is used to test the significance of differences between the two groups.

**Results :** There are 297 patients admitted before the pandemic. During the pandemic, there is a 57.9% decline of admission (125 patients). The decline is greater in ST-ACS (60.4%) compared to NST-ACS (54.7%). However, there are no significant differences in the distribution of the two subgroups ( $p=0.374$ ). Baseline characteristics of the patients such as age and sex also shows no significant differences. The difference in complications of ACS between the two periods is also trivial. Interestingly, pneumonia occurs more often during the pandemic ( $p=0.000$ ). There is no remarkable difference of outcomes in the two subgroups.

**Conclusions :** There is a substantial decrease of ACS admission during the pandemic. However there are no significant difference in patient presentation and outcomes. Bigger studies are needed in other areas to see the wider perspective of how the pandemic impacts ACS patients.

**KEYWORD:**

COVID-19, acute coronary syndrome, pandemic



## 80. Late Presentation In STEMI Patients During The Covid-19 Pandemic: What Does The Data Tell Us?

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Sardjito General Hospital, Yogyakarta

**Background :** Multiple reports have shown that time to reperfusion in patients with ST-segment elevation myocardial infarction (STEMI) is associated with improved outcomes. While healthcare systems have improved wire-crossing time over the last few decades, patient-related delay remains a challenging factor. During the COVID-19 pandemic, there are concerns that patients may be late in seeking medical care due to fear of infection. This study is aimed to see if there are more late presentation of patients with STEMI in the pandemic era.

**Methods :** This is a substudy of Sardjito Cardiovascular Intensive Care (SCIENCE) registry. We registered 276 patients admitted with STEMI to cardiovascular care unit in Sardjito General Hospital before and during the COVID-19 pandemic. Patients are divided into two groups: before pandemic (November 2019-February 2020) and during pandemic (March-June 2020).

**Result :** There were 276 STEMI patients that were included in this study. Two hundred and three patients are registered in the 'before pandemic' group with mean time from onset of symptom to first medical contact (FMC) is 14.84 hours (+/- 21.23). Similar number is found in the 'during pandemic' group, there were 74 patients with mean time to FMC 14.24 hours (+/- 14.03, p=0.821). We analyzed further by categorizing the data into 'late presentation' (defined as time to FMC > 12 hours). There were 141 patients (69.5%) in the before pandemic group with late presentation, and 51 patients (69.9%) in the 'during pandemic' group. There is no significant difference (p=0.949) between the two groups.

**Conclusion :**

Late presentation in STEMI patients is still very common. However, there is no significant increase of delay from symptom to FMC during the pandemic.

**KEYWORD**

STEMI, pandemic, COVID-19, patient-delay

### 81. The Progression and the Predominance of Heart Diseases among Patients with Primary Hypertension in Banyuwangi, the Far Eastern End of Java Island

Eliana Susilowati<sup>1</sup>, Liastutik<sup>1</sup>, Dadang Tripitoko<sup>1</sup>

<sup>1</sup>Sobo Primary Health Care, Banyuwangi

**Backgrounds:** The aim of this study was to investigate the progression time and the predominance of heart diseases among patients with newly diagnosed primary hypertension in Banyuwangi.

**Methods:** This study was an observational study in Banyuwangi using Simpudwangi Medical Record system, a Governmental Health Department-developed electronic medical record. A total sample of 516 newly diagnosed primary hypertension patients from the year 2014 to 2019 were included in this study. The samples were obtained using cluster sampling, located in Sobo region, a District in Banyuwangi. The progression to the heart diseases was followed-up annually until the year 2019. Types of heart diseases overt in these hypertensive patients were documented and analyzed. The average time of the progression from primary hypertension to the development of heart diseases between the time range of this study were calculated.

**Results:** The average age of the first documented primary hypertension was  $54.83 \pm 15.8$  years old. Female gender was more prevalent in this population, they were 61.8% (319 patients) and the male gender was 38.2% (197 patients). The median follow-up time was 3 years. In this follow-up time range, 5.4% of patients with primary hypertension developed heart diseases with the predominance of hypertensive heart disease (2.7%), followed by heart failure in 0.6% of patients, arrhythmias in 1.4% of patients, and a documented coronary artery disease in 0.8% patients. There was no significance in the average of the progression time among the heart disease types in this study population.

**Conclusion:** Prevention of heart disease progression is essential in the patients with primary hypertension. 5.4 % of hypertensive patients developed heart disease (hypertensive heart disease, heart failure, arrhythmias, and/or coronary artery disease) in median time of 3 years, without significant difference of the progression time among the heart disease types.

**Keywords :** hypertension, heart disease, Banyuwangi

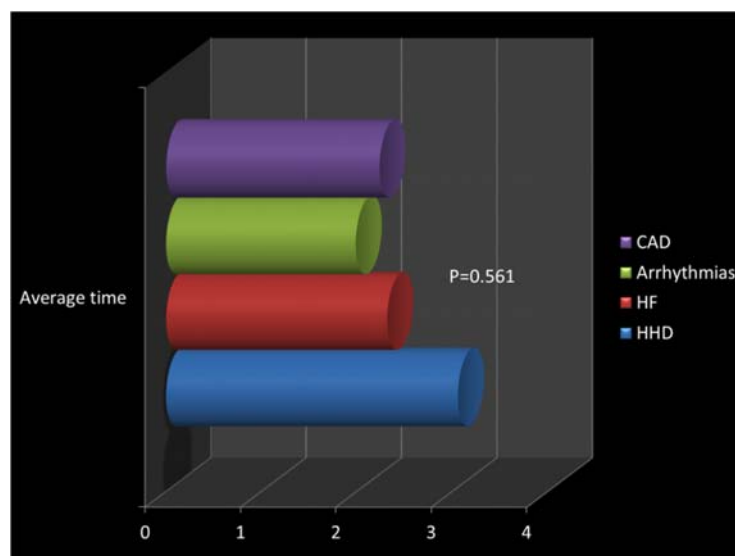


Figure 1. The average time of developing heart disease among patients with primary hypertension



**82. Association between Neutrophil-Lymphocyte Ratio and Severity of Mitral Stenosis in dr. Sardjito General Hospital, Yogyakarta**

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**Background:** Mitral stenosis (MS) is still prevalent in developing countries, such as Indonesia, due to its relation with acute rheumatic fever. In patients with MS, the ongoing chronic inflammation causes the progression of valvular damage. Recent studies show that Neutrophil-Lymphocyte Ratio (NLR) is a significant marker of inflammation, especially in cardiovascular disease. The aim of this study is to analyze the association between NLR and MS severity.

**Methods:** This cross sectional study evaluated patients from Mitral Stenosis Registry of dr. Sardjito General Hospital starting from May 2014 until July 2020. Subjects were patients with mitral stenosis, with or without pulmonary hypertension, who had no other significant valvular abnormalities. Subjects' blood samples were analyzed. All subjects underwent transthoracic echocardiography using commercially available echocardiography machine. Severe MS was defined as mitral valve area (MVA)  $\leq 1$  cm<sup>2</sup>, while mild to moderate MS was defined as MVA  $> 1$  cm<sup>2</sup>. The association between NLR and MS severity was evaluated using Independent-Samples T test.

**Results:** A total of 201 subjects (mean age 43.45 $\pm$ 11.05 years old; 74.1% female) who met the inclusion and exclusion criteria were enrolled consecutively in this study and divided into 2 groups. Those in group 1 (151 subjects; mean age 42.93 $\pm$ 10.16 years old; 71.5% female) had severe MS and those in group 2 (50 subjects; mean age 45.04 $\pm$ 13.38 years old; 82% female) had mild to moderate MS. NLR values were higher in group 1 compared to group 2 (3.2 $\pm$ 1.6 vs 2.8 $\pm$ 1.6), however the finding was not statistically significant (p=0.160). The lymphocyte percentage were significantly lower in group 1 compared to group 2 (23.6 $\pm$ 7.08% vs 26.6 $\pm$ 8.69%; p=0.015).

**Conclusion:** There was no significant association between Neutrophil-Lymphocyte Ratio and mitral stenosis severity. However, there was significant association between lymphocyte percentage and mitral stenosis severity.

**Keywords:** Mitral Stenosis; Neutrophil-Lymphocyte Ratio; Inflammation



### 83. Predictors of In-Hospital Mortality Among ST-Segment Elevation Myocardial Infarct Patients Treated with Standard Unfractionated Heparin

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**Background and Objective:** Acute myocardial infarction is the main cause of global and in-hospital mortality in patients with cardiovascular diseases. The aim of this study is to evaluate and to identify the predictors of in-hospital mortality and major cardiac events among ST-Segment Elevation Myocardial Infarct (STEMI) patients.

**Methods:** This study conducted using cross-sectional research design using retrospective data from medical records for patients diagnosed with STEMI for one year. The data were analyzed using SPSS version 25. The correlation were assessed using Chi-square.

**Results:** A total of 70 STEMI patients were studied and more common in males (72.9%). The mean age was 62.54±12.11 years and most patient were in age group 61 – 70 years. Most patients were having anterior wall infarction (31.4%), Killip I (67.1%), moderate VAS Score (65.7%), presented in the hospital after onset in >1 – 6 hours duration (57.1%), and 5 – 8 days of hospital stay (70%). Mean BMI was 24.53±3.42 and most of the patient (47.1%) were normal weight and 41.4% patients were overweight. Most common symptoms was chest pain (85.7%), sweating (61.4%), and breathlessness (60%). Most common risk factor was hypertension (81.4%) and tobacco consumption (42.9%). Most common complication was congestive heart failure (45.7%), arrhythmias (15.7%), and cardiogenic shock (14.3%). The in-hospital mortality rate was 18.6%, consisted of 7 males and 6 females. The predictors that associated with in-hospital mortality was age (p=0.002), Killip class (p=0.001), vas score (p=0.001), breathlessness (p=0.008), arrhythmias (p=0.013), and cardiogenic shock (p=0.001).

**Conclusion:** Age, killip class, vas score, breathlessness, arrhythmias, and cardiogenic shock was associated with in-hospital mortality for STEMI patients treated with Standard Unfractionated Heparin.

**Keywords:** heparin, in-hospital mortality, predictor, stemi.



### 85. Combining Electrocardiography Criteria for Detecting Left Ventricular Hypertrophy

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**Background:** Patients with left ventricular hypertrophy (LVH) have a high risk of developing acute coronary syndrome, heart failure and sudden cardiac death. Electrocardiography (ECG) is a simple diagnostic tool to detect LVH. There are many ECG criteria for LVH that are commonly used, however all of these criteria have poor sensitivity. The aim of this study was to evaluate the diagnostic capabilities of a combined ECG criteria to detect LVH.

**Method:** A cross sectional study was conducted on 126 patients that previously underwent ECG and echocardiography examination at Universitas Sumatera Utara General Hospital. The ECG result was assessed to determine LVH using single ECG criteria and with a combination of two ECG criteria. The criteria used were Sokolow-Lyon, Cornell Voltage, Cornell Product and Peguero-Lo Presti criteria. For the combined ECG criteria, the patient was considered positive for LVH when at least one of the two criteria was met and was considered negative for LVH when none of the criteria was fulfilled. LVH was defined as a left ventricular mass (LVM)  $\geq$  225 grams in male subjects and  $\geq$  163 grams in female subjects, which was assessed using echocardiography with the M-mode method. Sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and accuracy of the single and combined ECG criteria was then measured.

**Result:** The result showed that the use of the combined Cornell Product and Peguero-Lo Presti criteria produced a 56.8% sensitivity, 69.2% specificity, 72.4% PPV, 52.9% NPV and 46.0% accuracy. On the other hand, the use of single ECG criteria showed values in sensitivity (13.5%-48.6%), specificity (69.2%-94.2%), PPV (66.7%-86.4%), NPV (42.3%-52.5%) and accuracy (11.9%-38.9%).

**Conclusion:** The combined criteria of Cornell Product and Peguero-Lo Presti increases the sensitivity of ECG as a diagnostic screening tool.

**Keyword:** combined criteria, electrocardiography, left ventricular hypertrophy



## 86. Respiratory Infection in Acute Decompensated Heart Failure: How Serious It is A Retrospective Study in M. Djamil General Hospital

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**Background:** Respiratory infection is a condition that is often ignored by people with Acute Decompensated Heart Failure (ADHF). This condition can pose a threat that should be taken into account if left unchecked. It can have an impact on the increasing number of rehospitalization and the mortality rate. Therefore, this research aims to find evidences as the basic consideration for early detection and prevention of respiratory infection.

**Methods :** The methodology used is the retrospective studies among patients admitted with ADHF in M. Djamil General Hospital, Padang from January to December 2019. There were 140 ADHF patients enrolled ( $50 \pm 20$  years, 68.6% men and 31.4% women). It is designed to look for the number of the rehospitalization and the in-hospital mortality rate as the primary endpoint.

**Results :** We found that there is a prevalence of rehospitalization in ADHF patients of 9.3% and based on the prevalence number, there are 84.6% of patients experienced respiratory infection (54.5% men and 45.5% women). We also found that the mortality rate of ADHF patients was 5.71% and 50% of them were caused by shock sepsis due to severe respiratory infection (60% women and 40% men).

**Conclusion :** Based on the results, it is shown of how important it becomes to prevent and treat respiratory infection in ADHF patient

**Keywords:** Respiratory infection; Acute Decompesanted Heart Failure.



### 87. Subclinical Impairment of Left Ventricular Function by Endocardial Global Longitudinal Strain in Preeclampsia and After Preeclampsia

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**Backgrounds:** Preeclampsia (PE) is associated with both immediate, as well as long-term postpartum morbidity and mortality due to cardiac-related issues. Although cardiovascular risk is increased after PE, a direct causative relationship has not yet been determined. Speckle tracking echocardiography (STE) imaging by global longitudinal strain (GLS) has been shown to have superior prognostic value to conventional measures for predicting major adverse cardiac event. As acquired myocardial disease processes often develop firstly in the endocardium, the endocardial GLS may be more sensitive than transmural GLS. This study examined endocardial GLS in women with PE and women after PE.

**Methods:** The study population included women with a recent or prior diagnosis of PE at Cardiology and Vascular Medicine Department, Dr. Kariadi Hospital between January 2018 and February 2020. We analysed two group of woman with PE and after PE. After PE group consist of woman whose previously diagnosed as PE, that were examined 3 until 6 months after delivery. We excluded women with any of the following cardiovascular risk factors: smoking habit, dyslipidemia, diabetes mellitus, or chronic hypertension, as well as those with multiple pregnancy, gestational hypertension or PE superimposed on chronic hypertension.

**Result:** Twelve woman with PE have high blood pressure (systole  $175.4 \pm 13.5$ ; diastole  $105.7 \pm 8.5$ ), 10 woman after PE have normal range blood pressure (systole  $131 \pm 12.9$ ; diastole  $82.8 \pm 6.9$ ). Left ventricular (LV) ejection fraction were preserved and did not differ between groups. LV myocardial function by endocardial LV global longitudinal strain (LVGLS) was significantly decreased in both groups. However, there were no significant difference of LVGLS between PE and after PE woman ( $-11.5 \pm 3.2\%$  and  $-12.7 \pm 2.9\%$ ,  $p=0.395$ ).

**Conclusion:** Strain echocardiography using speckle tracking may help detect subclinical left ventricular dysfunction in women with preeclampsia. Persistence of cardiac abnormality after preeclampsia may provide association between preeclampsia and increased cardiovascular morbidity and mortality later in life.

Keywords: preeclampsia, left ventricle, endocardial global longitudinal strain, echocardiography





## 88. Overview of Ischemic ECG Changes and New-Onset Arrhythmias in Patients Underwent Elective Percutaneous Coronary Intervention in AWS Hospital Samarinda and Its Implication to Periprocedural Myocardial Injury events

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**Background/Aim:** Ischemic electrocardiogram (ECG) changes and new onset arrhythmia can occur after the PCI procedure, which is also associated with the increase in cardiac biomarkers post PCI, known as periprocedural myocardial injury (pMI) that associated with increase mortality post PCI. The purpose of this study is to describe the ischemic ECG changes, new-onset arrhythmia, and pMI in patients undergoing elective PCI.

**Method:** This is a descriptive study conducted with a prospective cohort study, enrolls 36 patients who received elective PCI from May to October 2019 in RSUD AWS Samarinda and filled the study criteria. Inclusion criteria: patients who received elective PCI for single or multiple lesions in one, two, or three major native coronary arteries; CK-MB before the procedure is normal; stable state; successful PCI result (TIMI 3 flow); absence of major side branch occlusion or distal embolization. Exclusion criteria: unstable state; ventricular conduction disturbance; other procedural complications. Periprocedural myocardial injury (pMI) was evaluated by measuring CK-MB levels at 16 hours post PCI. Ischemic ECG change (new pathologic Q wave/ ST-segment deviation/ T wave inversion in one or two lead contiguous) and new-onset arrhythmias was evaluated by comparing ECG data right before and after the procedure.

**Result:** In this study, 19.4% (7 people) samples experienced ischemic ECG changes (transient isolated T wave inversion), 5.6% (2 people) samples experienced new onset atrial fibrillation (AF), and 2.8% (1 person) sample experienced premature ventricular contraction (PVC). Periprocedural myocardial injury (pMI) occurred in 13 (36,1%) out of 36 patients. All patient that had ischemic ECG changes and new-onset atrial fibrillation experienced pMI.

**Conclusion:** Transient isolated T wave inversion, new-onset atrial fibrillation, and new-onset PVC can occur after PCI. Thus, ischemic ECG changes and atrial fibrillation may have implications to pMI events.



## 89. Incidence of Complications and Antihypertensive Medication Adherence in Recently Diagnosed Cases

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**Background:** Hypertension is one of the major risk factor for cardiovascular morbidity and mortality. Despite the studies of medication benefit in lowering the incidence of cardiovascular disease, low medication compliance is now a general issue to the occurrence of complications worldwide. Through this study, we assessed the risk of cardiovascular disease in terms of antihypertensive medication adherence (MA) level in recently diagnosed patients.

**Methods:** A cohort retrospective study involving 1105 new hypertension patients was conducted based on FL Tobing Hospital medical records data in 2015-2018. Antihypertensive treatments were started and was followed to calculate the proportion of medication intake (PMI). To identify the relationship between the MA and complication incidences; including ischemic heart disease (IHD), heart failure (HF), stroke/transient ischemic attack (ST/TIA), and death; cox proportional hazard models was applied to clarify covariates, such as age, diabetes, others, which may influence the results.

**Results:** Among 1105 cases studied, we discovered an outcome of 448 cardiovascular diseases in which IHD, HF and ST/TIA accounted for 25.2%, 8%, and 5.7% of the hypertension cases respectively. Furthermore, 53.1%, 23.5%, and 23.3% of the beneficiaries had <40%, 40%-79%, and ≥80% PMI. During the studies, we examined an increasing risk of 2.93 (95%CI: 2.0-4.3) and 6.35 (95%CI: 4.5-8.9) times for developing complications in those with PMI of 40%-79% and <40% compared to ≥80% PMI category. The PMI groups developed a consistent model of relationship towards the progress of cardiovascular events, either collectively or individually.

**Conclusions:** Medication adherence was shown to have a significant relationship with reduced cardiovascular events. Therefore, increasing medication adherence should further improve qualities of life by minimizing the risk of complications.

**Keywords:** Medication adherence, hypertension, cardiovascular disease, antihypertensive medication



**90. Potential ACE-2 Receptor Inhibition and Cardioprotective of Herbal Plants based on Indonesian People's Belief Related to Treatment and Prevention of SARS CoV-2 Infection: Computational Molecular Docking Perspective**

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**Background:** COVID-19 has become a pandemic and infected millions of people in various countries. ACE-2 receptors are known to mediate the process of infection and transmission of this disease. SARS-CoV2 infection can increase tenfold when attached to cells expressing ACE-2 receptor. Cardiovascular disease is one of the most common comorbidities of SARS-CoV2 infection. The diversity of natural resources in Indonesia is one of the advantages in the process of exploring natural materials that can be developed into medicines. Indonesian people believe that certain natural resources can prevent SARS-CoV2 infection. The purpose of this study is to predict the active compound of these herbal plants in inhibiting the formation of SARS-CoV2 - ACE-2 complex as disease prevention from bioinformatics perspective.

**Methods:** We performed molecular docking analysis by downloading the ACE-2 protein target from Protein Data Bank. Ligands of active compounds from herbal plants are selected and downloaded from the Pubchem database which is then optimized with Pymol software. We performed pharmacokinetic analysis of ligand active compound using SwissADME. Control ligands were obtained from previous studies. Specific molecular docking and visualization of interactions are done through PyRx 0.9 and Discovery Studio software.

**Results:** Our molecular docking results showed that 9 active compounds namely theaflavin (black tea), deoxydopodophyllotoxin (propolis), gallicocatechin (eucalyptus), allicin (garlic), quercetin (Moringa and guava leaves), annonamine (soursop leaves), curcumin (turmeric), 6-gingerol (ginger), and cucurbitacinB (cucumber) have the potential to inhibit the SARS-CoV2 – ACE-2 complex and have a cardioprotective effect. Through pharmacokinetic analysis, 6 compounds that meet the criteria of druglikeness. From specific docking, there are 5 compounds that have a strong bond affinity than the control ligands, namely theaflavin, deoxydopodophyllotoxin, gallicocatechin, curcumin, cucurbitacinB.

**Conclusion:** Deoxydopodophyllotoxin (propolis) and curcumin (turmeric) has potential as active compounds that can prevent SARS-CoV2 infection because it has good pharmacetics and pharmacodynamics. These compounds can be further tested to determine the biological effects of ACE-2 receptors.

**Keyword:** Molecular Docking, Natural Compound, SARS-CoV2, ACE-2 Receptor, Cardioprotectant



### 91. Red Cell Distribution Width was Associated with The Presence of Multiple Vessels Coronary Artery Disease in ST-Segment Elevation Acute Coronary Syndrome

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**Background:** Red cell distribution width (RDW) is a measure of the variability in the red blood cell volume distribution and can be considered as an index of heterogeneity in the size of circulating erythrocytes. Inflammation is part of the pathophysiology of ST-Segment Elevation Acute Coronary Syndrome. RDW is considered a surrogate marker of inflammation and atherosclerosis. The aim of this study was to investigate association between red cell distribution width with the presence of multiple vessels coronary artery disease (MVCAD) in ST-Segment Elevation Acute Coronary Syndrome (STE-ACS).

**Method:** This was cross-sectional study of 78 consecutive patients with STE-ACS undergoing Primary Percutaneous Coronary Intervention (PPCI) between June 2018 and May 2019. RDW parameter was measured as part of the routine complete blood count during patient's admission in the emergency room. The patients were divided into two groups: a low-RDW group (RDW <13%) and high-RDW group (RDW ≥ 13%). Multiple vessels disease was assessed at the time of PPCI and divided into two groups, single vessel and multiple vessels. Statistical analysis was performed using chi-square test.

**Result :** STE-ACS patients underwent PPCI showed baseline characteristic: age  $58.21 \pm 10.14$  years old, 63 males (80.8 %), onset  $6.53 \pm 5.66$  hours, median Killip Class 1, 51.3 % LAD related infarct, 48.7% non-LAD related infarct, RDW  $13.02 \pm 0.86$  %, 32.1% patients with single vessel disease, 67.9% with multiple vessels disease. There were higher number of patients with MVCAD in high-RDW group ( $p=0.04$ ).

**Conclusion:** Red cell distribution width is a readily available clinical laboratory value which associated with the presence of multiple vessels coronary artery disease in STE-ACS.

Keywords: Red Cell Distribution Width, St-Segmen Elevation Acute Coronary Syndrome, Primary Percutaneous Coronary Intervention



92. CORRELATION OF BODY MASS INDEX WITH MYOCARDIAL PERFORMANCE INDEX IN PATIENTS WITH LOW-RISK CARDIOVASCULAR DISEASE: A HOSPITAL-BASED STUDY IN MADIUN, INDONESIA

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**Background** Cardiovascular disease is one of the highest cause of mortality in the world, including Indonesia. Obesity is a well-known risk factor for cardiovascular disease. Body mass index (BMI) is a simple metric used to indicate overall body fatness. Myocardial performance index (MPI) is a capable parameter that globally assessing systolic and diastolic heart function.

**Objective** This study aimed to investigate the correlation between BMI and MPI among patients with low-risk cardiovascular disease, particularly in Madiun, Indonesia.

**Method** This is an observational study with cross-sectional design on 50 non-hospitalized patients admitted from September to October 2019 at RSUD Kota Madiun, Indonesia. The subjects were purposively recruited and received echocardiography examination. The correlation of BMI and MPI was assessed using Pearson test.

**Result** Fifty patients (27 male, 23 female; mean age  $49.82 \pm 5.86$ ) were included in this study. Mean BMI was  $27.14 \pm 4.54$ , divided into non-obese (n=16 patients) and obese (BMI  $\geq 25$ ; n=34 patients) groups. Meanwhile, mean MPI was  $0.42 \pm 0.06$ , classified into normal (n=48 patients) and abnormal (MPI  $> 0.55$ ; n=2 patients). MPI was higher in obese group (0.44 vs. 0.41) and abnormal MPI only found in obese group. But, the correlation of BMI and MPI was very weak and not significant ( $r=0.145$ ,  $p=0.317$ ;  $r=0.189$ ,  $p=0.188$ ; respectively).

**Discussion** Obesity increases fat accumulation that leads to systolic and diastolic dysfunction due to haemodynamic changes, myocardial fat accumulation, increased proinflammatory cytokines, and dislipidemia. The previous study reported that there is no correlation between BMI and MPI ( $r=0.002$ ;  $p>0.05$ ). But, another study found that weight loss ameliorates MPI ( $p=0.0001$ ).

**Conclusion** In this study, MPI was higher in obese patients. But, the correlation between BMI and MPI was very weak and not significant. BMI, if combined with other obesity parameters, will predict MPI and the risk of heart disease better.

**Keywords** Obesity, Body mass index, Myocardial performance index



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93. DESCRIPTION OF STEMI PATIENTS TREATED IN H. ADAM MALIK HOSPITAL CARDIOVASCULAR  
CARE UNIT

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**Background :** Cardiovascular disease is a general term for disease that affect the heart or any other part of the vascular system in the body. Cardiovascular disease is one of the main manifestations of Coronary Heart Disease. STEMI is a syndrome that defined by the characteristics of the symptoms of Myocardial Infarction which EKG examinations shows ST Segments elevation and cardiac biomarkers, that result of necrosis infarction.

**Methods :** This research is descriptive in cross sectional method. This research was conducted in September 2016 in RSUP.H. Adam Malik Medan. This research uses consecutive sampling technique with 34 respondents. All datas were collected by reviewing patients's medical records.

**Results :** Of 34 respondents, the largest incidence rate of male amount to 27 persons (79,4%), age was 52 years old, batak ethnic amount to 30 persons (88,2%), obesese amount to 5 persons (14,7%), smoking amount to 15 persons (44,1%), hypertension amount 18 persons (52,9%), dyslipidemia amount 11 persons (32,4%), >12 hours onset of 21 persons (61,8%) and mortality rate in hospital amount 7 persons (20,6%).

**Conclusion :** Based on this research, it can be concluded that hypertension is the main risk factors of STEMI, for that special attention is needed for patients with hypertension to prevent and early treatment.

**Keywords :** STEMI, risk factors, CVCU



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**94. The Relationship of Dyslipidemia, Hypertension, History of Diabetes Mellitus to the Occurrence of Acute Coronary Syndrome in Cardiac Polyclinic Patients in RSUD Ahmad Yani Metro Lampung 2019.**

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**Background:** Coronary heart disease associated with degenerative diseases with increasing assistance. Acute phase of the coronary heart or called acute coronary syndrome. Acute Coronary Syndrome (ACS) is the highest cause of death in the world, globally and caused by acute coronary corruption of 7.4 million. The occurrence of this disease is associated with risk factors such as age, sex, freedom, smoking, hypertension, diabetes mellitus, dyslipidemia, and obesity. The purpose of this study was to determine the relationship of dyslipidemia, hypertension with diabetes mellitus with the incidence of ACS.

**Methods:** This type of research is analytic with cross-sectional design. The number of samples of 100 people who met the inclusion criteria by using purposive sampling technique.

**Results:** Based on 100 respondents, ACS sufferers were 65%, hypertension 65%, dyslipidemia 62%. the topic of diabetes mellitus 34%, there was no relationship between hypertension and statistics on diabetes mellitus against ACS (P values 0.161 and 0.393) there was an association between dyslipidemia with a ACS Value of P 0,000, OR 7,948.

**Conclusion:** dyslipidemia has highest association with ACS among other risk factors.

Keywords: Dyslipidemia, Hypertension, ACS



95. RISK SCORE CONTRAST INDUCED NEPHROPATHY AFTER PERCUTANEOUS CORONARY INTERVENTION IN DR. KARIADI GENERAL HOSPITAL

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**Background:** Contrast induced nephropathy (CIN) after percutaneous coronary intervention (PCI) is still an issue in modern revascularization era. Recent risk stratification model used creatinine as biomarker which has some limitation. Increased  $\geq 10\%$  of Cystatin-C (Cys-C) after PCI has proven as one of earliest and accurate biomarker of CIN after PCI. This study aimed to develop risk score based on predictors of contrast induced nephropathy in patients after PCI with Cys-C as biomarker

**Methods:** A prospective cohort study of 129 patients with chronic coronary syndrome after PCI at Dr. Kariadi General Hospital Semarang. Cys-C was taken before and 24 hours after the procedure. CIN was defined as increased  $\geq 10\%$  of Cys-C. Predictor analysis was carried out using bivariate chi square test and multivariate logistic regression. The independent predictors obtained were then used as risk score variables. The quality of the risk score was tested by the Hosmer and Lemeshow calibration test and AUC-ROC analysis for discrimination test.

**Results:** There were 3 independent predictors used as the risk score variables: Hypotension (score 1), anemia (score 1), creatinine baseline  $> 1.5$  mg/dl (score 1). Patients with total score  $\geq 1$  has higher risk to have CIN after PCI. The risk score had a good quality with the Hosmer and Lemeshow calibration test  $> 0.05$  and relative modest discrimination ROC AUC 0.700 (95%IK 0.585-0.815;  $p=0.001$ ).

**Conclusions:** A risk score for risk stratification CIN after PCI has been created. Hypotension, anemia and creatinine  $> 1.5$  were independent predictors of CIN in patients after PCI procedure. The score has good calibration and modest discrimination in predicting the risk of CIN after PCI.

**Keywords :** Contrast induced nephropathy, percutaneous coronary intervention, risk score





## 96. The Role of Platelet-to-Lymphocyte Ratio as a Predictor in Detecting Patients with Acute Deep Vein Thrombosis

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**Background:** Deep vein thrombosis (DVT) is a common cardiovascular disorder, which is potentially life-threatening due to pulmonary embolism. The pathophysiology of DVT involved inflammation and platelet activity. This study aimed to explore the association between DVT and new inflammatory markers such as Platelet-to-lymphocyte ratio (PLR), Neutrophil-to-Lymphocyte Ratio (NLR) and Mean Platelet Volume-to-Lymphocyte Ratio (MPVLR) for diagnostic purposes.

**Methods:** This was a retrospective cohort study, data was taken from vascular registry database of Dr. Sardjito general hospital Yogyakarta. A total of 43 patients diagnosed with DVT and 17 controls. Patients with comorbid that can affect PLR, NLR and MPVLR was excluded from this study.

**Results:** The Average age of patients was 53 years (range 20–80 years old). There was no significant difference in the distribution of basic characteristic data. Meanwhile, the univariate analysis revealed that PLR ( $P = 0.04$ ), NLR ( $P = 0.18$ ), and MPVLR ( $P=0.046$ ), were significantly different between DVT and control group. The receiver-operating characteristic (ROC) curve was used to assess the diagnostic potential of the significant indices in univariate analysis. The results showed that the AUCs for PLR, NLR, and MPVLR were 0.67 ( $p=0.4$ ), 0.65 ( $p=0.08$ ), 0.66 ( $p=0.053$ ) respectively. PLR were significantly different from the AUC reference ( $p<0.05$ ). A PLR cut-off value of 92.76 provided 86 % sensitivity and 47.1 % specificity. Multivariate logistic regression analysis on these variables showed that PLR (OR: 0.99; 95% CI: 0.98-1.01;  $p= 0.026$ ) was significantly correlated with the risk of DVT.

**Conclusion:** PLR can be used as a biomarker to support the diagnosis of acute deep vein thrombosis.

Keywords: Deep vein thrombosis, Platelet-Lymphocyte Ratio, Neutrophil-Lymphocyte Ratio, Mean Platelet volume-Lymphocyte Ratio



**97. Impact of COVID-19 Pandemic on Acute Myocardial Infarction Admission and Reperfusion  
Strategy: A Single-Center, Retrospective Study**

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**Background.** In the midst of a generation-defining global pandemic of COVID-19, the scope, scale, and pace of hospitalizations for acute myocardial infarction (AMI) is unprecedented. We aimed to evaluate the impact of the COVID-19 pandemic on AMI admissions.

**Methods.** A retrospective study was conducted at Dr. Iskak General Hospital Tulungagung during the COVID-19 pandemic (April to June 2020), compared to the equivalent period in 2019. The clinical characteristics, treatments, and in-hospital outcomes of AMI patients were assessed.

**Results.** We observed an 83.4% reduction in admissions for AMI compared with the equivalent months in 2019 ( $p < 0.001$ ). The reduction was similar for men and women ( $p = 0.960$ ). There was no difference in the mean patient age and duration from symptom onset to admission before and during the pandemic ( $p = 0.239$  and  $p = 0.337$ , respectively). At both time intervals, patients were dominated by ST-segment elevation myocardial infarction (STEMI) (61.7% in 2019 and 89.7% in 2020). Compared with 2019, the number of percutaneous coronary interventions (PCI) in STEMI during a pandemic was lower (49.1% in 2019 vs. 30.8% in 2020,  $p = 0.092$ ), but higher in fibrinolytic therapy (25.9% in 2019 vs. 53.8% in 2020,  $p = 0.006$ ). However, the case fatality rate (CFR) and complications of AMI patients in 2020 was lower compared to 2019 ( $p = 0.001$  and  $p = 0.014$ , respectively). Regression analysis showed the increased ratio of reperfusion therapy in STEMI (PCI and fibrinolytic) as the primary contributor to the reduction of CFR in 2020 (odds ratio (OR) 0.24, 95% confidence interval (CI) 0.063-0.931;  $p = 0.039$ )

**Conclusion.** During the COVID-19 pandemic, AMI admissions were significantly reduced, and PCI procedures were greatly affected. By increasing the percentage of reperfusion therapy in STEMI, we could minimize the CFR and complications. However, due to the small number of patients in 2020, further research is necessary.

**Keywords:** COVID-19, acute myocardial infarction, STEMI, reperfusion strategy



98. **Neutrophil-to-lymphocyte ratio as indicator in discrimination of clinical form of acute coronary syndrome: can we predict is it an acute myocardial infarction or unstable angina?**

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**Introduction:** Inflammation was the pathogenesis of acute coronary syndrome (ACS). These suggested that higher inflammatory parameters occur in more severe damage of myocardial cells, as in acute myocardial infarction (AMI) than in unstable angina (UA), proved by the high value of cardiac biomarker in AMI patients.

**Objective:** To characterize and assess the differential blood count of white blood cells (WBC) and neutrophil-to-lymphocyte ratio (NLR), as inflammatory parameter in ACS.

**Methods:** A 100 patients with ACS (50 males, 50 females), aged 37-77 years old, are classified into AMI group (n=50) and UA group (n=50) based on clinical presentations, electrocardiogram, highly sensitive troponin T (hsTnT), and creatinine kinase MB (CKMB). The cross-sectional study was conducted by analyzing WBC count, neutrophil, lymphocyte, monocyte, eosinophil, basophil, and NLR of the patients presented with angina. The results were analyzed using SPSS version 22.

**Results:** The average of WBC count and neutrophil were significantly higher in AMI group than in UA group (p=0.000). Lymphocyte, eosinophil, and basophil count were significantly lower in AMI group than in UA group (p=0.001, p=0.000, p=0.001, respectively). There is no significant differentiation in monocyte count between the two groups (p=0.240). NLR was significantly higher in AMI group than in UA group (p=0.000).

**Conclusion:** A positive correlation was obtained between the value of NLR and WBC count and cardiac biomarker. These results suggest the importance of this inflammatory parameters in assessing the severity of myocardial damage, differentiating AMI from UA.

**Keywords**

Acute coronary syndrome, neutrophil-to-lymphocyte ratio, inflammation, acute myocardial infarction, unstable angina

Variables	Group AMI (N=50)	Group UA (N=50)	p-value
WBC ( x10 <sup>3</sup> )	13.04 (5.21-33.16)	9.03(4.98-21.90)	p=0.000
Neutrophil ( x10 <sup>3</sup> )	10.33 (2.38-28.69)	5.57 (2.18-13.16)	p=0.000
Lymphocyte ( x10 <sup>3</sup> )	2.19 (0.5-19.8)	2.38 (0.9-5.6)	p=0.001
NLR	7.51(0.24-25.33)	2.72(1.07-10.65)	p=0.000
Monocyte ( x10 <sup>3</sup> )	0.8 (0.14-1.86)	0.71(0.32-1.35)	p=0.240
Eosinophil ( x10 <sup>3</sup> )	0.13 (0-0.96)	0.34 (0.04-2.06)	p=0.000
Basophil ( x10 <sup>3</sup> )	0.03 (0-0.47)	0.04 (0.01-0.07)	p=0.001
hsTnT (ng/L)	1323.96 (57-2000)	40.92 (40-69)	p=0.000
CKMB (ng/mL)	28.61(1.99-80)	2.43 (1.0-24.76)	p=0.000



99. **Correlation Between Soluble-ST2 (SST2) Serum and Global Longitudinal Strain in Patients with Recovery Peripartum Cardiomyopathy (PPCM)**

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**Background:** In long term follow up, recovered PPCM patients were found to have residual myocardial injury and ongoing cardiac remodeling process resulting in subclinical left ventricular systolic dysfunction. Soluble ST2 is a novel biomarker to describes cardiac remodeling. Global longitudinal strain describes global and segmental left ventricular function, and it can identify residual myocardial injury. This study aims to assess the relationship between soluble-ST2 with GLS in recovery PPCM patients.

**Methods:** This study was conducted with descriptive analytical cross-sectional design. Data of recovery PPCM subjects from a prospective, observational, registry study: "Long Term Registry on Patients with Peripartum Cardiomyopathy (PPCM)" in dr. Hasan Sadikin General Hospital, Bandung, from September 2014 until now were analyzed. Left ventricular systolic dysfunction was measured by Global Longitudinal Strain (GLS) with speckle tracking echocardiography technique. Soluble-ST2 was measured by ELISA method. The correlation between soluble-ST2 and GLS was analyzed using Pearson correlation. Linear regression test analysis was performed to control confounding factor.

**Results:** A total of 34 subject were included in this study. The average age was  $30 \pm 5$  years old and the median of recovery time was 8.1 (2.9 - 33.7) month. The average of soluble-ST2 level was  $14.5 \pm 5.6$  ng/mL and the average of GLS was  $17.2 \pm 2.7\%$ . The Pearson correlation test showed a significant intermediate negative correlation ( $r=-0.551$ , 95% CI (-0.749 – (-0.261),  $p<0.001$ ) between soluble-ST2 and GLS in recovery PPCM patients. This results is still consistent after linear regression analysis for the use of mineral corticoid receptor antagonist (MRA) ( $r: -0.561$ ,  $p < 0,001$ ,  $R^2$  0.308).

**Conclusions:** There was a significant intermediate negative correlation between Soluble ST2 and Global Longitudinal Strain(GLS) in recovery PPCM patients.

**Key Words:** Global longitudinal strain, Soluble ST2, PPCM



## 100. Terminal QRS distortion as a Predictor of Intrahospital Major Adverse Cardiovascular Event (MACE) in Patient with ST-Elevation Myocardial Infarction undergoing Primary Percutaneous Coronary Intervention

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**Background:** Increased morbidity and mortality rates due to coronary artery disease remains a serious concern in cardiology. Early risk stratification is important in daily clinical practice. The correlation of terminal QRS distortion measured by ECG with advanced stage and large myocardial infarction has been widely accepted. Therefore, it has been suggested that this parameter is associated with adverse outcome. This study was performed to evaluate the association of terminal QRS distortion with Major Adverse Cardiovascular Event (MACE) in patients with Acute ST-Elevation Myocardial Infarction (STEMI) undergoing Primary Percutaneous Coronary Intervention (PPCI).

**Methods:** A retrospective study was performed, including 92 patients from January to December 2019 in M. Djamil Hospital Padang with less than 12 hours onset STEMI followed by PPCI as treatment. The included patients were divided into three groups according to the absence of QRS distortion (D0) or its presence in a single lead (D1) or in 2 or more contiguous leads (D2). Furthermore, the intrahospital MACE (death, heart failure, malignant arrhythmia, re-infarction) was recorded and its correlation with the QRS distortion groups will be analyzed.

**Result:** In this study, we found MACE in 3(5.08%) D0, 7(43.75%) D1, and 10(58.82%) D2 with  $p < 0.001$  (OR(95%CI) 14.51(2.56-82.28) and 26.67(4.02-176.78), respectively). Furthermore, we found 17(51.52%) QRS distortion in anterior STEMI with  $p = 0.59$  (OR(95%CI) 1.25(0.53-2.97)) and 16(48.48%) QRS distortion in inferior STEMI with  $p = 0.59$  (OR(95%CI) 0.79(0.33-1.87)).

**Conclusion:** The QRS distortion is strongly correlated with MACE. Particularly, patients with D1 and D2 have 14-times and 26-times higher risk, respectively, compared to the patients without QRS distortion. Furthermore, there is no significant differences in QRS distortion in patients with anterior as well as inferior STEMI.

**Keyword:** Terminal QRS distortion, ST-Elevation Myocardial Infarction, MACE



101. **Prolonging Time to Reperfusion in Patients with ST-Segment Elevation Myocardial Infarction in COVID-19 era : Insight Of ACS Registry of Saiful Anwar General Hospital**

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**Background:** Minimizing delays in reperfusion in patients with ST-segment elevation myocardial infarction (STEMI) is associated with improved outcomes. During a outbreak of an infectious disease, these delays become even more challenging to predict. Since March 11, 2020, the Coronavirus disease 2019 (COVID-19) outbreak had been declared a Global Pandemic by World Health Organization. The aim of this study was represent the experience of a Tertiary cardiac center in Indonesia regard to the impact of COVID-19 pandemic on patients with STEMI especially in time from symptom to first Medical contact and Door to balloon time.

**Material and Method** This is a retrospective, observational study that included all patients, 18 to 90 years of age, who presented with STEMI via our emergency department. We divided into two group. We selected a time frame for 3 month after declaration of COVID-19 infection as a "Global Pandemic" (ie, April-July 2020; COVID-19 era group). A group of STEMI patients from a similar time period of last year (ie, March 1-31, 2019; pre-COVID-19 era group) was used as control. We excluded STEMI patients with unclear symptom onset or who were already in hospital during symptom onset. The main outcome was patient-related delay defined as the time from symptom onset to first medical contact (FMC). Other in-hospital outcomes included door to balloon time, troponin (Tn-I) level on admission, cardiogenic shock, significant arrhythmias, or mechanical complications.

**Results** A total of 161 patients were screened during the described time frames, COVID era n = 67, pre-COVID era n = 94) met our inclusion criteria and for whom full data were available. The mean age was  $60.2 \pm 10.9$  Years old, 60.4% was male. The study groups were well balanced for various baseline characteristics. The delay in symptom-to-FMC was significantly longer in COVID era ( $361 \pm 269$  vs  $238.5 \pm 185$  min,  $P = .00$ ) compared to pre-COVID era group. The troponin I level on admission (normal:  $<1$  ng/L) was also significantly higher in the COVID versus pre-COVID era ( $4.2 \pm 2.8$  vs  $12.4 \pm 4.2$  ng/L,  $P = .00$ ). The door-to-balloon time was higher in COVID era group ( $122.4 \pm 42.8$  vs  $428.2 \pm 62.8$  min,  $P = .001$ ). The proportion of cardiogenic shock was higher in COVID era group 14% vs 6.3%,  $P = .024$ . There was no significant difference in proportion of a significant arrhythmias and mechanical complications.

**Conclusion**

the COVID-19 pandemic comes out as the major new variable that could possibly explain this substantial difference in patient-related delay.

**Keywords :** STEMI, First Medical Contact, COVID-19



## 102. Sensitivity and Positive Predictive Accuracy of Exercise Electrocardiography Test Among Aircrew in Indonesia

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**Background:** Incapacitation due to cardiovascular disease may be insidious or sudden onset. Exercise electrocardiography (ECG) test is the standard screening method to determine the presence of obstructive coronary artery disease (CAD) with standard sensitivity within 60 to 70 percent. Thus, the aim of this study is to define the sensitivity and positive predictive accuracy of exercise ECG among aircrews in Indonesia.

**Methods:** The data were collected from medical records of aircrews from Aviation Medical Centre, Indonesia. There were 1559 subjects of aircrews underwent exercise ECG test while conducting routine medical assessment. The exercise ECG test were performed using an approved test wireless testing system devices, to complete at least three stages Bruce protocol for at least nine minutes or achieve an oxygen uptake equivalent to 11 metabolic equivalents (METs). Subjects were divided into negative response test and positive/suggestive positive response test. We investigated the specificity and positive predictive accuracy in predicting stable coronary artery disease. Data were analysed using SPSS.

**Results:** The data showed that 1360 subjects had negative stress test, 196 subjects had positive or suggestive positive stress test and 3 subjects had inconclusive results. There were 14 subjects from negative stress test result who had a history of coronary artery disease, and 31 subjects from positive stress test had no significant stenosis result. The sensitivity from exercise ECG from the subjects was 89.3 percent and positive predictive accuracy from the subjects was 79.05 percent.

**Conclusion :** In Indonesia's Aircrews, the sensitivity of exercise ECG test was higher than the predictive capability in detecting stable coronary artery disease. It detected higher percentage of subjects with coronary artery disease. Completing at least three stages Bruce protocol for at least nine minutes or achieve an oxygen uptake equivalent to 11 metabolic equivalents (METs) was suggested to be applied in conducting exercise ECG.

Keywords : Exercise ECG test, Coronary artery disease, Aircrew



## The Role of SGLT2 Inhibitor Agent as Part of Cardiovascular Treatment

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**Background:** According to RISKESDAS 2018 in Indonesia, Type 2 Diabetes Mellitus (T2DM) prevalence has increased from 6,9% to 8,5% with Cardio Vascular Disease (CVD) as the most common complication in T2DM patients. We conducted a pilot study to evaluate the role of Sodium-Glucose co-Transporter-2 Inhibitor (SGLT2i) for T2DM treatment in CVD patients both reduced and non-reduced Left Ventricular Ejection Fraction (LVEF).

**Methods:** We analyzed consecutive sampling data from June 2019 until June 2020. A total of 62 T2DM patients with CVD whom were treated with SGLT2i (dapagliflozin) were included in this study. Patients were divided into 2 groups, reduced LVEF ( $\leq 40\%$ ) and non-reduced LVEF ( $>40\%$ ). Patients with Type 1 diabetes mellitus, estimated Glomerular Filtration Rate (eGFR)  $<30$  ml/minute/ $1.73\text{m}^2$ , pregnancy and breastfeeding were excluded. Cardiovascular Outcomes (CVOT) such as heart failure hospitalization, cardiovascular death, and myocardial infarction were studied. Chi square test and multivariate analysis were used.

**Results :** There was no significant difference in characteristic and clinical outcomes in both groups ( $p \geq 0.05$ ). Multivariate analysis showed age ( $\geq 60$ ) is the predictor of 12 months CVOT in reduced LVEF group (OR 19.58;  $p=0.047$ ). However, in non-reduced LVEF group the baseline HbA1C is the predictor (OR 9.03;  $p=0.043$ ).

**Conclusion :** SGLT2i (dapagliflozin in this study) is a promising therapy for T2DM patients with CVD both reduced and non-reduced LVEF. Further trial is needed to evaluate the long-term benefit of this medication.

**Keywords:** SGLT2 inhibitors, Diabetes Mellitus, Cardiovascular disease, Left Ventricular Ejection Fraction, Cardiovascular Outcome





#### 104. Correlation of Carotid Intima Media Thickness and Heart Rate Variability in Lupus Erythematosus Systemic Patients

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**Aims or Background.** Carotid intima media thickness (CIMT) as a marker of subclinical atherosclerosis is associated with changes in heart rate variability (HRV) that indicate impaired cardiac autonomic control (parasympathetic activity). The purpose of this study was to assess the correlation of CIMT and HRV in Systemic Lupus Erythematosus (SLE) patients.

**Methods.** This research was conducted from May to August 2019 using the cross-sectional method in SLE patients of Hasan Sadikin Hospital Bandung. Carotid IMT was measured by B-mode ultrasound. Frequency-based HRV was performed with short-term recording. Analysis was performed to assess the relationship between these two variables.

**Results.** All 41 patients were female with median age 34 (22-53) years. CIMT mean value was 0.66 mm (95%CI 0.61-0.70 mm). The geometric mean of high frequency (HF) was 119 ms<sup>2</sup> (95%CI 80-177 ms<sup>2</sup>), low frequency (LF) 294 ms<sup>2</sup> (95%CI 217-399 ms<sup>2</sup>), and LF/HF ratio 2.48 (95%CI 1.99-3.07). Analysis showed a significant correlation between CIMT and HF ( $r = -0.403$ ,  $p=0.005$ ), LF ( $r = -0.333$ ,  $p=0.017$ ), and the LF/HF ratio ( $r = 0.272$ ,  $p=0.043$ ).

**Conclusion.** In SLE patients, an increase in carotid IMT correlated with cardiac autonomic dysfunction in the form of a decrease in parasympathetic activity as well as impaired of baroreflex activity.

**Keywords:** systemic lupus erythematosus, subclinical atherosclerosis, carotid intima-media thickness, cardiac autonomic dysfunction, heart rate variability.



### 105. Correlation Between Adriamycin Cumulative Dose and Mechanical Dispersion in Breast Cancer Patients after Chemotherapy

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**Aims or Background:** Left ventricular dyssynchrony is one form of cardiotoxicity due to the use of anthracycline chemotherapy. Adriamycin is one of the anthracycline drugs which is often used to treat breast cancer. Left ventricular dyssynchrony can lead to ventricular arrhythmias. Mechanical dispersion by strain echocardiography can be applied as one of several methods in assessing left ventricular dyssynchrony. The aim of this study was to investigate correlation between cumulative dose of adriamycin and the mechanical dispersion after anthracycline administration.

**Methods :** This research is a Cross-sectional study with linear regression analysis conducted at dr. Hasan Sadikin Bandung General Hospital in July 2019 - October 2019. The subjects of this study were breast cancer patients who were included in the registry of "Cardiomyopathy Cardiotoxicity Post Chemotherapy" after completing administration of chemotherapy with the sixth-month FAS regimen. Cardiotoxicity was assessed by cumulative dose of adriamycin and Left ventricular dyssynchrony using mechanical dispersion.

**Results :** This study involved 45 breast cancer patients after chemotherapy in the sixth-month FAS regimen. The mean age of  $46.96 \pm 8.18$  years. The mean cumulative dose of adriamycin  $552.05 \pm 37.10$  mg/m<sup>2</sup> and the mechanical dispersion is  $46.96 \pm 8.18$ ms. The results of linear regression analysis showed a positive correlation cumulative dose of adriamycin and the mechanical dispersion ( $r = 0.401$ ,  $p = 0.003$ ) after controlling for 1 confounding variable (hypertension).

**Conclusion :** There is a significant positive correlation between cumulative dose of adriamycin and the mechanical dispersion in patients with breast cancer after anthracycline chemotherapy.

**Keywords:** breast cancer, cardiotoxicity, cumulative dose of adriamycin, mechanical dispersion.



### 106. Correlation between Cardio-Ankle Vascular Index and Carotid Intima-Media Thickness in Type 2 Diabetes Mellitus Patients

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**Background:** Diabetes mellitus (DM) is one of the most prevalent and burdensome chronic disease worldwide. Diabetes mellitus accelerates atherosclerosis, which leads to arterial stiffness. Carotid intima media thickness (CIMT) has been used widely and validated marker for detecting subclinical atherosclerosis. Currently, cardio-ankle vascular index (CAVI) is the surrogate marker for the presence of subclinical atherosclerosis. This study is aimed at evaluating association between CAVI and CIMT in type 2 diabetes mellitus patients.

**Methods:** We conducted cross sectional study in vascular outpatient clinic of Dr. Sardjito Hospital. Samples were 51 patients who underwent an interview, laboratory examinations, in addition to anthropometric, CAVI and CIMT measurement. CAVI was measured by using an automatic vascular screening system, meanwhile an ultrasound examination of both common carotid artery were done to obtain the CIMT.

**Results:** Subjects were 50.98% males and 49.02% females, with mean age  $59.22 \pm 8.8$  years old. Proportions of dyslipidemia, hypertension, smoking, obesity, metabolic syndrome, coronary artery disease, congestive heart failure, chronic kidney disease, ischemic stroke were 51%, 60.8%, 27.5%, 52.9%, 72.5%, 31.4%, 9.8%, 9.8%, and 17.6%, in respectively. There were no differences in mean CAVI for each drug treatment. Mean CIMT and CAVI measurements were 0.082 cm and 8.67, in respectively. CAVI measurement showed patients with normal, borderline, and abnormal results were 23.5%, 33.3%, and 43.1%, in respectively. CAVI was not correlated with body mass index, weight, systolic blood pressure, lipid profiles, haematological parameters, HbA1c and fasting plasma glucose. Pearson's correlation showed CAVI was not correlated with mean CIMT and maximum CIMT ( $r=0.015$ ,  $p=0.916$ ;  $r=0.026$ ,  $p=0.854$ ).

**Conclusion:** CAVI is not correlated with CIMT in type 2 diabetes mellitus patients.

**Keywords:** Cardio-ankle vascular index; Carotid intima-media thickness; Diabetes Mellitus

**Table .** Correlation between CAVI and Other Clinical Parameters (Pearson's Correlation Coefficients)

Parameters	r	p value
Age	0.501	<0.0001
Body mass index	-0.198	0.164
Height	0.026	0.854
Weight	-0.180	0.205
Systolic blood pressure	0.117	0.415
Toe-brachial index	0.182	0.202
Hemoglobin	0.174	0.222
Erythrocyte	0.079	0.581
Hematocrit	0.156	0.273
Leukocytes	0.173	0.225
Neutrophil	0.203	0.154
Lymphocyte	-0.013	0.925
Monocyte	-0.175	0.221
Thrombocyte	-0.279	0.05



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Mean platelet volume	0.083	0.560
HbA1C	0.135	0.346
Fasting plasma glucose	0.122	0.393
Total cholesterol	0.009	0.948
Triglyceride	0.014	0.921
HDL	0.105	0.465
LDL	-0.047	0.745
Mean CIMT	0.015	0.916
Maximum CIMT	0.026	0.854



### 107. Long Waiting Time to Coronary Artery Bypass Graft Surgery in Hasan Sadikin General Hospital Bandung: Where Did It Go Wrong?

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**Background:** Coronary Artery Bypass Graft (CABG) is an option of revascularization in coronary artery disease (CAD) patients. The lengthy waiting time and long queue for surgery, which may cause increased mortality and morbidity, remained a major concern especially in developing countries. Nonetheless, published study about waiting time for CABG in Indonesia remains scarce.

**Methods:** A descriptive retrospective study inclusive of all CABG surgeries in Hasan Sadikin General Hospital from April 1<sup>st</sup>, 2019 until March 31<sup>st</sup>, 2020 were performed. Those with incomplete records were excluded. Clinical characteristic evaluated were gender, age, traditional CAD risk factors, previous acute coronary syndrome, location of angiography, and angiographic diagnosis. Waiting time was defined as the time between date of CABG and date of angiography report stating verdict for CABG. Echocardiographic parameter evaluated was Left Ventricular Ejection Fraction (LVEF) recorded before surgery. Data was taken from cardiac surgery reports, surgical conference reports and preoperative coronary angiography reports.

**Results:** There were 76 surgeries performed with 1 patients excluded due to incomplete medical records. From remaining 75 surgeries, 81.3% were male, the patients' mean age was 58.22 ( $\pm$  7.99) years at the time of CABG, and smoking was the most frequent risk factor (66.67%). The median LVEF was 53.3 ( $\pm$ 12.5)%, and CAD 3 Vessels Disease was the leading angiographic diagnosis. The median waiting time from angiography to CABG was 274 (8 – 1083) days. However, there were no detailed and organized data about patients' indecisiveness, queue time needed for supporting exams, and health centre resources affecting the possible delay of surgery.

**Conclusion:** Multidisciplinary approach, more complete and organized data recording, and prospective study must be taken to evaluate the cause of delay, shorten the waiting period and improve CAD patients' quality of life, especially when awaiting revascularization.

**Keywords:** angina, CAD, CABG, waiting time



**Table 1. Study Results (study population (n)=75)**

VARIABLE	RESULTS (%)
Gender	
- Male	61 (81.3)
- Female	14 (18.7)
Age during Coronary Artery Bypass Graft Surgery	58.2 ( $\pm$ 7.9) years*
Traditional Coronary Artery Disease Risk Factors	
- Smoking	50 (66.7)
- Hypertension	47 (62.7)
- Dyslipidaemia	30 (40.0)
- Diabetes	18 (24.0)
- Family History	8 (10.7)
Previous Acute Coronary Syndrome	36 (48.0)
Location of angiography	
- Hasan Sadikin General Hospital, Bandung	43 (57.3)
- Santosa Bandung Central Hospital	12 (16.0)
- Dustira Hospital, Cimahi	8 (10.7)
- Al-Islam Hospital, Bandung	8 (10.7)
- Others	4 (5.3)
Preoperative Left Ventricular Ejection Fraction	53.3 ( $\pm$ 12.5)%*
Angiographic Diagnosis	
- 3 Vessels Disease	43 (57.33)
- Left Main + 3 Vessels Disease	23 (30.67)
- Others	9 (12)
Waiting Time from Angiography to CABG	274 (8 – 1083) days**

\*Results shown as mean (standard deviation)

\*\*Results shown as median (minimum – maximum)



### 108. The Association between Levels of High Density Lipoprotein Cholesterol with Gensini Score of Coronary Heart Disease Patients in Mataram Regional General Hospital

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**Background:** Coronary Heart Disease (CHD) is a cardiovascular disease that has a high morbidity and mortality rate. It is primarily caused by atherosclerosis. Previous studies have shown that was an association between High Density Lipoprotein-Cholesterol (HDL-C) and atherosclerosis. Gensini score is a scoring system assessing the severity of CHD. The purpose of this study was to determine the association between HDL-C levels and Gensini score in CHD patients in Mataram Regional General Hospital.

**Method:** The method of this study was a cross sectional design. The subjects involved in this study were 52 patients diagnosed with CHD in Mataram Regional General Hospital. The main variables in this study were HDL-C levels and Gensini score. Data were analyzed using Mann-Whitney for comparative analytical test and using Spearman for correlative analytic test.

**Results:** Age ( $p = 0.87$ ), history of hypertension ( $p = 0.44$ ), history of DM ( $p = 0.74$ ), hypertension ( $p = 0.35$ ) and smoking ( $p = 0.38$ ) did not affect Gensini score, only the gender ( $p=0.02$ ) was correlated on the Gensini score. The correlative spearman analytic test between HDL-C levels and Gensini score showed no significant results (correlation coefficient =  $-0.04$ ,  $p = 0.79$ ).

**Conclusion:** There was no significant association between HDL-C levels and Gensini score in CHD patients in Mataram Regional General Hospital.

**Keywords:** HDL-C, CHD, Gensini Score



### 109. The Association between Toe-Brachial Index and Subclinical Atherosclerosis in Type 2 Diabetes Mellitus Patients

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**Background.** Diabetes mellitus is a major problem with high morbidity and mortality related to atherosclerosis. Atherosclerosis and its complications occur more rapidly in diabetes mellitus. Carotid intima-media thickness (CIMT) is a biomarker subclinical atherosclerosis which measures structural changes in arterial wall. Currently, toe-brachial index (TBI) is a better marker of atherosclerosis than ankle-brachial index (ABI) in type 2 diabetes mellitus patients. This study is aimed at evaluating association between TBI and subclinical atherosclerosis in type 2 diabetes mellitus patients.

**Methods.** A cross sectional study was conducted in vascular outpatient clinic of Dr. Sardjito Hospital. Samples were 51 patients taken by purposive sampling. An interview, anthropometric, hematological parameters, lipid profiles, toe-brachial index and CIMT measurement were performed. Subclinical atherosclerosis was defined as CIMT  $\geq 1$ mm and/or the presence of carotid plaque measured by using ultrasonography, meanwhile TBI was measured by using an automatic vascular screening system.

**Results.** Study subjects were 50.98% males and 49.02% females, with mean age  $59.22 \pm 8.8$  years old. The percentages of dyslipidemia, hypertension, smoking, obesity, metabolic syndrome, coronary artery disease, congestive heart failure, chronic kidney disease, ischemic stroke were 51%, 60.8%, 27.5%, 52.9%, 72.5%, 31.4%, 9.8%, 9.8%, and 17.6%, respectively. Age, gender, beta blocker and antiplatelet treatment were associated with subclinical atherosclerosis ( $p=0.008$ ,  $p=0.033$ ,  $p=0.019$ ,  $p=0.004$ ), respectively. Moreover, leukocytes, thrombocyte, and lymphocyte were higher significantly in subclinical atherosclerosis group ( $8.61 [4.99 - 11.7]10^3/\mu\text{L}$  vs  $7.38 [5.22 - 31.97]10^3/\mu\text{L}$ ,  $p=0.041$ ;  $299.16 \pm 73.95 10^3/\mu\text{L}$  vs  $246.19 \pm 63.11 10^3/\mu\text{L}$ ,  $p=0.009$ ;  $2.43 \pm 0.5 10^3/\mu\text{L}$  vs  $2.06 \pm 0.66 10^3/\mu\text{L}$ ,  $p=0.042$ ), respectively. Mean ABI was lower significantly in subclinical atherosclerosis group ( $1.05 \pm 0.16$  vs  $1.16 \pm 0.08$ ,  $p=0.016$ ). Mean TBI was lower significantly in subclinical atherosclerosis group ( $0.58 [0.36 - 0.82]$  vs  $0.71 [0.43 - 1.38]$ ,  $p=0.001$ ).

**Conclusion:** TBI is significantly associated with subclinical atherosclerosis in type 2 diabetes mellitus patients.

**Keywords:** Toe-Brachial Index; Carotid Intima-Media Thickness; Subclinical Atherosclerosis; Diabetes Mellitus

**Table 1.** The comparison of hematological parameters, lipid profiles, ankle-brachial index, and toe-brachial index

Laboratory, ABI and TBI Parameters	Subclinical atherosclerosis group (n=19)	Non-subclinical atherosclerosis group (n=32)	p value
Hemoglobin (g/dL)	12.4 $\pm$ 1.76	13.48 $\pm$ 2.12	0.067 <sup>a</sup>
Hematocrit (%)	38.05 $\pm$ 4.45	40.47 $\pm$ 6.38	0.152 <sup>a</sup>
Erythrocyte ( $10^6/\mu\text{L}$ )	4.63 $\pm$ 0.55	4.73 $\pm$ 0.85	0.653 <sup>a</sup>
Leukocytes ( $10^3/\mu\text{L}$ )	8.61 (4.99 – 11.7)	7.38 (5.22 – 31.97)	<b>0.041<sup>b</sup></b>
Neutrophil ( $10^3/\mu\text{L}$ )	5.35 (2.65 – 9.03)	4.43 (2.52 – 28.03)	0.185 <sup>b</sup>
Monocyte ( $10^3/\mu\text{L}$ )	0.56 (0.39 – 1.16)	0.53 (0.3 – 0.99)	0.306 <sup>b</sup>
Lymphocyte ( $10^3/\mu\text{L}$ )	2.43 $\pm$ 0.5	2.06 $\pm$ 0.66	<b>0.042<sup>a</sup></b>
Thrombocyte ( $10^3/\mu\text{L}$ )	299.16 $\pm$ 73.95	246.19 $\pm$ 63.11	<b>0.009<sup>a</sup></b>





Mean platelet volume (fL)	6.7 (5.2 – 10.6)	7.15 (5.4 – 10.9)	0.271 <sup>b</sup>
HbA1C (%)	8.9 (6.5 – 13.2)	8.5 (6.4 – 15.9)	0.830 <sup>b</sup>
Total cholesterol (mg/dL)	190.79±39.09	197.47±61.58	0.638 <sup>a</sup>
Triglyceride (mg/dL)	159. (67 – 438)	118 (55 – 1211)	0.057 <sup>b</sup>
HDL (mg/dL)	46.53±12.64	47.44±10.48	0.782 <sup>a</sup>
LDL (mg/dL)	122.21±35.78	126.94±48.74	0.715 <sup>a</sup>
Fasting plasma glucose (mg/dL)	183 (109 – 293)	163 (87 – 445)	0.579 <sup>b</sup>
Systolic blood pressure (mmHg)	140 (110 - 180)	142.5 (110 – 225)	0.799 <sup>b</sup>
Ankle-brachial index	1.05±0.16	1.16±0.08	<b>0.016<sup>a</sup></b>
Toe-brachial index	0.58 (0.36 – 0.82)	0.71 (0.43 – 1.38)	<b>0.001<sup>b</sup></b>

<sup>a</sup>Independent samples t test

<sup>b</sup>Mann-whitney u test



## 110. Correlation of C-Reactive Protein and Heart Rate Variability in Systemic Lupus Erythematosus Patients

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**Background:** Systemic lupus erythematosus (SLE) is a chronic inflammatory autoimmune disease that results in increased mortality compared with healthy population. Cardiovascular disease is one of the leading cause of mortality and morbidity in these patients. C-reactive protein (CRP) is an inflammatory biomarker that act as mediator in atherosclerosis development. Increased CRP correlates with higher risk of coronary artery disease, acute myocardial infarction, and ischemic stroke. Autonomic nervous system (ANS) disturbance which happen in nearly 90% of SLE patients had been also known to correlate with many cardiovascular diseases. This study's aim is to see the correlation between CRP and HRV in SLE patients.

**Methods:** It was a cross sectional study taken place in Hasan Sadikin General Hospital Bandung between January, 2020 and April, 2020. CRP was taken from vein blood and analyzed in the corresponding laboratory, whereas short term frequency domain HRV was examined as long as 30 minutes. Spearman correlation test was used to analyzed the correlation of both parameters.

**Results:** There were 45 subjects included in the study. All of them were woman. Median age was 35 (16-64) years old. Median protein C-reaktif was 0,19 (0,004-5,04) mg/dL. Median high frequency-HRV (HF-HRV) was 90,12 (7,44-2075,56)ms<sup>2</sup>, median low frequency-HRV (LF-HRV) was 249 (51; 25,6-1454,8) ms<sup>2</sup>, and median very low frequency HRV (VLF-HRV) was 502,06 (100,1-1091,61) ms<sup>2</sup>. Spearman correlation test showed significant negative correlation between CRP and two domains of HRV, LF-HRV (r= -0,296, p=0,048), and VLF-HRV (r= -0,341 p=0,022). There was also negative correlation found between CRP and HF-HRV (r= -0,142, p=351) but it was statistically not significant.

**Conclusions:** There was negative correlation between CRP and HRV in SLE patients in this study.

**Keywords:** C-Reactive Protein, Heart Rate Variability, HRV, HF-HRV, LF-HRV, VLF-HRV, Systemic Lupus Erythematosus.



### 111. Can Arterial Blood Gas Analysis Predict Mortality in Patients with Acute Heart Failure?

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**Background:** Acute heart failure (AHF) patients may come in a variety of severity. Some can easily be managed and others may lead to death. Therapy can be optimized by assessing the prognosis of patients in admission. Pulmonary edema and low tissue perfusion caused by reduced cardiac output can disrupt the acid-base balance which is seen in arterial blood gas analysis (ABG). This study is aimed to assess if ABG results on admission can predict mortality in patients hospitalized with AHF.

**Methods :** This is a substudy of Sardjito Cardiovascular Intensive Care (SCIENCE) registry. We collected data of patients with AHF who underwent ABG analysis on admission during February 2019 – July 2020. Blood gas pH is categorized into 3 groups; acidosis (pH > 7.35), normal (pH 7.35-7.45) and alkalosis (pH > 7.45). Intrahospital mortality is recorded and analysis is conducted with Chi-square test to see the significance of differences among the three groups.

**Results :** We analyzed 205 subjects hospitalized with AHF in Sardjito General Hospital who underwent ABG measurement in admission (male 65.9%, mean age 61.06 ± 12.80). Eighty six patients presented with normal pH (41.95%), 87 with acidosis (42.4%) and 32 with alkalosis (15.6%). There was a total of 85 death cases (41.46%) in which most cases occurred in the group with acidosis (acidosis 57.5%, normal pH 30.2%, alkalosis 28.1%, p value=0.000). There is a significant difference (p=0.000) among the three groups in terms of mortality.

**Conclusion :** Most AHF patients who underwent ABG analysis had acidosis. AHF patients with acidosis has higher mortality rate compared to patients with higher blood gas pH. Therefore, blood gas pH may have prognostic value in predicting mortality in patients with AHF. Further study is needed to evaluate other factors.

**Keywords :** Acute heart failure, blood gas analysis, mortality, acidosis, alkalosis



## 112. Predictors of In-hospital Mortality in Patients with Post-Myocardial Infarction Ventricular Septal Rupture: A Single-Center 7-years Retrospective Study

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**Background:** Ventricular septal rupture (VSR) is a rare but life-threatening complication of myocardial infarction (MI). In-hospital mortality of ventricular septal rupture remains high at about 45-90% worldwide. No previous publication regarding determinants of mortality from this entity in Indonesia.

**Method:** Data from a total 6653 patients admitted with ST-elevation MI (STEMI) to our center from January 2014 to June 2020 were collected retrospectively from electronic medical record. Demographic criteria; risk factors and comorbidities; onset, location, and Killip classification of MI; hemodynamic profile at admission; secondary infection; laboratory, echocardiography, coronary angiography, and management of patients were analysed.

**Result:** We observed 50 (0.75%) of STEMI patients having VSR complication with in-hospital mortality rate of 64%. Among them, 17 (34%) of patients underwent surgical closure and CABG with mortality of 7 (41%); while 33 (66%) patients were not survive before intervention. Time from MI onset to surgical intervention was 12(5-15) days; time from admission to surgical intervention 9±6 days; and 24 (48%) of all patients having cardiogenic shock and underwent intra-aortic ballon pump insertion.

The age, history of heart failure, history of MI, onset of MI, cardiogenic shock, pneumonia, hemoglobin and leukocyte level, lactate, use of inotropic, use of vasopressor, mechanical ventilation and intra-aortic balloon pump were associated with in-hospital mortality, meanwhile revascularization with CABG and surgical closure were associated with survival. After adjusted, multivariate analysis showed that diabetes mellitus (p=0.018 OR 46.6 95%CI 1.9-1113), cardiogenic shock (p=0.046 OR 14 95%CI 1.05-187.6), mechanical ventilation (p=0.016 OR 21.6 95%CI 1.78-262.9), and use of vasopressor (p=0.007 OR 40.23 95%CI 2.7-594.8) are most related predictors of VSR mortality.

**Conclusion:** This single center 7-years retrospective study showed high rate of mortality among STEMI-VSR, and the presence of diabetes mellitus, cardiogenic shock, mechanical ventilation, and use of vasopressor were observed to be independent predictors of in-hospital mortality.

**Keywords:** ventricular septal rupture, myocardial infarction, mortality



**113. Improving The Quality of Life: A Follow Up for Patients Who Underwent Mitral Valve Surgery , Left Atrial Reduction and Left Atrial Appendage Closed with Congestive Heart Failure, Mitral Valve Disease, dilated Left Atrial and concomitan Atrial Fibrillasi ,a Single Center experience at Eka Hospital Pekanbaru**

Jindan F MD.FECTS.FSTS, Afrila H MD,Marzuki A MD

**Background:** To observe the improvement in quality of life from patient in Congestive Heart Failure (CHF) with Mitral Valve Disease (MVD), dilated Left Atrial and concomitant atrial fibrillation (AF). Who underwent Mitral Valve Surgery (MVS) and Left Atrial Reduction (LAR) and Left Atrial Appendage (LAA) closed based on their follow up result.

**Method:** A descriptive cross sectional study were conducted. The subject of this study was patients who underwent the MVS, LAR and LAA closed with CHF, MVD ,dilated LA (LA dimension more than 60 mm) and concomitant AF from 2014-2019 in Eka Hospital Pekanbaru. The improvement in quality of life determined based on functional class of New York Heart Association (NYHA), Left Ventricular Ejection Fraction (LVEF), stroke event and AF before and after the surgery were compared.

**Result:** We compared the outcomes of 4 patients who fulfill the inclusion criteria. The NYHA class pre and post surgery has changed from NYHA III to NYHA I in six months after the surgery. LVEF of the patients also changed, none of them decreased below 50%. One patient has experienced Transient Ischemic Attack (TIA) before the surgery, no recurrent stroke after the surgery. All patients had AF NVR after the surgery and never experienced deteriorate condition due to AF.

**Conclusion:** MVS, LAR and LAA closed could improve the patient's quality of life, especially in reduce the functional class of NYHA in such of condition described.

**Key words:** Atrial fibrillation, Mitral Valve Diseases, Surgery, Left Atrial dilatation,Reduction,Left atrialappendage closed, NYHA class, LVEF



#### 114. The Relationship Between Differential Count in Hematologic Routine Assay and SYNTAX SCORE in Acute Coronary Syndrome Complexity

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**Background:** Troponin level has been correlated with major cardiovascular event and adverse cardiovascular events, but troponin assay itself is not readily available in country like Indonesia. We assessed the predictor of differential count in hematologic routine assay in acute coronary syndrome and the complexity of acute coronary syndrome (ACS) based on SYNTAX Score

**Methods and Results:** The study was taken retrospectively in 31 patients who undergone percutaneous coronary intervention (PCI) due to ACS were studied (7 females, 24 male, mean age  $57.58 \pm 7.81$  years). The patients are divided according to SYNTAX score which score  $\leq 22$  (n= 16); SYNTAX score 23-38 (n= 6); and SYNTAX score  $> 38$  (n=9). Bivariate analysis using pearson correlation shows no significant correlation between neutrophil, basophil, lymphocyte, platelet, and hematocrit respectively (pearson correlation coefficient: p value; 0,007: 0.971; 0.131: 0.484; -0.14: 0.942; -0.176; 0.344; 0.095; 0.611). Multiple linear regression analysis showed no significant independent predictor of SYNTAX score in ACS patients for neutrophil, basophil, lymphocyte, platelet, and hematocrit respectively ( $p=0.451$ ;  $p=0.391$ ;  $p=0.582$ ;  $p=0.307$ ;  $p=0.877$ ;  $\alpha<0.05$ ).

**Discussion:** This study is taken with the insight of inflammation in atherosclerosis can be expected for predictor of complication in ACS. There are no significant correlation and independent predictor for SYNTAX score after PCI as reliable composite marker of inflammation. In many studies, high sensitive troponin is still the best predictor of significant coronary lesion.

**Conclusion:** Hematologic routine analysis was not significantly correlated with angiography severity assessed by Syntax Score.

**Keyword:** Hematologic routine analysis, SYNTAX Score



### 115. Clinical outcomes in patient with non-ST elevation acute coronary syndrome (NSTEMI-ACS) with prior history CABG

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**Background** :Early invasive strategy in patient with a non-ST segment elevation acute coronary syndrome (NSTEMI-ACS) have been reported to reduce in-hospital mortality. However, early revascularization is rarely performed in NSTEMI-ACS patients with prior history of CABG. This study aimed to observe whether invasive strategy has beneficial effect in clinical outcomes of NSTEMI-ACS patients with prior history of CABG.

**Methods** :A retrospective study was performed through electronic medical record tracing. Sixty-two NSTEMI-ACS patients with history of prior CABG admitted during period of June 2016 until July 2019 in our hospital were analyzed. Patients were classified to early invasive management and medical therapy only. The clinical outcomes were in-hospital mortality, re-hospitalization due to ACS or heart failure and all-cause mortality within 6 months after ACS-event.

**Results** :Among 62 patients, 18 patients underwent urgent coronary angiography, and only 9 (14.5%) underwent PCI. Non-patent SVGs were found in 14 patients and occluded LIMA were seen in 5 patients. About 86.4% (32 of 37) NSTEMI-ACS patient with high risk and very high risk stratification were treated non-invasively during ACS-event.

There is no difference in in-hospital mortality between invasive and medical groups (11.1% Vs. 16.9%,  $p=0.66$ ), and in 6-month mortality rate (0% Vs. 5.6%,  $p=0.5$ ). Incidence of re-hospitalization due to ACS and heart failure in 6 months after ACS event also statistically comparable between two groups (25% Vs. 20.5% and 37.5% Vs. 48.7%,  $p=0.56$  vs  $p=0.78$ , respectively). We further found that NSTEMI-ACS patient with acute heart failure (AHF) on admission and high risk-to-very high risk stratification have higher in-hospital mortality rate. However, after adjusted to other clinical variables they were not independent predictor for mortality.

**Conclusion** :In NSTEMI-ACS patients with history of prior CABG, rate of invasive strategy was very low. There were no differences in clinical outcomes during hospitalization and in 6 months after ACS-event between patient underwent early invasive strategy and medical therapy only.

Keywords: NSTEMI-ACS, CABG, early invasive strategy, medical therapy



116. **Cardiomegaly and Other Clinical Prognostic Factors of Mortality in Adult COVID-19 Patients: a Study from Koja General Hospital**

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**Background:** COVID-19 is a current global pandemic. Data on the clinical characteristics of patients with COVID-19 are still limited in Indonesia. Although there have been several studies investigating the prognostic factors for mortality in COVID-19, there have been no such studies in the country.

**Methods :** A retrospective cohort study was conducted on 243 hospitalized adult patients with confirmed COVID-19 in Koja General Hospital, a tertiary and COVID-19 referral hospital in North Jakarta. Data was collected on patients admitted from March to July 2020. Demographic, clinical, laboratory, and radiology data were collected and analyzed. In-hospital mortality, regardless of the length of stay or cause of death, was the end-point. Univariate followed by multivariate regression analysis were used to evaluate the association between potential factors and mortality.

**Results :** Cardiomegaly (odds ratio [OR] 2.74, 95% confidence interval [CI] 1.05-7.15, p=0.039), high level of creatinine (OR 3.07, 95% CI 1.23-7.69, p=0.016), the use of chloroquine (OR 3.34, 95% CI 1.32-8.42, p=0.011), abnormal leukocyte count (OR 4.84, 95% CI 1.75-13.38, p=0.002), absolute lymphocyte count (ALC) <1000/ $\mu$ L (OR 2.87, 95% CI 1.14-7.19, p=0.025), and D-dimer >500 ng/mL (OR 10.81, 95% CI 2.36-49.45, p=0.002) at admission were associated with higher risk of mortality. Subgroup analysis was conducted in the use of chloroquine, with significant correlation with mortality within a week (OR 4.23, 95% CI 1.49-12, p=0.007) yet none with 48-hours mortality. The likelihood of mortality increased with an increasing number of prognostic factors.

**Conclusion :** Cardiomegaly, high level of creatinine, the use of chloroquine, abnormal leukocyte count, low level of ALC, and high level of D-dimer are independent predictors of mortality in adult COVID-19 patients. Appropriate assessment of prognostic factors and close monitoring in high-risk patients may reduce the case fatality rate of COVID-19.

**KEYWORDS**

Cardiomegaly, prognostic factors, COVID-19, mortality, Indonesia





### 117. Improvement of Hyperglycemia through Modulation of IRS-1 and GLUT-4 Genes Expression in Metabolic Syndrome Rat Model after Green Coffee Extract Administration in Dose-Dependent Manner

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**Background :**Hyperglycemia improvement is the major target in metabolic syndrome. Skeletal IRS-1 and GLUT-4 expression are the key target in hyperglycemia improvement. This study aimed to investigate the effect of green coffee extract on skeletal IRS-1 and GLUT-4 and hyperglycemia improvement in metabolic syndrome rat models.

**Methods:** Twenty Sprague Dawley Metabolic Syndrome Rat Model weighed 300 – 400 grams were divided into GCE 100 (n=5), and GCE 250 (n=5) groups. Moreover, as control groups, ten rats were divided into normal control (NC) (n=5), and metabolic syndrome (MS) (n=5) groups. Rats in the GCE 100 and 250 groups were treated once daily with green coffee extract at a dose of 100 and 250 mg/bw.t respectively. The extract was administered for 9 weeks through oral gavage. Skeletal IRS-1 and GLUT-4 gene expression were analyzed by RT-PCR methods.

**Results:** This study showed that the GCE 100 dan GCE 250 group achieved a significantly lower fasting blood glucose compared to that of MS group ( $p<0.05$  and  $p<0.05$  respectively) . In addition, GCE 250 group had the lowest fasting blood glucose among all group. Moreover, GCE 100 and GCE 250 group achieved a significantly higher skeletal IRS-1 dan GLUT-4 gene expression compared to those of MS group whereas the gene expression of GCE 250 group was the highest among all groups ( $p<0.05$  and  $p<0.05$  respectively).

**Conclusions :**Administration of green coffee extract improved hyperglycemia through skeletal IRS-1 dan GLUT-4 gene expression modulation in metabolic syndrome rat model in dose-dependent manner.

**Keywords:** Green tea, Hyperglycemia, IRS-1, GLUT-4 , Metabolic Syndrome



118. **Blood Glucose Level in Patient with Acute Myocardial Infarction:  
“Which Glucose- related Variables are Associated to Mortality in Acute Myocardial Infarction  
Patient?”**

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**Background:** Several studies previously reported that history of Diabetes Mellitus increases cardiovascular-related mortality. Adverse cardiac events increased in patients with acute myocardial infarction. However, the predictive value of other glucose-related variables toward it is still uncertain. Therefore, we conducted a study to assess the association between some glucose-related variables and mortality in patient with acute myocardial infarction.

**Method:** The data was derived from Sardjito Cardiovascular Intensive Care Registry. We enrolled 283 patient with Acute Myocardial Infarction from January 2020 to July 2020. Association of glucose- related variables including random blood glucose on admission (ARBG), fasting blood Glucose, glycosylated hemoglobin (HbA1c) and glucose variable tendency (GVT) to the worst outcome of acute myocardial infarction patients was analyzed.

**Result:** A total, 283 subjects of Acute Myocardial Infarction Patient ( mean age 60.05±11.02 years old; 77.4% male) who met the inclusion and exclusion criteria were enrolled consecutively in this study. Based on data analysis we found significant correlation among the glucose- related variables such as random blood glucose on admission ( p=0.000), Fasting Blood Glucose ( p= 0.000) and glycosylated hemoglobin (p=0.005) toward mortality in patient with acute myocardial infarction. The predictive value of glucose variable tendency with mortality showed un significantly correlated in this study ( p=0.813)

**Conclusion:** In conclusion, compared to glucose variable tendency, some other glucose-related variables such as random blood glucose on admission (ARBG), fasting Blood Glucose, glycosylated hemoglobin (HbA1c) were statistically significant correlated with mortality in acute myocardial infarction patient. However, even though our result showed there was no significant correlation with glucose variable tendency, but blood glucose level needs to be considered as a predictor mortality in Patient with Acute Myocardial Infarction.

**Keywords:** Fasting Blood Glucose, Random Blood Glucose, Glucose Variable Tendency, Acute Myocardial Infarction, Mortality.



119. **Characteristic of Permanent Pacemaker Implantation in Yogyakarta:  
An Insight from A New Registry**

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**Background:** Permanent pacemaker (PPM) implantation has significantly increased over the decades. It may lead to many consequences such as increased infection rate, mortality, morbidity, and prophylactic antibiotic choices. To date, there is no post-implantation infection rate data available in Indonesia.

**Method:** A descriptive observational study of patients registered in PPM Implantation Registry – Dr. Sardjito General Hospital was conducted. Subject were patients undergone PPM implantation from January 2018 to December 2019. A baseline characteristic (age, gender, diagnosis), type of implanted PPM, and infection rate were described further.

**Result:** The mean age of 201 subject was 68±14.12 years old with 110 (54.72%) female subjects. The subject who diagnosed with Sinus Node dysfunction, AV Node dysfunction, and Sinus-AV Node dysfunction were 47 (23.38%), 129 (64.17%), and 25 (12.45%), respectively. A total of 82 (40.79%) patients were implanted dual-chamber PPM while 119 (59.21%) patients were implanted single-chamber PPM. Out of all subjects, 194 patients were newly implanted PPM while 7 patients undergone PPM replacement. A three months follow ups showed 6 (2.98%) patients diagnosed with PPM infection.

**Conclusion:** The most common indication for PPM implantation in Yogyakarta was AV Node dysfunction with the post-implantation infection rate was as low as 2.9%.

Keywords: Permanent pacemaker, PPM Infection, Registry



## 120. Predictors of Acute Heart Failure in Non-ST-Elevation Myocardial Infarction Patients

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**Background:** Non-ST-elevation myocardial infarction (NSTEMI) is a type of acute coronary syndrome (ACS) known as the leading cause of death worldwide. Acute heart failure (AHF) is one of the major complications of NSTEMI where about one-third of patients present with signs of AHF. The presence of AHF in the setting of NSTEMI indicates a poor prognosis and correlates with high mortality risk. Hence, this study aimed to identify predictors of AHF among NSTEMI patients.

**Methods:** A retrospective cross-sectional study was conducted in a subset of NSTEMI patients presented to Cibinong Hospital in 2019 without prior history of chronic heart failure (CHF). The data were collected in a consecutive manner. Chi-square test, Fisher exact, and Mann-whitney test, and multivariate analysis using logistic regression were performed appropriately for assessing the significance of each factor.

**Results:** 44 (45%) of 98 NSTEMI patients developed AHF during the NSTEMI onset. From the bivariate analysis, age ( $p=0.001$ ), onset of chest pain ( $p=0.006$ ), history of atrial fibrillation (AF) or atrial flutter ( $p=0.016$ ), systolic blood pressure (SBP) ( $p=0.001$ ), heart rate (HR) ( $p<0.001$ ), creatinine level ( $p=0.027$ ), ST-segment depression on electrocardiogram (ECG) ( $p=0.024$ ) were found to significantly associated as predictive factors of AHF in NSTEMI patients. From the multivariate analysis, age ( $p=0.017$ ; OR=5.47 [CI 1.35-22.16]), SBP ( $p=0.034$ ; OR=2.95 [CI 1.09-8.01]), and HR ( $p<0.001$ ; OR=22.63 [CI 5.96-85.92]) were found to be independent predictors of AHF among NSTEMI patients.

**Conclusion:** Patient's age, onset of chest pain, history of AF or atrial flutter, SBP, HR, creatinine level, and ST-segment depression on ECG were the independent predictors of AHF among patients presented with NSTEMI.

**Keywords:** AHF, NSTEMI, Predictors



### 121. Trends in Clinical Profile, Hospital Mortality and Its Predictive Factors, of Acute Heart Failure Cases in RSUD Kota Madiun

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**Background:** There is a gap in the knowledge of heart failure status in Indonesia. This study aimed to examine the clinical profile of acute heart failure patients in RSUD Kota Madiun and the factors related to mortality, particularly in 2020.

**Methods:** 213 patients with acute heart failure (AHF) admitted from January to June 2020 at RSUD Kota Madiun, Indonesia, were enrolled. The data were collected using Swedish Heart Failure registry. We also compared it with the previous data on 2017-2018.

**Results:** From 213 patients with symptoms of AHF, over half (53.1%) were male. The median age was 63 years. The most common etiology of AHF were hypertension accounting for 52.6% of cases. The most prevalent sign observed was rales (97.4%), followed by peripheral oedema (11.7%). About 83.6% patients had at least one comorbidity. Most of the patients (97.7%) were prescribed diuretics, 42.7% angiotensin-converting enzyme inhibitors (ACE-I), 28.2% angiotensin receptor blockers, 68.5% beta-blockers, and 70.9% mineralocorticoid receptor blockers. The median length of stay (LOS) was four days and the hospital mortality rate was 9.4%. Compared with the data in 2017-2018, we observed a higher frequency of the patients receiving ACE-I (42.7% versus 18%,  $p < 0.001$ ), shorter LOS (4 versus 6.26 days,  $p < 0.001$ ), and lower mortality (9.4% versus 17%,  $p = 0.052$ ). From the multivariate analysis, a higher potassium serum on admission and cerebrovascular accident comorbidity were the significant predictors of hospital mortality (OR=1.49; CI 95% 1.08–2.05 and OR=7.37; CI95% 1.56–34.66).

**Conclusion:** Hypertension remains the leading cause of heart failure in RSUD Kota Madiun. In 2020, we observed a higher frequency of the patients receiving ACE-I, shorter LOS, and lower hospital mortality of AHF and also a high potassium serum and cerebrovascular accident comorbidity as significant predictors of hospital mortality.

**Keywords:** acute heart failure; clinical characteristics; management; mortality



122. Acute Heart Failure Admissions Rate and Patients Profile  
Before and During the Coronavirus Disease 2019 Pandemic in Madiun:  
a single-centre study

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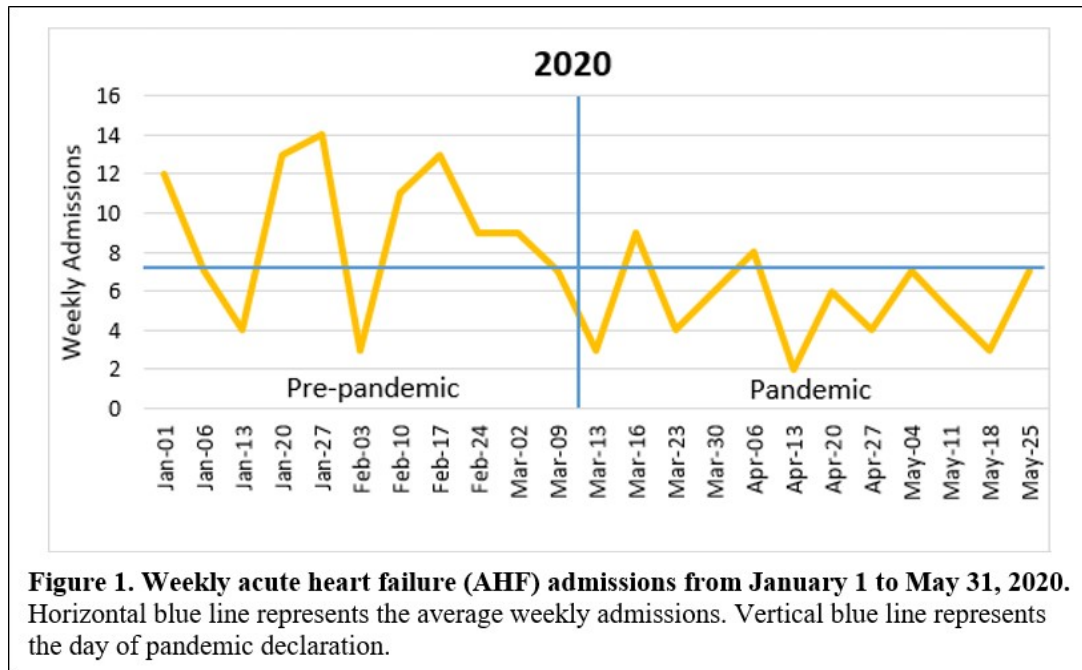
**Background:** Heart failure still becomes a public health problem with increasing incidence and high rates of hospital admission. The World Health Organization declared coronavirus disease (COVID-19) as a global pandemics on March 12, 2020. We investigate the impact of COVID-19 on acute heart failure (AHF) admission rates before and during the pandemic.

**Methods:** This cross-sectional study investigated the admission rates, clinical characteristics and management of AHF patients admitted before and during the pandemic (January 1 to March 12 versus March 13 to May 31) at RSUD Kota Madiun, Indonesia, using Swedish Heart Failure Registry. We also compared the AHF admissions in corresponding periods at 2017 and 2018.

**Results:** AHF weekly admissions between January 1 and May 31 in 2020 were comparable with 2017 and 2018 ( $p=0.598$ ;  $p=0.584$ ). A significantly lower AHF weekly admission was observed during the pandemic compared to before pandemic in 2020 (5.33 versus 9.27;  $p=0.007$ ). In-hospital mortality was higher in during pandemic group (16.92% versus 5.94%;  $p=0.023$ ). Patients admitted after COVID-19 pandemic declaration had lower hypertension comorbidity (47.7% versus 64.4%,  $p=0.034$ ), lower peripheral oedema (3.5% versus 19.8%,  $p=0.004$ ), and higher creatinine and urea level on admission ( $P<0.05$ ). Patients receiving angiotensin-converting enzyme inhibitor (ACE-I) and mineralocorticoid receptor antagonist (MRA) were significantly lower in during pandemic group (32.3% versus 52.5%,  $p=0.011$ ; 60% versus 75.2%,  $p=0.038$ ; respectively).

**Conclusion:** The AHF weekly admissions were significantly lower, the the in-hospital mortality was higher during the COVID-19 pandemic. Some of the clinical characteristics and management of AHF patients before and during the pandemic were significantly different.

**Keywords:** Acute heart failure; Pandemic; COVID-19; Admissions





### 123. Correlation of Neutrophil to Lymphocyte Ratio and Ejection Fraction in Patients with Coronary Artery Disease: A Study in North Sulawesi

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**Background:** Inflammation has a vital role in the pathogenesis of heart failure (HF) and also coronary artery disease (CAD). Neutrophil-to-lymphocyte ratio (NLR) is an inflammation marker that was proposed to have a correlation with ejection fraction (EF). This is a simple examination and can be obtained routinely in clinical practice. The aim of this study was to investigate the correlation of NLR with EF in hospitalized patients with CAD.

**Methods:** This was an observational analytic cross-sectional study consist of 47 eligible CAD patients from May until August 2019 at Prof Dr. R.D. Kandou Hospital in North Sulawesi. They underwent echocardiography for EF calculations. They also had their blood examined for NLR measurement and risk factors screening. All of the patients were treated according to the guideline. Data were then analyzed using Spearman test in SPSS v26.

**Results:** From the statistical analysis, the majority of the sample was male (70.2%) with mean age 60 years old. Hypertension was found in 76.6% and smoking history in 51.1% patients. NLR was shown to have a significance correlation with EF in patients with CAD ( $p=0.014$ ). Limitations of this study were predominantly male patients, small sample number and cross-sectional study design.

**Conclusion:** NLR was shown to have a significance correlation with EF ( $p=0.014$ ). The usage of NLR could be a useful tool for the clinician to predict heart failure in specific population.

Keywords: Neutrophil-to-lymphocyte ratio, neutrophil, lymphocyte, ejection fraction, heart failure, coronary artery disease.





Table 1. Patients characteristics.

Variables	Mean	Percentage (%)	SD	Q1	Quartile Median	Q3	Missing
Sex (Male)		70.2					
Age				53	61	67	
BMI	26.33		3.6				
BSA	1.77		0.19				
W/H Ratio	0.99		0.06				
DM		46.8					
Hypertension		76.6					
Smoking		51.1					
Dyslipidemia		38.3					
Haemoglobin	13.4		1.51				
Leucocyte				6500	7700	9500	
Thrombocyte				214000	248000	291000	
Uric acid	7.23		1.84				
eGFR	75.91		22.47				
Total cholesterol	162.47		44.02				
HDL				29	34	39	
LDL	96.21		37.01				
Triglyceride				105.5	145.0	198.5	
HbA1C				5.85	6.5	8.25	6
NLR				1.65	2	2.6	
EF				56	62	70	
SYNTAX	20.23		12.82				

Table 2. Correlation of NLR with EF.

Correlations			NLR	EF
Spearman's rho	NLR	Correlation Coefficient	1.000	-.355*
		Sig. (2-tailed)	.	.014
		N	47	47
	EF	Correlation Coefficient	-.355*	1.000
		Sig. (2-tailed)	.014	.
		N	47	47

\* Correlation is significant at the 0.05 level (2-tailed).

\* NLR = neutrophil-to-lymphocyte

\* EF = ejection fraction