Posters

Heart Diseases 2017

Annual Conference on

HEART DISEASES

September 18-19, 2017 | Toronto, Canada

A case of systemic amyloidosis with multiple myeloma proceeded by pulmonary amyloidosis diagnosed after developing cardiac failure with cardiac amyloidosis

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A 70-year-old male complained exertional dyspnea. Chest X-ray and computed tomographic scanning showed left pleural effusion. Diuretic and antibacterial therapy started but his pleural effusion remained. Biopsy by videoassisted thoracoscopic surgery was performed, and its pathological fingings showed deposition of amyloid protein at alveolar walls and vascular walls in left upper lung. So, he was diagnosed as localized pulmonary amyloidosis at first. After three months, he complained recurrence of exertional dyspnea and leg edema. Chest X-ray computed tomographic scanning showed bilateral pleural effusion. Ultrasound cardiography showed left ventricular dysfunction and hypertrophy. So, he was considered as complicating cardiac amyloidosis. Althrough cardiac biopsy didn't show amyloid protein, clinical fingings such as left ventricular hypertrophy consistent with cardiac amyloidosis. In addition, upper gastrointestinal tract biopsy also showed amyloid protein, so he was diagnosed as systemic amyloidosis including cardiac symptoms. Bone marrow biopsy performed in order to identify the underlying disease of systemic amyloidosis showed abnormal plasma cells, so he was finally diagnosed as multiple myeloma that caused systemic amyloidosis. In this seminar, I will show this rare case report in that pulmonary amyloidosis preceded other organs in systemic amyloidosis. We firstly diagnosed as localized lung amyloidosis, but after cardiac failure combined we finaly could diagnosed as systemic amyloidosis with multiple myeloma.

Speaker Biography

Mitsutaka Nakashima is an expert in the diagnosis and treatment of cardiovascular diseases, including hypertension, dyslipidemia, atherosclerosis, peripheral arterial disease, coronary artery disease, arrythmia and pulmonary hypertension. He graduated Okayama University Medical School in 2013. He subsequently completed his residency of cardiology at Hiroshima City Hospital and Okayama Medical Center. He is currently the staff of Dep. Of Cardiovascular medicine at Iwakuni Clinical Hospital, Yamaguchi, Japan. His clinical interests include the diagnosis and treatment of heart failure and pulmonary hypertension.

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Polysaccharide peptides of *Ganoderma lucidum* effects as antioxidant, antiinflammation, and endothelial protector in high risk patients of atherosclerosis

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Background: *Ganoderma lucidum* is a type of mushroom that has been used for thousand years throughout Asia. It is known to demonstrate numerous health benefiting properties including antioxidant, antiinflammation, anticancer effects, hypoglycaemic and blood cholesterol reducing properties. This research was conducted to determine the efficacy of *Ganoderma lucidum* polysaccharide peptides (PsP) as antiinflammation, antioxidant, and endothelial protector in cardiovascular disease.

Methods: This is a true experimental study with pre- and post-test design of 37 high risk patients of cardiovascular disease based on the Framingham Risk Score that was conducted for 3 months. They were advised to consume PsP 3x250 mg as adjuvant to their previous medications. They did some examines. Statistical analysis was conducted using paired t-test for parametric data and Wilcoxon test for nonparametric data.

Results: From 37 patients we found that the administration of PsP 3x250 mg could reduce total cholesterol level from 219.46±49.49 to 201.43±81.63 (p=0.193). PsP administration, however, decreased HDL cholesterol (HDL-C) levels by 7.84±10.79 (p=0.000). The systolic blood pressure decreased from 130.14±43.37 mmHg to 118.24±55.68 mmHg (p=0.109), and the diastolic blood pressure decreased from 80±25.74 mmHg to 73.24±33.85 mmHg (p=0.102). Despite a great reduction of blood pressure to normal range, it was not statistically significant. The reduction of anti-inflammatory markers, interleukin 6 (IL-6), from 279.75±120.76 to 29.32±26.44 (p=0.000) and tumour necrosis factor alpha (TNF alpha), from 13447.84 ± 2199.46 to 544.85 ± 292.06 (p=0.000) were significant. Malondialdehyde (MDA) level also decreased significantly with PsP for 3 months (114.13±24.56 to 36.84±28.39, p=0.000). Circulating endothelial cell (CEC) level significantly reduced (p=0.000) and endothelial progenitor cell (EPC) level significantly increased (p=0.000).

Conclusions: The administration of PsP *Ganoderma lucidum* for 3 months in high risk patients with hypertension can reduce the blood pressure within normal range; improve total cholesterol and LDL-C level and significantly pivotal role as antiinflammation, antioxidant, and endothelial protector in cardiovascular disease.

Speaker Biography

Djanggan Sargowo, MD, PhD, FIHA, FACC, FESC, FAPSC, FAsCC, FINASIM, is a Professor at the University of Brawijaya, and is board certified in Internal Medicine and Cardiovascular Disease. His clinical interests include management of ischemic heart disease, congestive heart failure, hypertension, diabetes mellitus, dyslipidemia and peripheral vascular disease. He received his MD from University of Gadjah Mada, Yogyakarta, Indonesia. He received training in Internal Medicine at Airlangga University and Cardiology at University of Indonesia. He received his PhD degree in Medicine from University of Airlangga. In the past, Barry served as Head of Cardiology and Vascular Department at Dr. Saiful Anwar General Hospital Malang and Director of Postgraduate Program at University of Brawijaya. He is currently a Fellow of Indonesian Heart Association, a Fellow of the American College of Cardiology, a Fellow of the European Society of Cardiology, a Fellow of Asia Pacific Society of Cardiology, a Fellow of ASEAN Federation of Cardiology, and a Fellow of Indonesian Society of Internal Medicine. He serves as Director of Brawijaya University Teaching Hospital, Chairman of Malang Molecular Biology Institute and as Chairman of Center for Degenerative Diseases, Brawijaya University.

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Atherosclerosis prevention mechanism through purple sweet potato (*Ipomoea batatas*) consumption: Roles of intracellular HSP 70, extracellular HSP 70, Lipoprotein associated phospholipase A2 (Lp-PLA2), high sensitivity C-reactive protein (hs-CRP) toward foam cell

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Background: Atherosclerosis is a chronic inflammatory disease involving immunological activity, inflammatory cells, proinflammatory cytokines, and primitive proteins. Natural food ingredients are highly consumed to prevent atherosclerosis. People consuming purple sweet potato (*Ipomoea batatas*) have lower incidence of coronary heart disease.

Objective: The objective of this study is to prove the mechanism of atherosclerosis prevention through the provision of purple sweet potato (*Ipomoea batatas*).

Methods: This research used a randomized post-test only control group design using 18 white rats (*Rattus norvegicus wistar strain*) that were divided into three groups containing six rats in each group, namely, the first group was normal group, the second group was given atherosclerotic diet, and the third group was a treatment group given diet of atherosclerotic and purple sweet potato (*Ipomoea batatas*) extract orally (26.6 mg). After 90 days of treatment, blood sampling was carried out for measuring the levels of extracellular Heat Shock Protein 70 (e HSP70), high sensitivity c-reactive protein (hs-CRP), lipoprotein associated phospholipase A2 (Lp-PLA2) enzyme using ELISA and measuring the intracellular Heat Shock Protein 70 (i HSP70) expression in the monocytes using immunocytochemistry and histopathologic observation on the number of foam cells in rats' aorta.

Results: The administration of purple sweet potato (*Ipomoea batatas*) extract is proved to decrease hs-CRP level and the number of foam cells in the aorta. Increase of i HSP70 expression in monocytes, activity of Lp-PLA2 enzyme and e HSP70 level in circulation occur. Path analysis showed two significant paths in atherosclerosis prevention: Ipomoea batatas - i HSP70-foam cell and Ipomoea batatas - i HSP70 - e HSP70 - Lp-PLA2-foam cell. Path of *Ipomoea batatas* - i HSP70-foam cell is more dominant to prevent atherosclerosis. The role of intracellular Heat Shock Protein 70 (i HSP70) is dominant on the path as molecular cheperon fuctioned as cytoprotective on monocyte.

Conclusion: The extract of purple sweet potato (*Ipomoea batatas*) can reduce hs-CRP, foam cell and improve i HSP70, Lp-PLA2 and e HSP70. The main line in the prevention of atherosclerosis is through Ipomoea batatas - i HSP70-foam cell and is dominated by the role of i HSP 70.

Speaker Biography

Meddy Setiawan, MD, PhD is an Internal Medicine Specialist in Malang, Indonesia. He received his medical degree and completed his medical residency at Brawijaya University. He received his PhD degree in medicine from University of Airlangga. Currenty he is affiliated with University of Muhammadiyah Malan and University of Muhammadiyah Malang Hospital as lecturer and internal medicine specialist. As an Internist and a lecturer, he has interests in conducting a research on Atherosclerotis. Besides, he has also developed a textbook on Endocrine and the one on Cardiocerebrovascular for his students. He has published his researches on the field of Atherosclerotis such as 1) The Effect of Extract from Pericarp of Mangosteen (Garcinia mangostana linn) as an Antioxidant in Rats Models of Atherosclerotis (published in Journal of Cardiology Indonesia, 2012), and 2) The Effect of Virgin Coconut Oil (VCO) on the Regression of Foam Cell and the Ratio Decrease of LDL/HDL Cholesterol of White Male Rat Atherosclerotic (Rattus novergicus strain wistar) published in Journal of Sain Med, 2009. He also has already owned a patent for his invention on Seaweed as Antihipertensive Therapy : The Formulation of Seaweed Effervescent Tablet (Eucheuma spinosum) as an angiotensin I converting enzym (ACE) a natural inhibitor in 2015. As a lecturer and a clinician, he also actively involves in some seminars, simposium and workshops, either as a participant or a presenter. In May, 2017 he presented his research on Basic Molecular Biology Course XV as a keynote speaker, entitled : The Role of Primitive Protein Heat Shock Protein (HSP) on chronicle inflammation (Atherosclerosis). Besides, he also has received some awards firstly, from The Ministry of Culture and Education Republic of Indonesia as an advisor of Students Creativity and Research in 2013, secondly, from The Ministry of Health Republic of Indonesia as a medical practitioner for Indonesian Hajj in Saudi Arabia in 2012, 2014, thirdly from Haramain Award from the Department of Religion and Health Republic of Indonesia as a Researcher of Hajj Health in Saudi Arabia in 2014. Next, an award as an exemplary lecturer in the Faculty of Medicine in Muhammadiyah University in Malang in 2017 and finally, an award from the President of Indonesia Satyalencana Karya Satya X Years in 2016.

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Comparison of different methods to determine the threshold anaerobiose in transfemoral amputatess usinga prosthesis

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Introduction: The anaerobic threshold is a leading indicator of cardiopulmonary exercise testing (CPET), because it is the determining point of balance between production and removal of lactate witch is, the maximum intensity exercise, determining the physical performance and ventilation performance . This study aims to analyze the anaerobiose threshold on transfemoral amputees under different methods of analysis.

Methodology: This was CPET in seven amputees unilateral tranfemorais prosthesis use (30 years ± 4.89). The tests were performed on a cycle ergometer with ramp protocol with measurement effort by Subjective Perception Scale of Borg effort using ergospirometer Vmax (CareFusion). The descriptive analysis of data was performed using SPSS software.

Results: Methods of graphic visual analysis and automatic linaer ventilatory method presented similar values regarding the ventilatory variables, and the mathematical model and the graphic visual obtained similar measurements in the respiratory and cardiovascular aspects determining the LA about the same time.

Conclusion: Therefore, it is confirmed that the methods of graphical visual analysis and heteroscedastic mathematical model are presented as the gold standard for the determination of LA by their sensitivity and reliability. So that needs to be more studies on the determination of anaerobiose threshold in transfemoral amputees in order to compare with the findings in this study.

Speaker Biography

Bruna da Silva Sousa completed her Master's Degree in Biomedical Engineering from the University of Brasília - Gama's College, Graduate in Physiotherapy from the University of Brasília (UnB), Pilates Instructor, Auriculoacupunturista, former student of the Military College of Brasília (CMB). Presents experience with cardiovascular area, through research projects since 2013, and acting in the area in the curricular stages.

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Quantitative evaluation of longitudinal strain in layer-specific myocardium in patients with preeclampsia

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Aim: Preeclampsia (PE) remains a main cause of maternal morbidity and mortality during pregnancy. Vascular spasm and ischemic damage play the primary role in the presentation of PE. The aim of this study was to assess the longitudinal strain (LS) in each of the three myocardial layers in patients with PE using the layer-specific strain.

Methods: Forty-five PE women and 41 normotensive pregnant women were included. Layer-specific LS were assessed in endocardium, mid-myocardium, and epicardium by 2-dimensional (2D) speckle-tracking echocardiography (STE).

Results: Compared to the control subjects, the LS of all the three analyzed myocardial layers showed a significant decline in PE patients and the greatest decrease of LS occurred in the endocardium. Considering a layer-specific analysis of myocardial deformation, there is a continuous reduced tendency from endocardia to mid-myocardial and epicardial layers in PE cases.

Conclusions: All three myocardial layers were impaired in PE cases and the most prominent decrease in myocardial function occurred in the endocardial layer. Layer-specific analysis of myocardial function performed by novel 2D STE might increase diagnostic accuracy of myocardial performance in PE patients.

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Clinical profile and intermediate term outcome of 50 consecutive patient of ventricular tachycardia storm managed at a tertiary care center in India

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Background: Ventricular tachycardia (VT) storm is an uncommon but life-threatening episode defined as 3 or more sustained episodes of VT or VF requiring cardioversion within 24 hours. We present here intermediate results of an observational study on clinical profile and outcomes of 50 consecutive patients presenting with VT storm.

Purpose: To evaluate the clinical profile, management strategies and modalities of treatment in patient with VT storm.

Methods: This is a prospective observational cohort study, undertaken at a tertiary care hospital in India. Data of 50 consecutive patients with confirmed diagnosis of VT storm was collected for final analysis. Parameters assessed were clinical history, primary diagnosis leading to VT, medication history, comorbidities, implanted cardioverter device (ICD) details, treatment modalities tried including cardiac sympathetic denervation (CSD), subsequent hospitalization and follow up (≥6 months) details.

Results: 50 patients (36 men, 14 women, median age 55 (IQR, 46-65 years) were included in the study. The most frequent substrate of VT storm was scar caused by previous myocardial infarction (20 patients, 40%). Other causes included old myocarditis, hypertrophic cardiomyopathy, idiopathic DCMP, arrhythmogenic RV cardiomyopathy, previous TOF surgery, LQTs, idiopathic VT, VF and acute myocarditis. None of the patients had any active ongoing ischemia as the precipitant factor for VT storm. 43 patients (86%) already had ICD. A majority of patients (27, 54%) had Pleomorphic (≥3) morphologies of VT. Monomorphic VT was found in 19 (38%) and polymorphic VT in 4 (8%). The median duration of hospital stay was 6 (IQR, 4-14) days. Seven (14%) patients died in the index hospitalization and the remaining 43 (86%) patients were discharged successfully, of which 41 (82%) were alive at 6 months. There was significant reduction of number of VT at 6 months of follow-up compared to number of VT episodes prior to index hospitalization [(24, IQR15-40 vs. 1, IQR 1-3.5); p<0.0001). Optimization of dosage, addition or deletion of a new antiarrhythmic drug, controlled VT in 29 (58%) of patients; the remaining 21 (42%) of patients underwent bilateral CSD in addition to the protocol based management of VT storm. None of the baseline parameters were significantly associated with occurrence of VT storm or with the intermediate term survival.

Conclusions: A majority of VT storm patients were men. Old MI was the substrate in 40 % of patients. Medical management predominantly, adjustment of anti-arrhythmic drugs helped control the VT storm in 58 % of patients. A significant proportion of these patients required CSD as a management strategy. The in-hospital mortality was 14 % and 6 months survival was 82%.

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Role of fragmented QRS complex in the prediction of the extent of myocardial damage following acute coronary syndrome (ACS)

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Background: Coronary heart disease (CHD) is one of the major and leading causes of death worldwide. Fragmented QRS (f-QRS) is a pattern of QRS complex in 12 leads surface ECG which has a great diagnostic and prognostic role in cardiac diseases including coronary heart disease.

Objective: to investigate the role of using f-QRS in acute coronary syndrome (ACS) as a non-invasive and easily accessible tool for the prediction of myocardial damage.

Methods & Results: Retrospective study of 84 patients with ACS were divided into 46 patients with f-QRS (fragmented group) and 38 patients without f-QRS (non-fragmented group) excluding prior history of major ischemic events (MI, PCI & CABG), permanent AF or ischemic and non-ischemic cardiomyopathy. General demographic characteristics, major risk factors of CHD, Killip class, updated GRACE risk score of ACS, cardiac biomarkers, wall motion score index (WMSI), left ventricle ejection fraction (LVEF), diastolic dysfunction (DD), mitral regurgitation (MR), Gensini score and in-hospital death showed no significant differences between both groups. Only LVEDD was significantly higher in fragmented group than non-fragmented group (P=0.033). The optimum cut off value for f-QRS leads was >3 leads for predicting in-hospital death with 83.3% sensitivity and 72.5% specificity. In the fragmented group, patients were divided into 2 subgroups according to the numbers of f-QRS leads; Subgroup (A1) including patients with >3 f-QRS leads &subgroup (A2) including patients ≤3 f-QRS leads. Subgroup (A1) showed significant difference than subgroup (A2); a lower SBP (111.33±25.03 vs. 139±38.89, P=0.016), a higher HR (93.81±19.13 vs. 80.77±14.91, P=0.014), a higher updated GRACE risk score (6.81 ± 12 vs. 3.22 ± 6.95, P=0.048),a lower LVEF (48.08±13.07 vs. 56.14±10.92, P=0.049),a higher WMSI (1.55±0.33 vs. 1.27±0.27, P=0.007), a higher Gensini score (86.12±47.2 vs. 55.08±35.97, P=0.030) and a higher incidence of in-hospital death (5/16 vs. 1/30, P=0.015). The different locations of f-QRS had different impacts on SBP, HR, Killip (IV), LVEF, WMSI, updated GRACE score, Gensini score and in hospital death. Anterior f-QRS showed significant differences than non-anterior f-QRS; with a lower SBP (P=0.006), a higher HR (P=0.040), a higher incidence of Killip (IV) (P=0.030), a lower LVEF (P=0.039), a higher WMSI (P=0.004), a higher updated GRACE risk score (P= 0.033), a higher Gensini score (P=0.016) and a higher incidence of in-hospital mortality (P=0.004).

Conclusion: Fragmented QRS on 12 leads surface ECG is not an uncommon phenomenon among the patients with acute coronary syndrome (ACS). The location and the number of f-QRS can be used as a non-invasive and easily accessible tool to predict the extent of myocardial damage.

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LDL-R, HMG-CoA reductase genes expression, antioxidant capacity and histological changes induced by Anethum graveolens in hypercholesterolemic hamsters

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Objective: The aim of this study was determination of the effect of Anethumgraveolens extract and anethumgraveolens (dill) tablet on lipid profile, liver enzymes and histological change and gene expression and enzymatic activity of LDL-R and HMG-CoA reductase in control and high cholesterol fed hamsters(HCD).

Materials & Methods: Golden Syrian male hamsters (130 ± 10 g) were randomly divided into 6 groups (n=6) and received daily as following: Group 1: chow +2% cholesterol + 0.5% cholic acid, group 2: chow + 100 mg/kg hydroalcholic extract of dill +2% cholesterol + 0.5% cholic acid, group 3: chow + 200 mg/kg hydroalcholic extract of dill +2% cholesterol + 0.5% cholic acid, group 4: chow + 100 mg/kg dill tablet + 2% cholesterol+0.5% cholic acid, group 5: chow + 200 mg/kg dill tablet +2% cholesterol+0.5% cholic acid, and group 6: chow. After 1 month feeding, animals were anesthetized and sacrificed, biochemical factors were determined enzymatically. LDL-R and HMG-CoA reductase mRNA level was measured by Real time PCR and its activity was determined spectrophotometrically.

Results: Compared with hypercholesterolemic group-1, lipid profile, blood glucose and liver enzymes significantly decreased in all dill tablet-received or dill extract-treated groups ($p<0.05$). The changes in HMG-CoA reductase gene expression level and enzyme activity were not significant in animals received 100 mg/kg of hydroalcholic extract or dill tablet, but werereduced in animals received 200 mg/kg of extract or tablet. The expression of LDL-R significantly increased in animals received 200 mg/kg of extract or tablet. Liver and heart antioxidant significantly increased by Anethum graveolens. Liver histopatological changes were normalized by Anethum graveolens.

Conclusion: Dill can significantly reduce HMG-CoA reductase activity and its gene expression level in hypercholesterolemia. Anethum graveolens can also significantly increase LDL-R gene expression in HCD animals. This study showed that dill extract and dill tablet has potential hypocholesterolaemic properties in hamsters by inhibition of HMG-CoA reductase activity.

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Protective effect of resveratrol and quercetine on heart against acetaminophene-induced toxicity in male rat

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Background: Resveratrol and quercetine have useful effects on cardiovascular system. resveratrol and quercetine were shown to decline blood lipid. antidiabetic and antioxidant effects of quercetine and resveratrol have been surveyed alone. However, this experiment aimed at investigative protective effects of this combination in rats with acetaminophene-induced toxicity.

Methods: The rats, weighting between 200-220 grams, were randomly divided into 6 groups (n=7): 1-Control (only receive chow diet), 2- acetaminophene at day of 0 and then receive normal saline for 6 days (640 mg/kg bw, po), 3- acetaminophene at day of 0 and then receive N-acetylcysteine for 6 days(150 mg/kg bw, po), 4- acetaminophene at day of 0 and then receive Quercetine for 6 days (20 mg/kg bw, po), 5- acetaminophene at day of 0 and then receive Resveratrol for 6 days (30 mg/kg bw, po), 6- acetaminophene at day of 0 and then receive Resveratrol (30 mg/kg bw, po) + quercetine (20 mg/kg bw, po) for 6 days. After 7 days of treatment heart were removed and their histology was examined by pathologist. Antioxidant capacity of heart and plasma as well as heart enzyme were determined.

Results: MDA levels in the serum and heart were increased in toxic group, whereas total antioxidant reduced. MDA levels significantly reduced and total antioxidant increased in Resveratrol and Quercetine compared with non-treated group. These changes were more significant in combination group ($p<0.05$). Creatine phosphokinase-MB, lactate dehydrogenase and aspartate aminotransferase significantly increased in toxic group. These enzyme significantly reduced by Resveratrol and Quercetine. These reduction were more significant in combination group ($p<0.05$). The structure change of heart in hematoxylin and eosin staining was not significant, while trichrome staining showed that heart changes normalized in Resveratrol and Quercetine groups. These reductions were more significant in combination group.

Conclusion: treatment of rats with Resveratrol and Quercetine improved cardiac changes by an additive effect. The useful effects of this combination on heart function were associated with normalize of MDA, total antioxidant, heart enzymes and an improved structure change.

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