ABSTRACT BOOK

ICOBI PST
International Conference on Biomedical & Pharmaceutical Sciences and Technology

IN CONJUNCTION WITH ICONIET 2022
Opening Remarks

Dean of Faculty of Medicine, Universitas Brawijaya

First, let us thank God, the Almighty, who has given His grace and guidance so that the International Conference on Biomedical and Pharmaceutical Science and Technology (ICOBIPST) with the theme of “Current Innovation and Technology in Cardiovascular Disease Management” can be organized and launched.

I welcome all of you to this conference which has received great attention, not only from the university, cardiology college, national researchers, and student, but also from international institutions and the general community. I express my highest gratitude and appreciation for the speakers and participants.

I believe that this conference will be the source of creative ideas, concepts, and breakthroughs in the development of innovation and technology in the future, especially in the field of sustainable development.

This conference will not be well organized without the support of various parties, especially the sponsors and contributions from the participants. Therefore, I want to express my deepest gratitude.

I especially thank the organizing committees for their hard work, perseverance, and patience in preparing and organizing this conference so that this event goes smoothly and successfully.

Finally, through this seminar, let us extend the network and cooperation among all stakeholders of the health and technology sectors in Indonesia and worldwide to build a better health care in Indonesia.

Sincerely,

Dr. dr. Wisnu Barlianto, Sp.A(K)
Dean of the Faculty of Medicine – Universitas Brawijaya
Opening Remarks
Chair of the International Conference on Biomedical and Pharmaceutical Science and Technology (ICOBIPST)

As part of the efforts to achieve international recognition, participate in the global competition, and support the vision of becoming a World Class University, the Faculty of Medicine Universitas Brawijaya is organizing international seminars. One of these seminars is the International Conference on Biomedical and Pharmaceutical Sciences under the title International Conference on Biomedical and Pharmaceutical Science and Technology (ICOBIPST). With this year’s theme of “Current Innovation and Technology in Cardiovascular Disease Management”.

This event is held to bring together leading academicians, researchers, scientists, students, and residents in related fields to exchange and share their experiences and research results. This activity also provides a key interdisciplinary platform for researchers, practitioners, and educators to present and discuss the latest innovations, trends, concerns, practical challenges faced, and solutions adopted in the fields of cardiology and biomedical and pharmaceutical sciences in general.

In this opportunity, I would like to extend my gratitude to the fundings who generously supported this event. The success of this event is also brought by the hard work of our organizing committee, scientific and reviewer team, and residents, to whom I am greatly thankful for. Finally, I wish for a fruitful and enjoyable time for all our participants. It is of our utmost hopes that you gain the most during this event.

Sincerely,

Prof. dr. Mohammad Saifur Rohman, Sp.JP (K), Ph.D., FSCAI
Chair of ICOBIPST / Deputy Dean for Academic Affairs Faculty of Medicine – Universitas Brawijaya
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Part 1

Technological Advancements in Cardiology
Abstract ID: 0138

The role of STEMI Integrated Networking System based on tele-cardiology for reducing delayed during COVID-19 pandemic: Insights from the single tertiary healthcare center in Malang East Java Indonesia

Muhamad Rizki Fadlan¹, Ahmad Isna¹, Ardian Rizal¹, Setyasisih Anjarwani¹, M Saifur Rohman¹, and on behalf of contributors for Saiful Anwar Hospital Acute Coronary Syndrome Pre Hospital Network

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Background: During a public health emergency, such as outbreak of COVID-19, delayed for reperfusion become even more challenging to predict. Telecardiology has the advantage of reducing STEMI patient's access time to the emergency units and reduces the delayed for reperfusion.

Purpose: Evaluate the impact of this program on pre-hospital and in-hospital (door-to-balloon) delays in STEMI patients admitted to Saiful Anwar Hospital (Tertiary Healthcare Center in Malang East Java Indonesia) who performed Primary PCI between Pre Covid-19 and Covid-19 Era

Method: This is a retrospective, observational study that included all patients, 18 to 90 years of age, who presented with STEMI via Saiful Anwar ACS prehospital network or through the Accident and Emergency department at Saiful Anwar General Hospital. They were classified in four groups according to the method of admission: conventional emergency department group pre COVID-19 era (Group A), Saiful Anwar ACS prehospital network – group pre COVID-19 era (Group B), Conventional emergency department group in the COVID-19 era (Group C), and Saiful Anwar ACS prehospital network – group in COVID-19 era (Group D). We selected a time frame of 1 month after declaration of COVID-19 infection as a “Pandemic” (ie, March 1 until December 31th 2020; COVID-19 era group). A group of STEMI patients from a similar time period of last year (ie, March 1 until December 31th 2019; pre-COVID-19 era group) was used as control. Outcomes of interest were number of patients referred for reperfusion, distribution of total ischemic time of patients referred in the network and door to crossing wire time.

Results: A total of 184 patients were included in this study (123 Pre-COVID-19 and 61 during the COVID-19 Pandemic) according to the method of admission: Group A, 27 patients, Group B, 96 patients, Group C 25 patients, and Group D 36 patients. We found significant 42% drop in the number of STEMI patients treated by PPCI in Saiful
anwar general hospital during pandemic era. Group B had the lowest mean of total ischemic time compare than group A, D, and C (217.34±116 minute, 285±165 minute, 432±204 minute, 609±246 minute, Respectively, P=0.000. Group B had the lowest mean of crossing wire time compare than group A, D, and C (82±10.9 minute, 96.4±48 minute, 175±41 minute, 132±38 minute, Respectively, P=0.000. The proportion of ischemic time delay > 720 minutes was more higher in Group C than Group D (36% vs 13.9%, P = 0.045, respectively). The proportion of crossing wire time > 140 minutes was more higher in Group C than Group D (76% vs 27.8%, respectively, P=0.000). The proportion of inhospital mortality was more higher in group C compare than group D (32% vs 11.1%, respectively, P=0.045).

**Conclusion**: Our STEMI networking based on tele-cardiology system reduce the ischemic time delayed, Crossing wire time delayed and Inhospital mortality during pandemic COVID-19 era.

**Keywords**: STEMI delayed, COVID-19, Telecardiology
Abstract ID: 0429

A case study of multimodality in a complex percutaneous intervention procedure

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\textsuperscript{2}Saif ul Anwar Hospital, Malang, Indonesia.

Background: The ideal placement of a stent is difficult to achieve in lesions that are complex. Clinical investigations have shown that accurate lesion assessment and pre-treatment with the proper instrument prior to stent insertion is the most effective technique for attaining optimal stent deployment.

Case Summary: A 59-year-old man with heart failure, chronic coronary syndrome, and diabetic renal disease was admitted with moderate-to-heavy activity-induced shortness of breath. Coronary angiography revealed a significant calcified lesion with widespread stenosis from the ostial to distal Left Anterior Descending artery. A patient's Percutaneous Coronary Intervention was initiated with a compliant balloon and scoreflex, but they ruptured. In spite of using the anchoring approach, the operator was unable to penetrate the lesion. Successfully crossing the lesion with a microcatheter and performing rotational atherectomy. The patient's ostial - mid Left Anterior Descending artery contained two stents.

Discussion: We present a patient who has multiple complicated lesions. The management of complex lesions begins with balloon predilation, the purpose of which is to provide a channel for the introduction of a stent and to estimate the length and diameter of the lesion. During this treatment, the guiding catheter that is being utilized is not supported. Therefore, a balloon is inflated in a side branch of the target channel in an attempt to support the guiding catheter and equipment supply; nevertheless, the balloon is unable to penetrate the lesion. By advancing a rotating abrasive burr in a forward direction, an atherectomy known as rotational atherectomy was carried out in order to remove atherosclerotic plaque. After a follow-up period of four months, the patient remained stable and symptom-free.

Keywords: High calcified lesion, compliant balloon, scoreflex, anchoring technique, rotational atherectomy
Abstract ID: 2838

First non-invasive 3D mapping and ablation of premature ventricular contraction from posteroseptal RVOT origin in RSSA Malang

Y. Afifah, MD¹ C. Kahadi MD¹ D. Setiawan MD¹ A. Rizal, MD, FIHA¹

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PVC is well-established to be treated by ablation. We present case report of successfully 3-dimensional mapping and ablation from the posteroseptal RVOT origin in our institution.

Case Presentation: Female, 30 years old, came to Saifur Anwar Hospital because of palpitation since one year ago accompanied by chest pain and dyspnea. From her physical examination and resting ECG was normal limit. We take a Holter Monitoring and the result was sinus rhythm with triplet, couplet, bigeminy, trigeminy and interpolated PVC episodes. PVC present with suggestive PVC originated from septal RVOT origin. Then she underwent 3D mapping and ablation. After RV geometry was created with 3D mapping anatomy system, we performed mapping in the septal area and score mapping in that area showed 92%, so we ablate that area with RFA 30 watt, 60 degree for 120 second, after we observe for 20 minutes, PVC was disappear. We conclude this ablation was successful without any complication. After ablation, the patient was no further episodes of PVCs detected.

Conclusion: We present a case with successful PVC ablation from posteroseptal RVOT origin. With 3 Dimentional mapping make a good outcome by careful preprocedural planning using 3D mapping, and precise electro-anatomical mapping and ablation.

Keyword: PVC, Posteroseptal RVOT origin, 3D Ablation
Abstract ID: 3808

**Procedure related factors as in-stent restenosis caused among patient underwent DES implantation in Saiful Anwar General Hospital Malang**

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**Objective:** To reduce further revascularization caused by In-stent (ISR) that may be considered in accordance with three factors (patient, lesion and procedure related). Procedure factors related with type of stent, stent overlapped and stent length.

**Material and Methods:** Coronary angiography evaluation after DES insertion since January 2018 to July 2022 were selected. The characteristics and results of clinical examination of ISR and non-ISR patients were compared, Multivariate logistic regression analyses were performed to identify the risk factors. Subanalysis model using AUC and ROC Curve to evaluate stent length cut off that significantly caused ISR

**Results:** A total of 3335 patients were included, the incidence of ISR after PCI was 9.3%. stent factors that we analysed in this research were type of stent, Stent Length, maximum balloon pressure and overlapped stent. We found stent overlapped as one of the significant predictors of ISR (p=0.024). stent type factor showed that among ISR population 10% are Sirolimus Eluting Stent, Everolimus Eluting Stent (30.3%), BES (0.6%), AES (26.2%), SES + anti CD4 (20.6%) with no significant correlation (p=0.401), and so does max balloon pressure (p=0.365). We evaluate subclinical analysis for stent length cut off >33.5 mm increased the risk of ISR with fair sensitivity but less specificity.

**Conclusion:** Stent overlapped and greater stent length were associated with a higher risk of ISR from stent factors. Patients with a higher risk of ISR should be had a proper lesion preparation before the procedure to avoid ISR in the next time
Short-interfering RNA (siRNA) has the potential to treat various diseases by focusing on the silencing of specific genes. It is currently considered as an alternative method to treat cardiovascular damage that developed after the Covid-19 infection. If the damage sustained for a prolonged time, it will lead to several other cardiovascular problems such as myocarditis. Application of compatible delivery systems can overcome the immunogenicity caused by the off-target reactions and sensitive interaction of siRNA with other cells. Therefore, the purpose of this scoping review was to identify effective delivery systems of siRNA therapy for treating cardiovascular problems during Covid-19 based on current studies. The search applied appropriate keywords involving three online databases: PubMed, Scopus, and ScienceDirect. The article selection was based on Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) guideline and all articles conformed the inclusion and exclusion criteria were published from 2010 until 2022. A total of six articles discovered effective delivery systems consisting of distinct type of siRNA used to silence the gene expression in specific cardiovascular damage, which are ischemia-reperfusion injury, myocarditis, myofibroblast, venous thrombosis and atherosclerosis. Both in vivo and in vitro approaches have their compatible delivery methods and administration routes for each type of siRNA. The methods of siRNA delivery involved the application of naked siRNA, specific-targeting nanocomplexes and extracellular vesicles. These siRNAs are administered through chemical transfection, intravenous injection and subcutaneous injection.

**Keywords:** delivery system, short interfering RNA, cardiovascular, heart, vascular
Abstract ID: 5619

Percutaneous balloon pulmonary valvuloplasty for critical pulmonary stenosis baby as a challenging management in regional hospital

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Background: Severe or critical right ventricular outflow tract obstructions are life-threatening conditions. Percutaneous balloon pulmonary valvuloplasty is the preferred therapy for pulmonary valve stenosis.

Case Summary: A-50-day-old cyanotic baby girl, weighing 4.4 kg, was admitted to hospital with a bluish appearance insidiously progressing over the preceding 2 weeks. Transthoracic echocardiogram (TTE) revealed critical pulmonary valvular stenosis with pulmonary valve annulus diameter 7 mm, severe tricuspid regurgitation (TR), restrictive intraatrial mixing physiology, and an almost spontaneously closed Patent Ductus Arteriosus. The patient underwent percutaneous balloon pulmonary valvuloplasty (BPV). The available balloon, Tyshak mini balloon 9.0 mm x 20 mm, failed to traverse across the stenosis. It was replaced with coronary balloon 2 mm x 10 mm and inflated several times with a maximum pressure of 10 mmHg within 10 seconds. After the valve was adequately opened, the coronary balloon was replaced by previous Tyshak mini balloon. It was inflated once with pressure of 3 mmHg for 5 seconds. Successful dilatation is indicated by the disappearance of the waist around the balloon under cineangiography. RV-PA gradient decreased from 67 mmHg to 38 mmHg, a 43% reduction. After the procedure, the patient was no longer cyanotic. TTE after BPV demonstrated no pulmonary stenosis, TR TVG decreased from 100 mmHg to 20 mmHg, and no pulmonary regurgitation.

Discussion: Our successful results suggest that percutaneous balloon pulmonary valvuloplasty is a potential and safe intervention
for babies with critical Pulmonary Stenosis that was conducted in regional hospital.

**Keyword:** pulmonary stenosis, percutaneous balloon pulmonary valvuloplasty
Abstract ID: 8732

The use of intraaortic balloon pump in bifurcation stenting of unprotected left main coronary artery disease

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Introduction: Unprotected obstructive left main coronary artery disease (LMCA) refers to patients without bypass to the left coronary circulation (left anterior descending (LAD) and left circumflex coronary artery (LCx)). It has been identified as a high-risk condition. PCI for unprotected left main coronary artery (ULM) disease has also reemerged as a possibility and is one of the important challenges and controversies currently facing interventional cardiologists. Besides controversies related to technical approaches for stent implantation, use of prophylactic intraaortic balloon pump (IABP) in ULM stenting is still on debate.

Case Illustration: We report a case of a Left Main Bifurcation Lesion (Medina 1-1-1) underwent successful elective bifurcation stenting with IABP support during procedure. A 73-year-old man with chief complaint of chest pain. The risk factor was Heavy Smoker. He had history of STEMI in 2019 and performed Primary PCI at mid LAD. But in the last month, he got heart attack and hospitalized for 7 days, then referred to our hospital to performed PCI procedure. Euroscore was 7 and Parsonnet score was 12.

Procedure: The CAG was performed and the result revealed 90% stenosis in distal LM, 95% stenosis in ostial-proximal LAD and 90% stenosis in ostial-proximal LCx. That was a Medina class 111 bifurcation. Based on internal consensus from San Raffaele Hospital, Milan, Italy, indication for elective use of IABP included at least one of the following criteria: (1) lesion located in the distal segment of the left main (LM) (bifurcation lesion), (2) left ventricular ejection fraction (LVEF) b 40%, (3) rotational or directional atherectomy, (4) unstable angina, and (5) critical disease of the right coronary artery. Because this patient had 90% stenosis in distal LM with Medina class 111, an IABP procedure was performed before PCI. During observation, his
haemodinamic was stable, and IABP was discontinued. The patient was discharged 2 days after procedure.

**Conclusion:** These devices can provide hemodynamic support in select patients during complex PCI with multivessel disease, left main disease, or disease of the last patent conduit and severe left ventricular dysfunction or cardiogenic shock.
Abstract ID: 9013

Successful his bundle pacing placement: alternative to physiological RV pacing in young male why, when and how?

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Background: The problem of arrhythmia in the young population remained a high burden concern, with complications and a short life expectancy. In the previous two decades, there has been an increase in the dynamic state of diagnosis and care, including pacemaker installation to solve cardiac arrhythmia problems. Pacemaker implantation is estimated to be over 1 million cases per year around the world, mostly for heart block and sinus node dysfunction. Traditional right ventricular (RV) pacing resulted in ventricular dyssynchrony, which increased the risk of heart failure (HF). As one of the most recent and curative treatments, we offer a story of successful His bundle pacing implantation. HBP is the most substantial type of ventricular stimulation rather than any other pacing modalities.

Case illustration: A Javanese 31-year-old man with recurrent syncope since 3 months prior to admission. He is an active smoker with no remarkable history of cardiovascular disease. Initial physical examination entirely showed within normal limits. The patient underwent 24-hour holter examination and recognized a sinus node dysfunction with syncopal story behind. He was then taken to hospital and underwent electrophysiology study and the result was normal. He underwent treadmill stress test and the results was chronotropic incompetence. He still felt persistent syncope and decided to had his bundle pacing implantation

Conclusion: We deliver a case of young man with HBP implantation. Since RV pacing has been studied with varied efficacy findings, it may become an alternate method to the care of young individuals with sinus node dysfunction. HBP is an emerging and curative alternate pacing approach that may help people with sinus node dysfunction find relief from their symptoms.

Keywords: Syncope, his bundle pacing, selective capture
Part 2
Pharmacological Advancements in Cardiovascular Medicine
Abstract ID: 0423

Colchicine reduce periprocedural myocardial infarction before undergoing percutaneous coronary intervention: a meta-analysis

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Colchicine, a well-established anti-inflammatory drug, has emerged as a potential therapeutic tool in patients with coronary disease. There are already several studies regarding its effect on acute coronary syndrome patients. Furthermore, it’s efficacy and safety on acute coronary syndrome (ACS) patients specifically who underwent percutaneous coronary intervention is recently being published. This meta-analysis aims to investigate the effect colchicine on ACS patients before undergoing PCI. Using PRISMA guideline, eligible studies evaluating the effect of colchicine on ACS patients undergoing PCI were included in this meta-analysis. Fixed-effects meta-analysis was performed to estimate the pooled relative risk (RR) along with their 95% confidence intervals (CIs). A total of 6 studies were included in this meta-analysis. We discovered that colchicine can reduce periprocedural myocardial infarction significantly associated with better outcome in terms of death.

Keywords: colchicine, acute coronary syndrome, percutane
Abstract ID: 1081

The effect of turmeric extract nanoemulsion administration on hearth rate of zebrafish (*Danio rerio*) larvae with high glucose exposure

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**Background:** Gestational Diabetes Mellitus (GDM) is caused by an increase in blood glucose levels due to a progressive decrease in insulin secretion during pregnancy. GDM can lead to chronic hypoxia in the fetus which results in a decreased in heart rate. Measurement of heart rate is an important parameter in determining the presence of fetal distress, particularly in hyperglycemic conditions. Non-pharmacological therapy by consuming turmeric extract is known to have anti-diabetic and anti-inflammatory effects since curcumin can increase the bioavailability of Langerhans cells by inhibiting the production of reactive oxygen species (ROS).

**Objectives:** To determine the effect of turmeric extract nanoemulsion on zebrafish larvae heart rate after high glucose exposure.

**Methods:** Three-hundred-and-sixty zebrafish embryos were divided into 5 groups. Zebrafish larvae were exposed to high glucose at 24-72 hours post-fertilization, then given turmeric extract nanoemulsion. The heart rates were observed at 3, 4, 6 days post-fertilization.

**Results:** There was a significant difference between the control and treatment group (p = 0.000). The Post-hoc Bonferroni test showed that turmeric extract at 1.25 µg/ml was the optimal dose to increase heart rate of zebrafish larvae.

**Conclusion:** Turmeric extract nanoemulsion at 1.25 µg/ml showed a positive effect on increasing the heart rate of zebrafish larvae with high glucose exposure.

**Keywords:** Turmeric extract nanoemulsion; Zebrafish larvae; Gestational diabetes mellitus; Reactive oxygen species; Fetal heart rate
Abstract ID: 1217

The effect of prenatal folic acid supplementation on the body length and cardiac hypertrophy of stunting zebrafish model induced by rotenon

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Background: Stunting is a nutritional status marked by the noncomformity between a child’s body height and age, resulting in linear growth retardation. Stunting also causes alterations in the body’s structural and physiological aspects. In the cardiovascular system, it manifests as cardiac hypertrophy. Stunting can be caused by irrational pesticide usage, including Rotenone. Meanwhile, macro- and micronutrient intakes are crucial in child’s growth and development, one of the most vital being folic acid. Folic acid has antioxidant activity to inhibit oxidative stress leading to stunting.

Objective: This research aims to explore the effect of prenatal folic acid administration on prenatal phase to body length and cardiac hypertrophy in zebrafish stunting model with rotenone induction.

Methods: The zebrafish’s embryos were given rotenone exposure from the age of 0 to 2 until 72 hours post fertilization (hpf). Folic acid was administered in the same time range; thus, the preventive effect could be observed.

Results: The results showed that in the age of 3-, 6-, and 9-days post fertilization (dpf), the group given folic acid with the concentration of 50, 70, and 100 μM had longer body length and were significantly different compared to the group administered with rotenone (p >0.05). Furthermore, the group administered with folic acid of 50, 70, and 100 μM displayed lower average cardiac hypertrophy compared to the rotenone group, although significant difference was only observed on 3 dpf (p >0.05).

Keywords: Stunting; Body length; Cardiac hypertrophy; Rotenone; Folic acid
Abstract ID: 2453

LOX-1 DNA vaccination restrains foam cells formation and aortic intima media damage in wistar rats with high-fat diet

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Atherosclerosis is a chronic inflammatory condition that leads to heart disease. The binding of oxidized LDL to its receptor causes endothelial cell dysfunction, which leads to inflammation and the formation of atherosclerotic plaques. The main receptor of oxidized LDL, lectin-like oxidized-LDL receptor-1 (LOX-1), plays an important role in atherosclerosis. Thus, it is hypothesized that inhibiting LOX-1 will prevent atherosclerosis. The aims of our study were to analyze the effect of LOX-1 DNA vaccination to prevent endothelial dysfunction and inflammation in the animal model with a high-fat diet through the inhibition of foam cell formations and aortic intima-media damage. Rats (Rattus norvegicus) strain rats were divided into five groups: the first received a normal diet, the second received a high-fat diet only, and the third, fourth, and fifth received a high-fat diet with alum, the empty plasmid (pcDNA3.1), and pLOX-1, respectively. The vaccine was administered intramuscularly, with alum as an adjuvant, followed by an eight-week high-fat diet. Rats were sacrificed and their aortas were studied. Aorta was stained using Hematoxylin Eosin and the foam cell and aortic intima-media were analyzed. pLOX-1 has been shown to prevent foam cell formation and aortic intima-media structure damage in Wistar rats fed a high-fat diet. Aortic tissue in rats with pLOX-1 vaccination had a normal and tight structure compared to the control group, which had structural damage, foam cell formation in the sub-intima layer, disorientation, and loss of smooth muscle cells. The conclusion of this research is that the LOX-1 DNA vaccine is a potent vaccine candidate to prevent atherosclerosis.
Abstract ID: 4213

*Channa striata* Albumin Peptide: Its Potency on Inhibiting Angiotensin Converting Enzyme

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As an expensive blood product, the clinical use of human albumin raises its own problems. Efforts on finding alternative sources for human albumin have been increased. As one of the most popular sources for fish albumin, *Channa striata* has been used as indigenous remedy to improve hypoalbuminemia-related conditions and also been considered as a promising substitute for human albumin. In this review, we reported the progress of albumin fractionation from *C. striata* extract using Cohn Process with several modifications as well as its bioactive peptides. Since albumin is known to have several active sites that interact with Angiotensin Converting Enzyme (ACE), the albumin fraction obtained were further hydrolyzed enzymatically using two proteases, e.g., pepsin and alcalase, to produce *C. striata* albumin peptides with ACE inhibitory activity. Approximately 19 % albumin was found in *C. striata* extract, wherein 75.0 ± 33.9 mg albumin fraction was resulted from Cohn Process. Evaluation of ACE inhibitory activity showed that albumin peptides generated from pepsin hydrolysis possessed the strongest ACE inhibition (33.46 ± 3.03 %, P<0.05) compared to those of alcalase (23.11 ± 6.15 %), the non-hydrolyzed (23.48 ± 3.11 %) and the parental fraction (13.02 ± 0.68 %). The results are considerably promising to initiate further exploration of *C. striata* albumin peptide, especially for its ACE inhibitory activity. Further steps such as obtaining smaller size and more hydrophobic albumin peptides would be prudent as an effort on discovering and developing *C. striata* albumin peptides for natural-based antihypertensive bioactive in the future.

**Keywords:** *Channa striata*, fish albumin, ACEI, bioactive peptide, anti-hypertension
Abstract ID: 4777

Soursop (*Annona muricata* L.) leaf aqueous extract (SLAE) prevent remodeling of ventricle heart tissue in male wistar rats induced by high fat and high fructose (HFHF) diet

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High-fat and high-fructose diet can lead to obesity which contributes to increased risk of heart failure complications. Soursop leaf are known to has potential of antioxidant, but research about the effects of soursop leaf on complications of heart failure has never been studied. This study evaluated whether soursop leaf aqueous extract can inhibit total of cardiomyocyte necrosis, cardiomyocyte diameter and density of cardiac collagen in obesity rats. The heart organs of obese rats that has been paraffin, which randomly divided into normal group, obesity group and soursop leaf aqueous extract (SLAE) group with dose I (100 mg/kgbw), II (200 mg/kgbw) and III (400 mg/kgbw) (n=6 rats). The rats were induced by high-fat high-fructose and SLI diets for 10 weeks. The number of necrosis and diameter cardiomyocytes were measured by using Hematoxylin Eosin staining, while the density of cardiac collagen was measured by Masson’s Trichrome staining and then observed with a trinocular and dotSlide microscope at 200x and 400x magnification. Statistical analysis using One Way ANOVA and continued by LSD test. We found that group SLAE with doses I, II and III significantly reduced the number of cardiomyocyte necrosis and cardiac collagen density compared to the obesity group. The SLI group with doses II and III significantly reduced the diameter of cardiomyocytes compared to the obesity group, while the SLAE group with dose I was unable to reduce the diameter of cardiomyocytes. In conclusion, Soursop leaf aqueous extract can inhibit the increase of cardiac collagen density, number necrosis and diameter cardiomyocyte.

**Keywords:** Soursop Leaf, TLTF Diet, Obesity, Necrosis, Cardiomyocyte Size, Collagen Density
Abstract ID: 5167

**Effects of Green Tea, Decaffeinated Green Coffee, and Curcumin Extract on Gene Expression of Cnn1 in Rat Aortic Tissue**

Andi Nurul Isri Indriany Idhil and Adinda Nabila Azzah

Background and Aims: Metabolic syndrome is a combination of diabetes, obesity, and hypertension that increase the risk of stroke and atherosclerosis. In the process of atherosclerosis, there is a proliferation of VSMCs. One of that plays a role in VSMC proliferation is Cnn1. Thus, if VSMC proliferation occurs, Cnn1 becomes downregulated. Beside that, the incidence of metabolic syndrome remains high, therefore adjuvant treatment is needed. Combination of green tea, decaffeinated green coffee, and curcumin extracts is an innovation of natural ingredients in the treatment of metabolic syndrome and prevents atherosclerosis. This study explores the effective combination of green tea, decaffeinated green coffee, and curcumin extracts in metabolic syndrome rats.

Material and Methods: Metabolic syndrome rats model was induced high fat high sucrose diets. This study divided into control group (CG), metabolic syndrome rats (MetS); MetS treated combination of green tea with 300 mg/kg b.w, decaffeinated green coffee with 100 mg/kg b.w, and curcumin extract 150 mg/kg b.w (EGCG 300, CGA 100, and CUR 150), and MetS treated combination of green tea with 400 mg/kg b.w, decaffeinated green coffee with 200 mg/kg b.w, and curcumin extract 250 mg/kg b.w (EGCG 400, CGA 200, and CUR 250). Cnn1 gene expression analyzed by touchdown PCR methods.

Result: Metabolic syndrome rats treated with combination of EGCG 300, CGA 100, and CUR 150 increased Cnn1 gene expression level.

Conclusion: This study suggested that combination of EGCG 300, CGA 100, and CUR 150 showed better improvement in metabolic syndrome rats.

Keywords: Atherosclerosis, Proliferation VSMC, Green tea, Decaffeinated green coffee, and Curcumin extract.
Abstract ID: 5533

Extract melinjo (*Gnetum gnemon* L) control release formulation and resveratrol stability study

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**Background and Objective:** Melinjo (*Gnetum gnemon* L) has potential as a natural medicine. The trans-resveratrol compound contained in Melinjo shell has prophylactic and therapeutic properties. Require data from resveratrol in formulations due to interactions with excipient that may affect. Data is important to obtain an effective preparation.

**Methods:** The formulation: HPMC (METHOCEL™ K100M) and Eudragit RSPO (F1), extract without matrix (F0). Pharmaceutical parameters evaluations are flow rate (g/s), moisture content (%), angle of repose (°), Carr’s index (%), Haussner ratio. Evaluation of physical stability and resveratrol was carried out using an accelerate temperature at 70 °C, 80 °C, and 90 °C. Measurement of resveratrol content using a spectrophotometer at a maximum wavelength $\lambda_{\text{max}}$ 286.

**Results:** Pharmaceutical parameter evaluation granules of melinjo extract (*Gnetum gnemon* L) that is flow rate (g/s), moisture content (%), angle of repose (°), Carr’s index (%), Haussner ratio obtained according to requirements. The results resveratrol stability of the granule control release extract of melinjo with HPMC (METHOCEL™ K100M) matrix and Eudragit RSPO matrix (75:25) in the test with increasing temperature showed $T_{0.9}$ extract (9,902 months), F0 (9,151 months) F1 (8,706 months).

**Conclusion:** Wet granulation of melinjo extract improves pharmacokinetic parameters. Formulations and excipients affected the K value and $T_{0.9}$ value

**Keywords:** Melinjo (*Gnetum gnemon* L), Extract, Resveratrol, Stability
Abstract ID: 6154

**Green Coffee and Green Tea Extract Suppress Adipogenesis in 3T3-L1 cells by Downregulating Expression of C/EBPα**

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**Background:** Obesity is one of the main risk factors for metabolic syndrome (MetS) and is commonly found today in the community. Obesity begins with adipocyte cell differentiation through a series of processes known as adipogenesis. The potential of green tea and green coffee has long been known to be beneficial in reducing obesity. Still, not much is known about the mechanism of preventing adipocyte differentiation. Preadipocyte differentiation is a complex process through signaling several transcription factors sequentially coordinated to modulate the expression of hundreds of genes responsible for the formation of mature adipose cells, one of which is CCAAT/enhancer-binding protein (C/EBPα). to determine the therapeutic effect of green tea and green coffee on molecular markers of obesity: gene expression of C/EBPα and intracellular lipid accumulation from 3T3-L1 pre-adipocytes.

**Results:** There was a significant difference between C/EBPα and all groups (p=0.022) and lipid accumulation between all groups (p=0.00). There was a positive correlation between C/EBPα and intracellular lipid accumulation with a p-value = 0.026 and an R= 0.539.

**Conclusion:** In this study, it is known that green tea and green coffee inhibit obesity via suppression of C/EBPα gene expression, which is characterized by decreased intracellular lipid accumulation in differentiated 3T3-L1 adipocytes.

**Keywords:** Adipogenesis, Green Coffee, Green Tea, C/EBPα, Intracellular Lipid Accumulation
Abstract ID: 6998

Decaffeinated coffee and green tea extract inhibit macrophage proliferation in diabetes-related atherosclerosis: an in vitro study

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Background and Objective: Cardiovascular disease remains the most important cause of mortality and morbidity among patients with diabetes mellitus. Hyperglycemia leading to an increase in macrophage proliferation has been implicated as the mechanism that promote the development of atherosclerosis. This study aimed to evaluate the effect of decaffeinated coffee and green tea extract (DGCGTE) on macrophage proliferation parameters in glucose induced RAW 264.7 cells.

Methods: Extraction of green coffee and green tea was performed by filtration and infusion, while decaffeination were performed using carbon and blanching method. Cells were divided into 5 groups: control cells, hyperglycemic cells, and hyperglycemic cells administered with DGCGTE 80/80 μg/ml, 160/160 μg/ml, and 320/320 μg/ml. To develop hyperglycemic environment, cells were induced with D-Glucose 3 mM and hyperglycemic cells was determined by analyzing the production of nitric oxide (NO) using Griss reagent. Cell proliferation was assessed by WST-1 assay and the expression of macrophage proliferation genes, consisting of THOC5 and Id3, was measured by PCR.

Results: This study is currently in maintenance stage of RAW 264.7 cells. The next stage is glucose induction and DGCGTE administration. It is hypothesized that DGCGTE could inhibit macrophage proliferation by decreasing the production of NO and the gene expression of THOC5 and Id3 in a dose-dependent manner.

Conclusion: In conclusion, this study suggests that DGCGTE promotes anti-atherosclerotic activity by inhibiting macrophage proliferation and can be considered as a potential therapy against atherosclerosis in patients with diabetes mellitus.

Keywords: Atherosclerosis, hyperglycemia, green coffee, green tea, macrophage, proliferation
Abstract ID: 7082

Anti-inflammation (analgesic) drug design & discovery

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Introduction: Paracetamol or acetaminophen is known as a very well-known analgesic, which has a hepatotoxic side effect on excessive doses, or long-term administration or when given with drugs that require GST enzymes. How can paracetamol be modified into a new molecule that is safer for the liver?

Methodology Material: Molecule structures of acetaminophen, dexamethasone, algetica, MH2011. The reference ligand of diclofenac and the 1PXX, 6COX and 3E6I were obtained from Protein Data Bank (PDB). Softwares of YASARA, MarvinSketch, PLANTS, mingwm 10.dll, npp.5.6.8. Installer, and cmd. Methods to Analgesic/Anti-inflammation: Validation of 1PXX.PDB. Methods to Hepatotoxic: Validation of 3E6I.PDB, and Docking process analgesic of acetaminophen, dexamethasone, algetica and MH2011. Results and discussion: The molecular docking (1PXX.PDB) results show of acetaminophen - 65.3588, dexamethasone - 68.1242, algetica - 80.9245, MH2011 - 94.8923. The reference ligand of diclofenac - 93.1344. The molecular docking to 3E6I show results of algetika - 55.8508, MH2011 - 55.9347 and reference acetaminophen - 61.6038. Algetika (EC50 = 58 g/kgBW) and MH2011 (EC-10 kg/BW) more potent than acetaminophen (ED50 = 91 kg/BW). Algetika and MH2011 not have side effect hepatotoxic, whereas acetaminophen have side effect hepatotoxic.

Conclusion: Using molecular docking PLANTS (Protein Ligand ANT System) can be designed and discovery a new analgesic (algetika and MH2011) that is more potent and safer against hepatotoxic side effects than acetaminophen.
Abstract ID: 7083

Preliminary study on laboratory scale-up production of polymeric lipid nanoparticle

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Objective: The production of nanomedicine is a challenging task regarding reproducibility and quality control. Briefly, it is essential to show scalable procedures to produce large-batch sizes. This research intended to scale-up polymeric lipid nanoparticle production at a laboratory scale.

Method: The nanoparticle was produced using the nanoprecipitation method. This research is a continuation of previous research that has produced a nanoparticle lipid polymer formula containing the cinnamon extract. In this study, there were adjustments in several process parameters are mixing speed and mixing time. The variables were applied to the production of polymeric lipid nanoparticles produced in escalated volumes from 300 mL, 1800 mL, and 45 L. Those variables were evaluated for their impact on nanoparticle size.

Results: The results show that the most influential variable is mixing speed. In this research, mixing time was not able to anticipate low-speed mixing in the resulting targeted nanoparticle size. The best result on escalated volume production was obtained by using 8000 rpm in formula A. Particle sizes obtained from 300 mL, 1800 mL, and 45 L production volumes were 536.3 nm, 707.1 nm, and 940.8 nm consecutively.

Conclusion: We can conclude that at the same mixing speed the higher the volume the nanoparticle size were larger.

Keywords: scale-up; polymeric lipid nanoparticle, nanoprecipitation, mixing speed
Abstract ID: 7729

Suppression of gene expression associated with oxidative stress and inflammation by coffee, green tea, and turmeric extract in rats MetS model

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Background: The burst of oxidative stress mediated by upregulation of NOX2 and activation of inflammatory cascade pathway (NFkB/IL6) drives cardiac dysfunction associated with MetS. On the other hand, coffee, green tea, turmeric are natural products that exhibit antioxidant and anti-inflammatory properties.

Objective: This study investigated the effect of coffee, green tea, turmeric extract (CGTTE) on NOX2, NFkB, IL6 expression in cardiac MetS rats model.

Method: This work was an experimental study. The design used post-test only with control group. 25 metabolic syndrome rats’ model were divided into 4 groups: Normal: rats fed with standard chow diet; Control: rats induced with STZ+HFHS; Group 1 rat induced with STZ+HFHS and treated with CGTTE 300,100,150 mg/bw; Group 2 Rats exposed to STZ+HFHS and administered with CGTTE 300, 100, 250 mg/bw. The gene expression was examined and quantified using PCR.

Result: The data showed there was reduction of NOX2, NFkB, IL6 expression in group treated with CGTTE compared to control group (p<0.05).

Conclusion: The combination of coffee, green tea, turmeric might have potential effect to be developed as dietary supplement to prevent MetS progression through attenuation of oxidative stress in the heart.

Keywords: coffee; green tea; turmeric; oxidative stress; inflammation
Abstract ID: 8566

The evaluation of furosemide injection on electrolyte levels in heart failure patients at the intensive cardiac care unit (ICCU) Bangil

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Heart failure is a health problem with high mortality and morbidity rates. The causes of heart failure include hypertension or cardiomyopathy, valvular abnormalities, and any abnormalities in the heart. Furosemide works by increasing the excretion of sodium in the urine. Furosemide injections are often given to patients who experience fluid overload or edema and treat symptoms of shortness of breath. This study aims to analyze the effects of furosemide injection therapy on electrolyte levels in heart failure patients at the ICCU inpatient at Bangil Regional General Hospital. This research is non-experimental (analytic observational) with a retrospective medical design of secondary data collection with 54 subjects. The results showed that the most common intravenous injection of furosemide was a 1x40 mg regimen in 20 patients (37%). The results of hypothesis testing using the One Way ANOVA method on sodium, potassium, chloride levels revealed that there is no statistical difference between the frequency of furosemide administration and electrolyte levels. The outcome of furosemide injection regarding edema showed a good response in 59.3% and 40.7% still had edema. The respiration rate in 59.3% of the patients was still high, which indicating that shortness of breath. The effectiveness of the therapeutic furosemide regiments of 1x20 mg, 2x20 mg, and 1x40 mg showed good responses to edema. The effectiveness regarding the respiratory rate value was the same, there was no statistically significant effects. Hyponatremia, hypokalemia, and hypochloremia were found in patients with therapeutic regiments of 3x40 mg, 1x40, mg and 1x20 mg.

Keyword: Heart failure, furosemide injection, electrolyte imbalance, therapeutic outcome.
Part 3
Advances in Molecular Biomedicine of Cardiovascular Diseases
Abstract ID: 0880

Transient Overexpression of 5HT2B Receptor in Mouse Hearts using modRNA Improved Cardiac Phenotype Following Myocardial Infarction

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Background: Myocardial Infarction (MI) is one of the leading causes of death worldwide. Infarcted areas are not replaced by cardiomyocytes due to the limited regenerative capacity of the heart. Thus, the infarcted tissue loses its contractile nature leaving the heart with a deteriorated function. The hippo pathway and 5HT2B serotonin receptor have been studied as possible signaling pathways to induce cell proliferation in cardiomyocytes (CM). The hippo pathway is long known for its pro-proliferative capacity through the control of YAP/TAZ transcriptional coactivators that can induce cell proliferation upon activation. 5HT2B serotonin receptor, proven for its critical role in heart development, has been identified as a possible upstream activator of the hippo pathway to induce CM proliferation. In this study we examined the effects of 5HT2B overexpression in mouse model of MI.

Methods: The MI experiments have been conducted in vivo using two different approaches of the 5HT2B modification: (1) MI induction in transgenic (TG) mice overexpressing 5HT2B serotonin receptor (n=20) and (2) Transient overexpression of 5HT2B using modified RNA (modRNA) in WT mouse post-MI (n=11). Different parameters of the heart’s function and morphology were studied by histological analysis and echocardiography data.

Results: Although no significance was achieved for both models, a trend of improved heart phenotype exists upon treatment with 5HT2B modRNA. For 5HT2B TG mice, no changes in cardiac parameters were observed compared to WT animals. In modRNA mouse model, 5HT2B injected mice showed a positive trend of reduced fibrosis, thicker myocardium, reduced cell death, and better contractile function compared to control mice post-MI.
Conclusion: 5HT2B has been previously shown to induce CM proliferation in vitro. This pilot study conducted the overexpression of 5HT2B in vivo. A better response to cardiac remodeling was observed as 5HT2B modRNA model had a better overall response to cardiac remodeling. This demonstrates the possible therapeutic potential for 5HT2B in improving cardiac generation post-MI. More research is needed to further confirm the initial results obtained in this study by applying the experiment on a larger group of animals for a longer period.
Abstract ID: 5044

Inducible overexpression of constitutively active Yes-associated protein (YAP-S127A) increases angiogenic capacity of human endothelial cells

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Background: Angiogenesis, as the main way of new blood vessel formation in adults, has been closely related to body homeostasis. Induction of angiogenesis has been shown to serve as a potential therapeutic target to improve the survival rate of patients with cardiovascular diseases such as myocardial infarction. In recent years, studies have shown that the Hippo pathway, as one of the main pathways involved in cell regeneration, may be able to effectively regulate angiogenesis.

Methods: HUVECs were infected with adenoviruses of the tet-on inducible overexpression system and the overexpression levels were controlled with different doxycycline (dox) concentrations. Western blot assay was used to assess the expression of constitutively active YAP (YAP-S127A). Immunofluorescence assay, MTT assay, Scratch assay and Matrigel assay were used to assess the effect on HUVECs.

Results: We found that YAP-S127A was successfully overexpressed in HUVECs and its expression level increased with the increase of dox concentration. Surprisingly, YAP-S127A did not affect cell proliferation rate. Moreover, apoptosis and cell viability in response to oxidative stress (H2O2 treatment) were not altered following YAP-S127A expression. However, angiogenesis assessment using matrigel assay showed a significant increase in angiogenesis in the YAP-S127A group. Scratch experiments also showed that cell migration was also increased in the treated group, indicated a possible improvement in a cellular model of wound healing.

Conclusion: Our observations showed that modulation YAP function might induce angiogenic capacity of endothelial cells. This indicates that targeting the Hippo/YAP pathway may become a therapeutic approach to improve angiogenesis.

Keywords: Hippo; Angiogenesis; Inducible overexpression; HUVEC; Angiogenetic capacity; Cell migration
Therapeutic Angiogenesis through Modulation of the Hippo Pathway

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Background: Ischemic Heart Diseases (IHD) extensively contribute to global morbidity and mortality rates. One of therapeutic modalities to impede the progression of these diseases is through restoring blood supply. Therapeutic angiogenesis potentially augments new vasculature formation from pre-existing blood vessels and promotes blood supply re-establishment. The Hippo pathway has been delineated to control angiogenesis. However, evidence of Hippo pathway utilisation in therapeutic angiogenesis remains poor.

Objectives: This study aims to demonstrate the possibility of the Hippo pathway as a potential target for therapeutic angiogenesis.

Methods: Human Umbilical Vein Endothelial Cells (HUVECs) were applied to look into angiogenic phenotype in association with Hippo pathway modulation. The first method was using a doxycycline-inducible overexpression of YAP (the main Hippo effector). Other designs were pharmacological approaches by using two small compounds, i.e. TT-10 and XMU-MP-1, that promote YAP activation via direct YAP activation and Mst1/2 inhibition, respectively. Parameters assessed in this study were YAP activity (GAL4-UAS luciferase reporter system), HUVEC proliferation (Ki-67 assay), HUVEC apoptosis (MTT and TUNEL assays), tubule like formation (matrigel assay), and HUVEC migration (scratch assay).

Results: All methods used to modulate the Hippo pathway seemed to successfully increase YAP activity. However, those methods failed to show any influence in HUVEC proliferation. Interestingly, both a Tet-on system and pharmacological approaches significantly protected HUVEC from H2O2-induced apoptosis and promoted angiogenesis when assessed using matrigel and scratch assays.
Conclusion: Modulation of the Hippo pathway revealed a remarkable potency in therapeutic angiogenesis. Activation of genes involved in sprouting and migration is a possible explanation underlying the phenotypes shown in this study.
Abstract ID: 8108
Ruvbl1 protects against pathological cardiac remodeling via modulation of the Hippo pathway

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Introduction: Cardiac remodeling is a key process in the development of heart failure (HF). Reactivation of fetal cardiac genes is often associated with cardiac remodeling, which might be the result of the activation of signaling pathways involved in HF. Here we studied the role of Pontin (Ruvbl1), which is highly expressed in embryonic hearts, in mediating cardiac remodeling.

Methods: We generated inducible cardiomyocyte-specific Pontin knock-out (PontinicKO) and found that PontinicKO mice displayed severe cardiomyopathy, which was characterized by a significant reduction of ejection fraction, increased hypertrophy, fibrosis, and massive cardiomyocyte apoptosis. To understand the mechanism, we performed RNAseq analysis and found that genes involved in cell cycle regulation and DNA damage checkpoints were differentially expressed in PontinicKO. Specifically, we detected changes in the expression of Hippo pathway components, such as MST1, MOB1, and SAV1, in the PontinicKO mice.

To further study the link between Pontin and Hippo pathway, we established Pontin knockdown (KD) and overexpression (OE) models in cultured cardiomyocytes using siRNA and adenoviral system, respectively. Pontin KD resulted in the reduction of YAP activity (the main effector of the Hippo pathway), whereas Pontin OE induced YAP activity as indicated by YAP phosphorylation, nuclear translocation, and transcriptional activity.

Conclusion: Overall, our findings identified Pontin as a novel regulator of adverse cardiac remodeling via regulation of the Hippo pathway in cardiomyocytes. Pontin overexpression may produce a protective effect on the heart. This study may lead to the development of a new approach to control cardiac remodeling by targeting Pontin.
Abstract ID: 8634

Characterization of plasma oxidative stress and inflammatory biomarkers levels in patients with atrial fibrillation

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Introduction: Inflammation and oxidative stress have been associated with cardiovascular disease and the burden of atrial fibrillation (AF). Inflammation has been implicated in various AF-related pathological processes, including oxidative stress, fibrosis, and thrombogenesis. There were associated with increased mortality and morbidity in AF.

Objective: To examined inflammatory biomarkers and plasma oxidative status in patients with AF.

Methods: It was observational analytic with case control design, inflammatory biomarkers and plasma oxidative status were compared between 38 patients with atrial fibrillation and 29 control patients. They were matched for baseline demographic status and known confounding variables. AF was determined at baseline by self-report and electrocardiogram.

Results: The inflammatory markers were significantly higher in the AF group compared with controls (4.44 ± 1.72 vs 3.5 ± 0.69, p=0.006; 91.3 ± 31.2 vs 76.44 ± 22.4, p=0.033; 4.16 ± 2.36 vs 3.09 ± 1.55, p=0.039, respectively). SOD was significantly lower in AF group compared with control (2.35 ± 0.85 vs 2.81 ± 0.68, p=0.018, respectively), MDA was significantly higher in AF group compared with control (23.24 ± 13.6 vs 17.7 ± 7.08, p=0.039). In subgroup analysis, Persistent AF patients had a higher HsCRP level (38.3 ± 7.19) than paroxysmal AF patients (27.50 ± 10.6; P=0.026), both groups had higher HsCRP levels than controls (P=0.014).

Conclusion: In this study levels of biomarkers of inflammation and oxidative stress, oxLDL, were higher AF patients compared to control. HsCRP was higher in persistent AF compared with paroxysmal AF, elevated of HsCRP level was a predictor pro rehospitalization in atrial fibrillation.
Keywords: atrial fibrillation, inflammation, oxidative stress, SOD, MDA
Abstract ID: 9824

C232T SAMD11 SNP not related with DES ISR patients in malang: a pilot study

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Background: ISR is still a challenge for cardiologist in PCI patients with DES implantation. ISR also related with genetics risk factor that had demonstrated by previous study. That study showed that a SNP on SAMD11 232 C>T was significantly related to ISR with DES implantation. The purpose of this study was to investigate SAMD11 232 C>T polymorphism in ISR patients at Malang, Indonesia.

Methods: Patients that had AMI treated with PCI and DES implantation and had restenosis >70% in angiography examination were enrolled in this study. The patient's venous blood were collected for DNA extraction, reverse transcription PCR, and PCR-RFLP according to the restriction enzyme (AcII) site. SAMD11 was expected at 253 bp. Restriction enzyme will cut SAMD11 to 76 bp, 28 bp, and 149 bp if there is no mutation or SNP. If patients had SAMD11 polymorphisms, restriction enzyme could not cut that site, so there will be just one band (253) or two band (76 and 177) or four band (76, 177, 104, 149). DES ISR patients were compared with control group.

Results: Thirty seven patients with DES ISR and 35 patients control were available for evaluation. SAMD11 232 C>T polymorphism was found in all patients with DES ISR (100%) and 31 patients control (88%) with relative risk 3.27; 95% confidence interval: 0.53 to 19.74; p=0.103.

Conclusion: According to this study, SAMD11 232 C>T polymorphism didn’t related significantly to DES ISR, but have a higher probability of ISR than patients who didn’t have polymorphisms.

Keywords: SAMD11, ISR, Polymorphism, DES
Part 4
Clinical and Public Health Aspects of Cardiovascular Diseases
Abstract ID: 2014

Dyslipidemia as An Early Predictor of Premature Coronary Artery Disease (PCAD) among Patients in Saiful Anwar General Hospital, Malang, Indonesia

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Background: Premature Coronary Artery Disease (PCAD) has become one of public health challenges with approximately one-third of the global burden of cardiovascular disease. One of the known modifiable risk factors of PCAD is dyslipidemia. We aimed to identify whether dyslipidemia act as an early predictor of PCAD in our center.

Method: A case control study with the total of 402 samples was conducted. The samples were taken using consecutive sampling, from patients who underwent coronary angiography from September 2020 to Desember 2021 in Saiful Anwar General Hospital, Malang. Data were collected from medical record and analyzed using logistic regression.

Results: Among 402 patients, 88 (21.8%) patients had PCAD. Patients with dyslipidemia is more common in PCAD group (28.4%) compared to control group (4.1%). Chi- Square analysis showed significant correlation between dyslipidemia and PCAD (p<0.001). Patients with dyslipidemia have higher risk in developing PCAD compared to patients without dyslipidemia (OR: 0.11, 95% CI: 0.05-0.23, p<0.001). However, LDL (OR: 0.54, 95% CI: 0.21-1.37, p=0.20) and total cholesterol (OR: 1.10, 95% CI: 0.42-2.91, p=0.83) were not found associated with PCAD.

Conclusion: we demonstrated that patients with dyslipidemia had risk of developing PCAD in their disease course. However, dyslipidemia should not be the only predictor for PCAD since it was
multifactorial. Large-scale study also necessary to identify which aspect of dyslipidemia that mostly associated with PCAD.

**Keywords:** premature coronary artery disease, dyslipidemia, LDL, cholesterol
Abstract ID: 4756

Diagnostic delay in congenital Heart disease related pulmonary arterial hypertension: insights from the single tertiary hospital center of patients with pulmonary hypertension registry in East Java Indonesia

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Background: CHD-Pulmonary arterial hypertension (PAH) is a progressive and fatal disorder. There could be more severe, permanent pathological changes and right ventricular failure in patients diagnosed in later stages, contributing to worse prognosis.

Purpose: to determine the time from the onset of symptoms to the diagnosis of PAH associated with CHD in Saiful Anwar general Hospital, Malang and the factors with delayed definitive diagnosis.

Methods: The Registry enrolled 128 adult patients with CHD-PAH from January 2019 to December 2020. Patients were considered to have delayed disease recognition if 2 years elapsed between symptom onset and the patient receiving a CHD-PAH diagnosis

Results: There was significant proportion of delayed diagnosed > 2 years in Secundum ASD compare than ≤ 2 years (74.3% vs 51.7%. Respectively, p=0.014, OR 2.6 95%CI: 1.2-5.6). Patients who life in remote area (OR 1.82; 95%CI 1.48-2.26), and General practitioner as Physician consulted at symptom onset (OR 1.72;95%CI 1.64-2.46) were independent predictors of longer diagnostic interval. There was significant different level of MPAP and PVR in patients who was delayed time to diagnosed CHD related to PAH > 2 years compare than ≤ 2 years (55.3±8.8 vs 42.4±10.2, 10.6±1.28 vs 4.2±1.42 respectively, P=0.014, P=0.012).

Conclusions: there remains significant diagnostic delay of CHD-PAH in East Java, Indonesia. ASD secundum as subtype of CHD, Patients who life in remote area, and General practitioner as Physician consulted at symptom onset were independent predictors of longer diagnostic interval.

Keyword: Pulmonary hypertension, Congenital Heart Disease, Delayed
Abstract ID: 5286

**Association between natriuretic peptides and in-hospital mortality among patients admitted with myocardial infarction after PCI: a report from the One ACS Registry subarea RSUD Dr Saiful Anwar Malang Hospital**

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**Background:** Patients with increased blood concentrations of natriuretic peptides (NPs) have poor cardiovascular outcomes after myocardial infarction (MI). The objectives of this analysis were to evaluate the correlation between natriuretic peptides (NPs) and in-hospital mortality using registry data.

**Methods:** Data from 391 patients with ST segment elevation MI (STEMI) RSUD Dr Saiful Anwar Malang Hospital were collected as part of the One ACS Registry between July 2018 and August 2022.

**Results:** The mean age was 59.9 ± 19 years. PCI was done in all patients. The in-hospital mortality was 13%. The Pearson analysis showed a strong relationship between elevated NT-proBNP and in-hospital mortality (R 0.7; p 0.000) and ROC curve showed strong correlation (AUC 0.840; p 0.000). An NT-proBNP value > 4390 pg/mL showed 88.2% sensitivity, 86.2% specificity for in-hospital mortality.

**Conclusion:** Higher NP concentrations were strongly and independently associated with in-hospital mortality. Additional studies with a larger sample are required to ascertain these findings and validate the appropriate cut-off values.

**Keywords:** NT pro-BNP, Inhospital Mortality, STEMI, PCI
Effect of behavior factors and patient literacy towards compliance with hypertension patient treatment in Islamic Hospital Malang

Arsy Arundina

Background: Hypertension is one of the most important health problems in the world. In Indonesia, hypertension reaches a prevalence of 26.5% and is included in the top 10 chronic non-communicable diseases. Nearly 639 million people with hypertension live in developing countries with limited health resources and low awareness of the disease. Patients do not routinely take medication or visit health facilities, take traditional medicine, and often forget.

Objective: This study aimed to determine the effect of behavioral and literacy factors on the treatment compliance of hypertensive patients at RSI Malang.

Methods: This cross-sectional research was conducted from June 8 to 23, 2020, at the Internal Medicine Polytechnic of Malang Islamic Hospital. Questionnaires were distributed to 80 participants. The results were analyzed using chi-square analysis.

Results: The dimensions of knowledge and trust have a significant relationship affecting treatment adherence. Behavioral factors from predisposing factors to attitude dimensions, enabling factors dimensions support the availability of facilities and physical environment support, reinforcing factors dimensions of family support, medical counseling and literacy does not have a significant effect on treatment compliance.

Keywords: Behavioral factors, literacy, medication adherence, hypertension, hospital
Abstract ID: 6754

Comparison of clinical outcome in ischemic vs non-ischemic cardiomyopathy after implantable cardioverter defibrillator as primary prevention of sudden cardiac death: real world studies

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Background: There was still lacking data for comparing clinical outcome following implantable cardioverter-defibrillator (ICD) implantation in patients with non-ischemic cardiomyopathies (NICM) compared with ischemic cardiomyopathies (ICM) after ICD implantation for primary prevention.

Aim: We assess whether any benefit differs between patients with NICM and those with ischemic cardiomyopathy (ICM) for reducing mortality and re-hospitalization after ICD implantation for primary prevention.

Methods: Relevant study published between 2000 and 2021 were identified. Study sample was stratified into ICD and non-ICD groups. The efficacy of having a defibrillator in each group was compared using random effects meta-analysis techniques. It’s was obtained from the electronic scientific database.

Results: A total of 3199 patients from 16 cohort studies were involved in this study. A total of 109404 patients, including 74745 patients in ICM group and 34659 patients in NICM group, were involved in this systematic review and meta-analysis study. Mortality risk was significantly decrease in ICD patients with NICM compare than ICM patients HR (0.79; 95% CI 0.66 to 0.94; p < 0.01). we found that ICD also reduced rehospitalization risk in NICM patients compare than ICM patients (HR 0.91; 95% CI 0.87 to 0.96; p < 0.01, respectively). Interestingly, there was no difference proportion of ventricular tachycardia between group (HR 1.14 95% CI 0.95 to 1.36; p < 0.15).There was also no difference prevalence of appropriate ICD shock between group (HR 0.98, 95% CI 0.84 to 1.14; p < 0.75).

Conclusion: The risk of mortality and readmission after primary prevention ICD implantation in this meta-analysis was significantly
higher in patients with ICM compared with NICM, But similar risk of life-threatening ventricular arrhythmic events and appropriate therapy.

**Keywords:**  ICM, NICM, Primary prevention, Mortality, Rehospitalization
Abstract ID: 7178

Knowing your patient: critical step to diagnose type 2 myocardial infarction

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Background: Myocardial infarction can occur from imbalances myocardial oxygen supply and demand. It can be secondary to acute atherosclerotic plaque disruption or alterations in the absence of acute atherothrombosis. There must be clinical evidence to make the diagnosis and require individualized care of these patients.

Case Illustration:

Case 1. A 42 years old man came to our Emergency Room with chief complaint typical chest pain while sleeping with VAS 8/10. He has history of CML on chemotherapy in the last 6 years, but no history of heart disease. Examination showed BP of 115/56 mmHg; pulse rate of 98 bpm. His abdominal examination revealed splenomegaly Schuffner II. Hb was 7.50 g/dL, HscTn was 31 ng/L. ECG showed sinus rhythm with ST elevation in V1-V3. Patient was observed in CVCU and had PRC transfusion 500cc/day until Hb level reached 10 mg/dL. After Hb level was 10 mg/dL, chest pain was disappeared and ST elevation returned to isoelectric baseline.

Case 2. Medical consultation from Department of Internal Medicine. A 56 years old with complaint of typical chest pain for 4 hours before admission. Examination showed BP of 108/63 mmHg; pulse rate of 115 bpm. His conjunctivas are anemic, other examination were normal. ECG showed sinus rhythm with ST elevation in aVR, ST depression in II, III, aVF and V3-V6. Blood laboratory resulted Hb 3.3 g/dL, cTn 0.10 ng/L. Patient had blood transfusion until Hb reached 9mg/dL. Patient complaints were diminished and ECG changes returned to normal ECG.

Conclusion: T2MI is frequent, and has significant proportion of ECG changes and cTn increases in clinical practice due to heterogenous
pathophysiology. Clinical assessment of individualized approaches to diagnosis until treatment are needed.

Keywords: Type-2 Myocardial Infarction, Anemia,
Abstract ID: 8468

Identifying the characteristics of premature coronary artery disease in Saiful Anwar General Hospital Malang

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Background: Premature coronary artery disease (PCAD) is becoming more common in young adults, but little is known about its characteristics. The purpose of this study is to describe the clinical characteristics and cardiovascular risk factors of premature CAD.

Objective: The aim of this study is to compare modifiable and non-modifiable risk factors for PCAD to those that do not have PCAD. This review will include all comparative observational studies that compared adults over the age of 18 with a confirmed diagnosis of PCAD to those who did not have PCAD who underwent coronary angiography from January 2018 to July 2022.

Results: Patients with PCAD were 88 patients, while 67 patients were male. Diabetes mellitus (OR: 2.5, 95% CI: 1.5 – 4.0), dyslipidaemia (OR: 2.05, 95% CI: 1.15-3.64), smoking (OR: 1.0, 95% CI: 0.6-1.6) and hypertension (OR: 1.1, 95% CI: 0.6-1.8) associated with PCAD. Patients with PCAD significantly had multivessel disease by 87 patients, with diffuse lesion by lesion length > 30mm for 61% (p=0.049). We found statistically significant association of hypertension, DM and risk factor of smoker with premature CAD in population and associated with multivessel disease with diffuse lesion but less involvement in LM disease.

Conclusion: PCAD is common in the population of CAD patients. Large-scale research is required to determine how this information can be rationally used for early risk identification and how currently available therapies can mitigate risk of multivessel disease.

Keywords: premature coronary artery disease, risk factors, multivessel disease
Abstract ID: 9560

Developing a screening model based on lifestyle to predict risk factor of cardiovascular disease in Indonesian medical student

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Objectives: To developing model seeing the relationship between stress, sleep quality, Body Mass Index (BMI), Physical Activity, dietary habit with Cardiorespiratory Fitness (CRF) among medical students.

Design: The cross-sectional data was collected between September and November 2021. Stress was assessed with DASS-21, sleep quality with PSQI, physical activity with GPAQ, Dietary Habit examined with Food Recall 24 hours, EES, Food Choice, NEDQ questionnaires. CRF was assessed using the Harvard Step Test. Statistical analysis used Binary Logistic Regression.

Setting: Faculty of Medicine and Health Sciences UIN Maulana Malik Ibrahim Malang.

Participants: 38 male and 73 female students participated in this study.

Results: 83 participants (74.8%) had low CRF. 76 participants (68.5%) experienced no stress. 75 participants (67.6%) had poor sleep quality. 59 participants (53%) had normal BMI. 79 participants (71%) had low physical activity. The calorie consumption of 66 students (59.4%) categorized as normal. The eating time of 76 students (68.4%) classified as non-night eater. Emotional eating of 59 students (53.1%) was high. Food choice of 105 students (95.4%) was important. Based on the simultaneous hypothesis testing, the Chi-square value = 5.557 with (p= 0.697). Hence, the model was not feasible to be used to predict the effect of stress levels, sleep quality, BMI, physical activity, food intake, eating attitudes, food choices, and meal times on cardiovascular fitness. The coefficient of determination
(Nagelkerke R2) was 0.049 or 4.9%. This means that the contribution of stress levels, sleep quality, BMI, physical activity, food intake, eating attitudes, food choices, and meal times to cardiovascular fitness was 4.9%, while the remaining 95.1% was a contribution from other variables not discussed in this research.

**Conclusions:** the model seeing the relationship between stress, sleep quality, BMI, Physical Activity, dietary habit, CRF among medical students was not suitable.

**Keywords:** Cardiorespiratory fitness; Stress; Sleep quality; Dietary habit; BMI; Physical activity.
Part 5
Interesting Case Reports in Cardiovascular Medicine
Abstract ID: 0258

A curious case of four extremities gangrene: Raynaud phenomenon or something more?

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Background: Raynaud phenomenon is a disorder that affects the blood vessels in the fingers and toes that is characterized by episodic spasms in response to certain stimuli. Secondary Raynaud phenomenon is caused by an underlying disease or condition. Determining the etiology or underlying condition of secondary Raynaud phenomenon can be challenging. We present a case of secondary Raynaud phenomenon with symmetrical four extremities gangrene in elderly patient.

Case presentation: A 71-year-old female without remarkable medical history brought to the emergency room with symmetrical bilateral digital gangrene on both hands and feet. Patient said that 10 days before hospital admission her fifth digit of the right hand started to become bluish and painful and extended to her other fingers and toes. On arrival, patient appeared conscious with normal vital signs. Physical examination showed an obvious sign of four extremities digital gangrene with bluish-black discoloration, bullae, skin excoriations, and foul odor. We performed duplex ultrasonography of upper and lower extremities that showed adequate arterial flow up to radial and ulnar artery and dorsalis pedis artery. Laboratory exams showed normochromic-normocytic anemia (Hb 8.8 gr/dL) with marked leukocytosis (WBC 28.020/μL). We assessed the patient with Raynaud disease with digital necrosis and secondary infection. Patient was admitted to ward and consulted to thorax and cardiovascular surgery department and internal medicine department. We performed several autoimmune marker examinations that revealed inconclusive result. After three days we observed that the gangrene at inferior extremity started to extend to the proximal. After several workup and careful consideration, it was decided to perform four limbs amputation for the patient. There was no complication after the operation and the gangrenous lesion did not extend to the
proximal part of the extremities. After the infection marker subsided, patient was given pulse cyclophosphamide for vasculitis. Patient was discharged 5 days after operation and was planned for rehabilitation. **Conclusion:** Raynaud phenomenon is a rare disorder that can be classified as primary or secondary due to certain etiology. Secondary Raynaud phenomenon is associated with broad possibilities of etiology and pathomechanisms. The most common etiology for secondary Raynaud phenomenon is connective tissue disorder. This etiology should be thoroughly explored to decide the best treatment strategy for the patient. Aside from determining etiology, prompt treatment especially in the case with digital necrosis and secondary infection is also important. Collaboration with other department in the management of complicated secondary Raynaud phenomenon can give the best result for patients with complicated secondary Raynaud phenomenon.

**Keywords:** Raynaud phenomenon; Four extremities gangrene
Abstract ID: 0296

A rare case of sterile pyogenic pericarditis leads to pericardial tamponade in young male patient. what is the etiology? A case report

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Background: Pyogenic pericarditis is a rare disease that may result in cardiac tamponade, hemodynamic collapse, and death. Most cases of purulent pericarditis are linked to nosocomial bloodstream infections, thoracic surgery, or immunosuppression.

Case Summary: A 23-year-old man was admitted to hospital with shortness of breath and cough for two weeks, dyspnea on exertion and paroxysmal nocturnal dyspnea for three weeks. He had been diagnosed of HIV infection on anti-retroviral for three years. He was unwell, tachycardic, blood pressure was 105/60 mmHg, tachypnoeic, rhonchi in middle left lung, muffled heart sound, and increase of jugular venous pressure. An ECG showed electrical alternans and CXR showed cardiomegaly. Echocardiography finding was massive pericardial effusion with collapse chamber and low cardiac output. Pericardiocentesis was performed then white-yellowish liquid was drained out. Within three days of follow up, 1200 ml liquid was accumulated, shortness of breath and vital signs were improved. Pericardial fluid had been investigated for anatomic pathology, microbiology, blood culture, and tuberculosis but the result was sterile. Patient was treated by levofloxacin, fluconazole, and cotrimoxazole then discharged after six days.

Discussion: Sterile culture may be caused by immunocompromised state leading to several infections that cannot be found in common laboratory and specific method must be performed to investigate further. These microorganism are Brucella spp, Coxiella burnetii, Fungi, etc. Comprehensive treatment with prompt pericardial fluid drainage, effective antibacterial therapy, and comprehensive critical care resources are needed for effective treatment and prevent recurrency.

Keywords: Pericarditis, Pericardial Effusion, Pyogenic, Cardiac Tamponade, HIV
Abstract ID: 0372

Sub-acute graft failure post coronary artery bypass
grafting in young man with premature coronary artery
disease; a case report

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Background: Premature Coronary Artery Disease (PCAD) is linked
to frequent ischemic recurrences and premature death, even after
revascularization. Long-term graft patency is the primary aim of
coronary artery bypass graft (CABG). We present a case of a young
man with PCAD and sub-acute graft failure.

Case illustration: A 45 year old man came to our clinic with the chief
complaint of atypical chest pain, that was aggravated by physical
activities and relieved by rest. He was an ex-smoker. His parents
suffer from coronary artery disease. Firstly, he complained about
chest pain six months ago and did a medical check-up. He underwent
a treadmill test and Coronary CT (CCTA). The test revealed a
positive ischemic response and a high calcium score. After a
Diagnostic Coronary Angiography (DCA) procedure, he suggested to
underwent CABG. About four months after CABG he complained
about typical chest pain. The physical examination was within normal
limits. CCTA performed soft plaque significantly in Saphenous Vein
Graft to OM. We decided to do Percutaneous Coronary Intervention
in his native artery. After a month's follow-up, he still complained
about chest pain. The DCA showed a progressive lesion. We
optimize medical treatment. Strong family history of CAD could
increase the possibility of ischemia recurrences in a high-risk
population.

Conclusions: In conclusion, we described a young man with PCAD
and recurrences of ischemia after the CABG procedure. This case
report emphasizes that PCAD patients with a strong family history
should be under close observation because of its progressive lesion.

Key words: Family history, Graft Failure, Premature Coronary Artery
Disease
Abstract ID: 0664

aVR ST-segment elevation with widespread st-segment depression : should primary percutaneous coronary intervention be performed? a case report

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Background: ST-segment elevation in lead aVR (STE-aVR) describes total occlusion of left main coronary artery or the very proximal left anterior descending coronary artery. However, it also represents multivessel disease without an acute total occlusion. The management of STE-aVR was not well defined before the change was made in the 2020 ESC guideline of NSTEACS.

Case Description: A 66-years-old male presented to Emergency Department of Saiful Anwar Hospital with a chief complaint of epigastric pain that occurred 16 hours before admission. Diffuse ST-segment depression with ST-segment elevation in aVR and V1 was confirmed. Elevated Troponin I was marked from 1.4 to 15 mcg/dL. Risk assessment was TIMI score 5/14 and GRACE 133. The patient then underwent primary PCI with the results of critical stenosis 99% at mid RCA and ostium of RV branch; stenosis 60% at left main; and chronic total occlusion at proximal LAD. We decided to insert one DES at proximal mid RCA and POBA at ostium of RV branch which led to TIMI III flow.

Discussion: Diffuse ST-segment depression with STE-aVR in this patient was caused by severe multivessel disease without an acute total occlusion. Compared with STE-aVR caused by acute total occlusion, this patient may not require emergent reperfusion strategy or primary PCI. Recent study showed only 10% of patients with STE-aVR had an acutely occluded coronary artery.

Conclusion: The term of immediate invasive strategy in case of STE-aVR based on 2020 ESC guideline of NSTEACS is more acceptable than primary PCI as mentioned in 2017 ESC guideline of STEMI.

Keywords: aVR ST-segment Elevation, Diffuse ST-segment Depression, Primary PCI
Abstract ID: 0758

After cardiac arrest in hypertrophic cardiomyopathy combined with trifascicular block: dilemma between implantable cardioverter defibrillator (ICD) and dual chamber permanent pacing

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Background: Hypertrophic cardiomyopathy (HCM) is a common disorder of cardiac muscle associated with sudden cardiac death (SCD). Bradyarrhythmia such as atrioventricular conduction disturbance, a relatively rare complication associated with hypertrophic cardiomyopathy, may also cause syncope and sudden death.

Case Report: A 26 years old woman came with the chief complaint worsening light headedness, dizziness associated with a hypotension and bradycardia since 6 hour before hospital admission. She had history of syncope 6 month ago. On presentation, patient's blood pressure was 86/62 mmHg with HR 42x/minutes. The bradycardia progressing to asystole. Cardiopulmonary resuscitation (CPR) was started immediately. Return of spontaneous circulation (ROSC) was achieved in 10 minutes with total adrenaline 3 mg. The electrocardiogram (ECG) was suggestive of trifascicular block showed in Left Axis Defiation, Right Bundle Branch Block (RBBB), and 2:1 AV block with ventricular rate 38x/minute. The complete blood count, comprehensive metabolic panel, troponin I and electrolyte serum were unremarkable. Echocardiogram revealed moderate asymmetric septal left ventricular hypertrophy with ejection fraction of 68%, Left Atrial (LA) size was 56.8 mm, peak and mean left ventricular outflow tract (LVOT) gradients less than 7 and 6 mmHg respectively with no increase in gradient with provocative maneuvers such as Valsalva. According this data risk of SCD at 5 years was 8.42% and ICD should be considered Subsequently, an Implantable cardioverter defibrillator (ICD) with Pacemaker function was implanted to the patient.

Conclusion: This case describes cardiac arrest caused by severe bradyarrhythmias related to trifascicular block block in a patient with
HCM who was managed successfully with a ICD implantation. Although a rare complication, we should keep in mind the probability of atrioventricular (AV) block as a cause of sudden cardiac arrest in a patient with HCM

**Keywords:** HCM, Cardiac Arrest, Trifascicular block
Abstract ID: 2800

Value of hemodynamic monitoring in a patient with respiratory failure using mechanical ventilation: a case report

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Background: Positive pressure ventilation is an essential life support measure in the intensive care and extended care environments. This have complex interactions with the lungs and other organ systems. In a clinical setting, the cardiovascular functions should be evaluated and monitored to prevent the adverse effects of positive pressure ventilation on the heart and blood vessels.

Case illustration: We present a case of a 67-year-old woman with pre-existing hypertension, recurrent asthma bronchial and heart failure who entered the intensive care unit with signs and symptoms of respiratory failure and septic condition related to pneumonia. At the time of admission, the patient showed a poor overall condition with hemodynamic instability. Initially the patient was treated with pressure control ventilation. However, hemodynamic complications led to further hypotension and shock. In the 6th day, inotropic and vasoactive drugs were no longer needed. Patient was in stable haemodynamic condition with positive end-expiratory pressure of 6 cmH20.

Conclusion: Daily hemodynamic monitoring should be performed in patient with mechanical ventilation. Adjustment of ventilator setting, together with maintenance of intravascular fluid adequacy, according to hemodynamic status of the patient turned out to be very important to produce better outcomes.

Keywords: hemodynamic monitoring, mechanical ventilation, respiratory failure, shock
Abstract ID: 3104

May thurner-syndrome: think it earlier in left lower extremity DVT

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Background: May-Thurner syndrome (MTS) is a venous disorder of the lower extremity that can present as deep vein thrombosis. This disorder results from compression and/or irritation from adjacent crossing the right common iliac artery to the left iliac venous. In this report, we present a patient with left lower DVT with consideration of MTS.

Case illustration: A 49-year-old man soldier was admitted to the hospital because of left leg swelling. The symptom happened for a week. He had high cholesterol, but no history of cardiac events. He did moderate to high degree daily activity, did not smoke nor having alcohol. Doppler ultrasound (DUS) was performed and thrombus at left venous femoralis was found with normal flow of artery and vein of right lower extremities. He had been assessed as DVT. He got rivaroxaban for 21 days and continued for 3 months. After 3 months of anticoagulant, DUS evaluation still showed thrombus at left venous femoralis. Sixmonths after the first presentation, CT venography was performed with result: thrombus at vena communis femoralis sinistra +/- 2.4 cm that cause severe stenosis (+/- 60%). Patient still complained of leg swelling and heaviness of left leg. He was suspected of having MTS. Venography was performed with result of total occlusion of left common femoral vein and left iliac vein with adequate collateral flow. PTV was performed on CTO but failed. Anticoagulant was continued after procedure. Three months later, he came again with symptom of leg swelling. PTV had tried again with anterograde and retrograde access. It successfully penetrated the occlusion in the left iliac vein but failed to penetrate the left femoral vein. Rivaroxaban was suggested to continue and had stocking compression frequently.
**Conclusion:** This case emphasizes that late recognition of May-Thurner syndrome in left lower extremity DVT was related to high sources of burden and poorer quality of life.

**Keywords:** May-Thurner syndrome, Percutaneous transluminal venoplasty, Anticoagulant
Abstract ID: 4199

AV conduction disorder in hypertrophic cardiomyopathy: implantable cardioverter defibrillator (ICD) vs. dual-chamber pacemaker

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Background: Hypertrophic cardiomyopathy (HCM) is an autosomal dominant acquired hereditary disease. Atrioventricular (AV) conduction disturbance such as complete heart block could be a relatively uncommon complication related with HCM instead of ventricular arrhythmias. We present two serial cases, HCM patients with complete heart block with dual chamber permanent pacemaker and others with ICD.

Case Outline and Discussion:
Case 1: A 25-year-old female with a history of recurrent symptoms of dizziness and nausea. She went to ER and had a seizure when under observation; the bedside monitor showed bradycardia progressing to asystole. CPR started immediately, and ROSC. Her physical examination was within normal limits. An ECG was suggestive of trifascicular block: LAD, RBBB, and 2:1 AV block with ventricular rate 38x/minute. Echocardiogram revealed LV wall thickness was 22mm, wall motion was within normal limits, without LVOTO (peak and mean LVOT gradients less than 7 and 6 mmHg). This patient was decided to implant an ICD.

Case 2: A 56-year-old male presented chest discomfort and palpitation with a blood pressure of 106/46 mmHg and a pulse rate of 43 beats/minute. From physical examination, it was found systolic murmur grade 3/6 at the apex and diastolic murmur grade 1/4 at ICS II right parasternal line. Initial ECG revealed complete heart block with LVH, and echocardiogram showed LVH concentric, suggesting HCM with LVOTO (LV gradient of 51 mmHg). This man was implanted with a dual-chamber permanent pacemaker. Regarding the risk of sudden cardiac mortality, appropriate risk stratification is crucial. As in the first case, for the primary and secondary prevention of SCD, ICD implantation is advised for HCM patients with past documented cardiac arrest. Class I recommendation for patients with
HCM is septal reduction therapy, but we have never done this therapy at our hospital. LVOT obstruction can be lessened by pacing therapy using atrioventricular sequential pacing which also decrease the maximal left ventricular thickness and incapacitating symptoms in obstructive HCM patients.

**Conclusion:** All individuals with hypertrophic cardiomyopathy should undergo thorough sudden cardiac risk stratification. Although the causes were identical, the treatments may differ.

**Keywords:** Hypertrophic cardiomyopathy, AV Conduction Disorder, Permanent pacemaker, ICD
Abstract ID: 5259

Acute rheumatic fever presenting as congestive heart failure associated with scabies infection: a rare case

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Background: Acute Rheumatic Fever (ARF) typically following 2-3 weeks after group A Streptococcal’s infection. During ARF, Rheumatic carditis can manifest as valvulitis. Herein, we illustrate a rare case of acute rheumatic fever presenting as congestive heart failure with previous scabies infection.

Case presentation: A 28 years-old male, with risk factors living in Islamic boarding schools and had skin scabies infections three months ago. He was referred to RSSA with congestive heart failure since three weeks before. First, he complained of fever and had inability to walk due to joint pain in the last three months. Physical examination showed that holosystolic murmur at apex grade II/VI radiated to the axilla, bilateral basal rales, ascites and leg edema. Laboratorium test at RSSA revealed leukocytosis (12,040/μl), elevated ASTO level (200 IU/mL) and CRP (0.68 mg/dL). Chest X-Ray showed congestive pulmonum and pleural effusion. Echocardiography result was LA dilatation with LVEF 60% by Teich, MR moderate and TR mild. The patients was diagnosed with definite acute rheumatic fever by having two major and one minor criteria of Jones, which were polyarthritis and subclinical carditis; increased CRP and also elevated of ASTO level. He was treated with bed rest, furosemide, benzatine penicillin, aspirin, spironolactone, bisoprolol, captopril, and prednisone. After 5 days, the clinical condition improved and patient was discharge.

Conclusion: There is international consensus on how to reduce the global health burden of RHD; current guidance focuses on secondary antibiotic prophylaxis, primary prevention and primordial prevention by improving living conditions. Keywords: Acute rheumatic fever, congestive heart failure, valvulitis
Abstract ID: 5813

**Acute limb ischaemia in prolong intra-aortic balloon pump use: early diagnosis and management can save the limb**

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**Background:** The use of an intra-aortic balloon pump (IABP) is associated with certain vascular complications, which are likely to develop more frequently in patients where IABP is used for a prolonged period. The most common complication associated with this device is acute limb ischemia (ALI) into which the IABP catheter was inserted. In this report, we present a patient with prolonged IABP use who suffered from ALI complication.

**Case illustration:** 74 years old woman with poorly controlled diabetes mellitus came to our hospital with angina equivalent 4 days before admission. She has been misdiagnosed with GERD firstly. She has experienced a cardiogenic shock in ER at our hospital. She then underwent ECG and was diagnosed with ACS and proceeded to the PCI procedure. But because of a new-onset murmur was heard at auscultation and found ventricular septal rupture (VSR) by echocardiography then she underwent an IABP procedure. The Heart Team then planned to VSR closure by surgery for her. She should be on IABP within several days while waiting for the schedule of closure. On the 11th day of care, she suffered from ALI from a Doppler ultrasound (DUS) examination. It is difficult to anticipate ischemia as it is not always possible to predict which patients will require balloon placement. Therefore, some literature considers the perioperative screening and identification of patients at risk. Careful lower extremity pulse documentation is essential, followed by non-invasive vascular study when needed.

**Conclusions:** In conclusion, we described patient with prolonged IABP use who suffered from ALI complication. This case report emphasizes that a longer duration of IABP therapy was associated with a higher incidence of ALI and the importance of proper screening of the peripheral circulation before insertion of IABP for the prevention of vascular complications.

**Keyword:** Acute Limb Ischemia, Intra-aortic Balloon Pump.
Coexistence of cardiac amyloidosis with coronary artery
disease and the diagnostic value of cardiac magnetic
resonance

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Background: Amyloidosis is a rare multiorgan disease characterized by an irreversible deposition of fibrillose proteins in the tissues. Most types of amyloidosis have cardiac involvement, but it is more common and clinically significant in light chain (AL) and transthyretin amyloidosis (ATTR). The discovery of aberrant proteins deposited in the heart using endomyocardial biopsy is the diagnostic procedure that is considered to be the gold standard for cardiac amyloidosis; nonetheless, this method is invasive and has the potential to cause complications. As a result, non-invasive diagnostic techniques like cardiovascular magnetic resonance are being examined as potential alternatives.

Case illustration: A 56-year-old male patient with chief complained shortness of breath and atypical chest pain. He was an active smoker with history of dyslipidemia. Patient heart rate was 96 bpm, blood pressure was 123/75 mmHg without any abnormality in heart sound with rales sound at bilateral basal pulmonal. Immunology result showed increase of free light chain kappa and normal ratio value is obtained from the ratio of kappa and lambda with increase of BNP Level and normal cardiac enzyme. The ECG shows a sinus rhythm with poor R wave progression and chest x-ray reveals cardiomegaly with congestive pulmonal. Transthoracic echocardiography showed eccentric hypertrophy, LVEF 39%, TAPSE 2.1 and regional wall motion abnormality. Cardiovascular magnetic resonance (CMR) performed hypertrophied myocardium, increased of septal and interatrial septal thickness with poor nulling of myocardium signal at different T1. With increasing specificity and sensibility, non-invasive methods such as CMR imaging using late gadolinium enhancement
(LGE) and T1 mapping techniques have been used to make a diagnosis of cardiac amyloidosis (CA).

**Conclusion:** In conclusion, we described a patient with amyloidosis coexistence with coronary artery disease presenting heart failure and chest pain. Diagnosis of CA may challenge especially with coexistence cardiac comorbidities. Diagnosis of CA in this case report was confirmed by CMR using LGE and T1 mapping techniques. CMR accessibility and diagnostic specificity up to 94% which reduced the requirement for cardiac biopsies as definitive diagnosis of amyloidosis.

**Keyword:** cardiac amyloidosis, cardiovascular magnetic resonance, coronary artery disease
Abstract ID: 7852

Unexplained recurrent syncope on head and neck cancer: just a reflex syncope or it is something more?

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\textbf{Background:} Syncope is a common presentation among patients in the emergency department. Determining the etiology of syncope could be very challenging. The differential diagnosis of syncope is broad and the management itself varies significantly depending on underlying etiology, age, frequency and availability of treatment modalities. We present a case of parotid gland carcinoma accompanied with cancer pain whom experienced recurrent episodes of unexplained syncope.

\textbf{Case presentation:} We present a 58-year-old male with history of growing mass in his left cheek extending to the neck along with abrupt pain sensation. His family brought him to emergency room because of sudden loss of consciousness occurring repeatedly in the last week. Physical examination showed a large mass on left cheek extending to neck region with diameter of 7 centimeter with normal cardiac examination. Surface ECG shows normal sinus rhythm without any signs of malignant arrhythmia related to patient's complaint. During observation, the patient felt choking sensation then got unconscious. After few minutes patient regain his consciousness. We decided to perform 24-hour holter monitoring and revealed sudden drop of heart rate which shows sinus bradycardia and episodes of junctional rhythm correlated with patient's syncope. For the time being we assume that the patient suffered from episodes of reflex syncope caused by carotid sinus syndrome or neuralgia that triggered severe bradycardia.

\textbf{Conclusion:} Syncope is associated with broad possibilities of etiology and pathomechanism. These etiology, whether it is cardiac or non-cardiac etiology should be thoroughly explored to decide the best treatment strategy for the patient. Non-cardiac syncope, despite it is considered more benign, had more complex treatment strategy.
including underlying etiology elimination, counter-pressure maneuver, drugs and lifestyle modification. Cardiac electronic device could still to be considered as a silver bullet as the last resort for patients with syncope.

**Keywords:** Syncope; Head and Neck Cancer; Carotid Sinus Syndrome
Abstract ID: 8500

Ventricular standstill as a lethal consequence of aortic valve endocarditis

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Infective endocarditis can be related to myocardial abscesses. Furthermore, myocardial abscesses may cause conduction disturbances. Ventricular standstill is a rare electrophysiological phenomenon in which the heart experiences events of absent ventricular activity despite normal atrial function. We describe a case of a 38-year-old Asian male with a history of rheumatic heart disease came with shortness of breath, fever, electrocardiogram of 1st degree AV Block, and echocardiogram showing aortic valve endocarditis with an associated annular aortic fistule and interventricular septum abscess. Subsequently, during treatment, his ECG monitor showed episodes of P waves without accompanying QRS complexes, indicating a ventricular standstill. He lost consciousness during these episodes, and his condition rapidly deteriorated. The patient is in cardiac arrest before we get the chance to implant a pacemaker.

Keywords: Ventricular Standstill; Aortic Valve Endocarditis; Myocardial Abscesses
Abstract ID: 9577

Intramyocardial dissecting hematoma, a rare complication after myocardial infarction

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Background: Intramyocardial dissecting hematoma (IDH) is a rare complication of myocardial infarction (MI) that contribute to high morbidity and mortality rate. There is scarce information in literature and hence management uncertainties. Additionally, coronary reperfusion results on the occurrence of IDH is still poorly understood.

Case summary: A 49-year-old man with a previous anterior wall MI 3 months before without revascularization, presented with a recent onset of New York Heart Association (NYHA) functional class IV heart failure. Echocardiographic diagnosis of IDH was based on the presence of a neocavity with an endomyocardial border extending from the LV mid inferoseptal wall to the apical segments, corroborated with cardiac magnetic resonance (CMR). Coronary angiography showed severe three-vessel disease. The patient underwent staged complete revascularization and kept on optimal medical management. With non-surgical treatment, the patient remained clinically stable and showed a gradual improvement. Repeated echocardiography up to one year after the initial diagnosis demonstrated regression of the haematoma.

Discussion: An unusual form of myocardial rupture that can complicate acute myocardial infarction is IDH. The diagnosis can be missed in some cases. Transthoracic echocardiography may allow diagnosing and evaluating IDH at the bedside. Controversy exists regarding whether surgical repair or conservative treatment is the best option for this condition. The appropriate management should be individualized. Conservative treatment in clinically stable patients suffering from IDH following MI and coronary intervention can be a feasible option.

Keywords: intramyocardial dissecting hematoma; myocardial infarction; complications; echocardiography
Part 6
Miscellaneous Papers in Biomedicine, Pharmacology, and Technology
Abstract ID: 2140

**Extraction fish oil from patin (Pangasius micronemus) using microwave and ultrasound assisted extraction**

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Fish oils are the primary food source of omega-3 fatty acids. Some species of Pangasius have been studied to contain omega-3, i.e., Pangasius micronemus (patin fish). Extraction methods affect the yield and the content of fish oil (FO). In this study, the FO was extracted from Patin (Pangasius micronemus) using microwave-assisted extraction (MAE) and compared with ultrasound-assisted extraction (UAE) method. The MAE condition for extraction was at 60 °C with 56% ethyl acetate in methanol as an extraction solvent and a solvent-to-sample ratio of 20:1 for 15 minutes. While the UAE conditions for extraction were as follows: temperature of 59 °C, a solvent composition of 42% (n-hexane in isopropanol), an amplitude of 41%, a solvent-to-sample ratio of 20:1, a cycle of 0.8 s⁻¹, and extraction time 25 min. The total yield from MAE and UAE methods were 42.71 and 42.08%, respectively. Considering the fatty acid profiles, the total of polyunsaturated fatty acid (PUFA) from MAE method was 25.25%, with eicosapentaenoic acid (EPA) content was 0.50% and α-linolenic acid (ALA) was 1.41%. Total PUFA from UAE method was 24.20%, EPA and ALA contents were 0.46 and 1.36%. Non-significant differences were obtained when using UAE and MAE at their conditions. Thus, the results demonstrated successful potential use of both techniques for the extraction of FO from Patin.

**Keyword:** Extraction, Patin, fish oil, MAE, UAE
Abstract ID: 3586

The anticancer extracts of tectona grandis on tubulin beta-3 as a therapeutic candidate for breast cancer using the in silico

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Background: Breast cancer is the second most common cancer in the world. Involved in its pathogenesis is the overexpression of Tubulin Beta-3 (TUBB-3), a microtubule protein that plays role in cell division. TUBB-3 overexpression also causes treatment resistance to the taxane group. The only chemotherapy drug that specifically targets TUBB-3 receptor is currently limited. Therefore, it is important to explore potential active ingredients as candidate chemotherapy agents. One of the possibilities is the Tectona grandis leaf extract.

Objective: This research aims to explore the interaction between TUBB-3 as a target and Tectona grandis leaf extract as the ligand using in silico approach.

Results: Tectona grandis leaf extract contain anticancer active compounds including lapachol, rutin, quercetin, gallic acid, and ellagic acid. Using in silico methods, the PyRx program was used to complete the molecular docking. The molecular structures were acquired from PDB and PubChem databases. The results were then visualized and analyzed using PyMol and Discovery Studio. The bioavailability tests eliminated rutin and ellagic acid that did not meet the criteria, while lapachol, quercetin, and gallic acid met all the criteria, better than the chemotherapeutic agent ixabepilone, which was used as the control ligand. The docking results showed bonds between these three active compounds and TUBB-3 with a stable binding affinity value of less than -6.0 kcal/mol, indicating they own the potential to suppress TUBB-3 and reduce proliferation.

Conclusion: Lapachol, quercetin, and gallic acid have the potential to be antimicrotubule chemotherapeutic agents in breast cancer by binding to TUBB-3 in silico.
**Keywords:** Tectona Grandis; in silico; TUBB-3; breast cancer; chemotherapeutic agents
Abstract ID: 6427

Optimization of Formula and Production Process of Nano-Herbal using Ionic Gelation Method with Chitosan Polymer

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Nanotechnology is widely applied to conventional drugs and herbal medicines to improve the efficacy of drugs. This study aims to optimize the nanoparticle formula made from chitosan polymer using the ionic gelation method. The nanoparticle system with the best physical properties based on the particle size and polydispersity index is the optimal formula for the cinnamon (Cinnamomum burmannii) extract nano-herbal delivery system. The best formula based on optimization was the formula that uses chitosan with a concentration of 0.4% and a sodium tripolyphosphate concentration of 0.5%. The best volume ratio obtained in the formula was 5:1. The resulting nanoparticles need to be determined using the HPLC method. However, before using the method must be validated. The results of the validation of the analytical method was valid through the evaluation of the parameters of accuracy, precision, and selectivity of the analysis method.

Keywords: polymer nanoparticle, cinnamon extract, chitosan, sodium tripolyphosphate, particle size
Abstract ID: 6518

In silico antimalarial activity of terpenoid compounds from dichloromethane fraction of *Strychnos lucida* R. Br. wood

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*Strychnos lucida* R. Br. or Kayu Songga is used empirically by the Tetun tribe in Indonesia to cure several diseases of muscle pain, skin infections, and malaria. Previous studies showed that *S. lucida* wood extract could inhibit plasmodium growth in vitro and in vivo. In addition, dichloromethane extract exhibited heme polymerization inhibition. In this study, Kayu Songga extract was fractionated using dichloromethane. The dichloromethane fraction (D) was separated using column chromatography and yielded D1-D5 subfraction. The results of subfractions were analyzed using FTIR and LC-MSMS. The LC-MSMS profile showed the presence of ferruginol (285.22091 m/z) in subfraction D3, Atractylon (217.1582 m/z) and Sugiol (301.2159 m/z) in subfraction D5. The FTIR spectrum showed an absorption band at a wave number of 1637.64 cm⁻¹ (C=C) and 2924.21 cm⁻¹ (C-H). Antimalarial activity was conducted in silico using molegro virtual docker on Pf-ENR, Pf-DHFR, Falcipain-2, Pf-Plasmepsin, and Pf-LDH protein targets. Terpenoids from D3 and D5 interacted with the target protein in Plasmodium falciparum. Ferruginol and sugiol performed lower rerank scores than chloroquine in Pf-DHFR protein, -70.6704, -72.2424, and -69.3436, respectively. According to the result, ferruginol and sugiol compounds have the potential to be developed as antimalarials with a target in the process of parasite DNA synthesis.

**Keywords**: Strychnos lucida R. Br., In Silico, antimalarial, terpenoid, Pf-DHFR
Abstract ID: 7923

From empiric to in-silico garlic for anti-diabetic: hypothesis of alliin as DPP-4 inhibitor

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Garlic (Allium sativum L.) is a type of vegetable that is commonly consumed and plays an important role in culinary purposes, as a food additive, and in traditional medicine. The content of bioactive compounds in garlic, such as allicin, alliin, diallyl sulfide, diallyl disulfide, diallyl trisulfide, and ajoene, indicates pharmacological effects, especially in anti-diabetic properties. This study aims to understand the possible mechanisms of action through an in-silico approach with docking and molecular dynamics of one of the bioactive compounds in garlic to inhibit DPP-4 with a role in blood sugar lowering. The Tanimoto alliin score was the highest (0.077) compared to other garlic bioactive compounds using sitagliptin as a reference compound and an approved DPP-4 inhibitor drug. The binding affinity of alliin and DPP-4 was higher than that of sitagliptin, -5.1 kcal/mol and -8.5 kcal/mol, respectively. As a DPP-4 inhibitor, sitagliptin forms H-bond interactions with Glu205 and Glu206, and this interaction is important concerning the inhibitory effects of sitagliptin and Alliin. The interaction between alliin and DPP-4 in the binding cavity of the docking results is flexible, followed by molecular dynamics simulations to help determine the stability of the interaction with alliin. The results provide an understanding of the mechanism of action of garlic with one of its components, alliin, in lowering blood sugar levels.

Keywords: garlic, alliin, DPP-4, docking, molecular dynamic.
Abstract ID: 8339

**Determination of quercetin in leaf ethanol extract of Blumea balsamifera L. by TLC densitometry**

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*Blumea balsamifera* L. has many pharmacological effect such as antioxidant, wound healing, antibacterial and hepatoprotective. One of the flavonoid compounds that act as antioxidants was quercetin. The content of quercetin was used as analytical marker compound to determine the quality of *Blumea balsamifera* L. extract. The aim of this study was to determine the content of quercetin in leaf ethanol extract of *Blumea balsamifera* L. using TLC-Densitometry method. TLC- Densitometry used chloroform: ethyl acetate : formic acid : methanol (3:3:0.8:0.2) as mobile phase and silica gel as the stationary phase. The analysis wavelength for quercetin was 366 nm. The results quercetin level were 0.74% on 96% ethanol extract and 0.39 on 70% ethanol extract. The TLC Densitometry method can be used for the analysis quercetin in leaf ethanol extract of *Blumea balsamifera* L.

**Keywords:** quercetin, *Blumea balsamifera* L., ethanol extract, TLC-densitometry
Abstract ID: 9588

**Antibacterial effects of mangrove leaf *Sonneratia alba* extract on *Escherichia coli* and *Shigella dysenteriae***

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Mangrove is a kind of plant that have high potency of natural medicine material therefore becoming a special attention especially in tropical districts like Indonesia. Mangrove has been known its function, in medical field Mangrove also has the effect to threat diarrhea or as an antibacterial agent for diarrhea. Mangrove’s leaf (*Sonneratia alba*) has a secunder metabolite material as an antibacterial agent; terpenoid, saponin, and tannin. This research’s purpose is to conduct the effect of mangrove’s leaf extract as an antibacterial agent to *Escherichia coli* and *Shigella dysenteriae*. Mangrove's leaf extract was made with the sokletasi method in the laboratory of organic chemistry, University of Lampung. The activity of antibacterial agent was tested to the bacteria in medium Mueller-Hilton agarose with disc fussion method in vitro. The result of this research showed that the activity of Mangrove’s leaf extract *Sonneratia alba* to the *Escherichia coli* and *Shigella dysenteriae* with the inhibition rate in concentration 50 % and 100 %, however the antibacterial effect didn’t reach higher level than in positive control. There were antibacterial effect of mangrove’s leaf extract *Sonneratia alba* to the inhibition level of growth the bacteria *Escherichia coli* and *Shigella dysenteriae*.

**Kata Kunci:** Daun mangrove, *Escherichia coli*, *Shigella dysenteriae*
Abstract ID: 9803

Covid-19 oral vaccine candidate using soyghurt-based recombinant Lactococcus lactis bacteria

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Recombinant Lactococcus lactis expresses SARS-CoV-2 spike protein is a promising vaccine candidate. This study aims to develop a formulation of fermented soy milk (soyghurt) with recombinant L. lactis starters as a candidate for the oral COVID-19 vaccine. The research stages included formulating L. lactis in soy milk and then assaying its fermented product through a stability test, physicochemical test, simulated gastric juice / intestinal juice test, total bacteria count, and spike protein expression assay. Results show that the fermented soyghurt has a thick texture and creamy color, a pH range of 4 – 5, and a viscosity of 3–5 dPa. Recombinant L. lactis in soyghurt survived well during the 14 days storage at 2 °C – 8 °C and was proven to survive on gastric acid and intestinal bases and can express spike protein. These results indicate that soyghurt with recombinant L. lactis can be developed into an oral COVID-19 vaccine.

Keywords: COVID-19, Lactococcus lactis, SARS-CoV-2 spike protein, Soy Milk, Oral Administration