INAMSC

Indonesia International (bio)Medical Students' Congress

Abstract Book

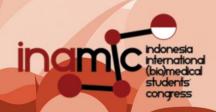# EDITORIAL BOARD

Foreword

Welcome from the Chairs of the Indonesia International (Bio)Medical Students' Congress (INAMSC)

Dear Congress Participant,

As the Chief of the organizing committee, I would like to give you a warm welcome to Indonesia International (Bio)Medical Students' Congress (INAMSC) 2019. INAMSC is a scientific sub event of Liga Medika 2019, and also the largest and most prestigious scientific event held by medical students in Indonesia. INAMSC 2019 is held on 22-25th August 2019 in IMERI Tower, Faculty of Medicine University of Indonesia, Jakarta.

To raise awareness of mental health, we raise the theme of Psychiatry as the theme of our congress this year. Various topics including neuropsychiatric diseases, mental health awareness, mental health in young adults, will be discussed during the event. There are also in broader topics from biomedical sciences presented from our research paper and poster competition. Not only increasing your knowledges and skills in our symposium and workshops, this event also aims to build new friendships and networks between our participants in our social program.

Finally, I once again welcome all of the participants to INAMSC 2019. We truly hope that all of you not just compete in this event, but also would get the beneficial, enjoyable, and unforgettable experience.

Ni Made Nadya Prabawanty
Chief of the Indonesia International (Bio) Medical Students' Congress
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FREDOM (*Ficus religiosa* as Diabetic Wound Treatment): Utilization of Methanolic Leaves Extract of *Ficus religiosa* Ointment as Diabetic Wound Treatment in Diabetic Rat Model

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Abstract

Diabetes is a metabolic disease characterized by an increase in blood sugar levels in the body that cause severe complication of wounds caused by inhibition of wound healing proces. Methanolic leaves extract of *Ficus religiosa* has a potential in diabetic wound healing because it contains variuos compounds that have antimicrobial, antioxidant, and analgesic effect. The purpose of this study is to observe the effect of methanolic leaves extract of *Ficus religiosa* ointment in diabetic wound healing. Male *Rattus novergicus* rat were divided into five groups: negative control, positive control, treatment 1 (ointment 5%), treatment 2 (ointment 10%), and treatment 3 (ointment 15%). Induction of diabetes in rats using Streptozotocin 40 mg/KgBW intraperitoneal. All groups were performed wound excision with an area of 3 cm^2. Observation in wound healing were scheduled four times within three days interval, fasting blood glucose (FBG) two times on pre and post treatment, and epithelization at day 12. The observations were analyzed using mean comparison and correlation in SPSS 18.0 and statistical analysis is significant if $p \leq 0.05$. Wound healing dan epithelization in day 12 shows significant difference in ointment dose 5% with the highest result compared with controls and other treatments. Fasting Blood Glucose value indicate diabetic criteria (>126 mg/dL) in all groups. Based on this study, concluded that ointment 5% has the best positive effect in diabetic wound healing also the most effective dose of methanolic leaves extract of *Ficus religiosa* ointment with value of $p = 0.023$.

Keywords: *Diabetes; Wound healing; Ficus religiosa; Methanolic extract; Leaves.*

Anti-inflammatory effects of *Moringa oleifera* Lam. seeds extract on expressions of IL-1β and TNF-α on hepatic tissue of metabolic syndrome white rats *(Rattus norvegicus)*

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Abstract

Studies showed there are relationship between high fat-fructose diet and Metabolic Syndrome (MS) that leads to inflammation process. Secondary metabolite of *Moringa oleifera* Lam., has potential to reduce NFκβ as the main transcription factor of pro-inflammation cytokines such as TNF-α and IL-1β. This research was focused on determining effects of Moringa seeds extract on the expressions of TNF-α and IL-1β on hepatic tissues of white rats with MS. This experimental research used posttest only group design. There were 4 groups : K1 was healthy rats, whereas K2, K3, and K4 were MS rats induced by duck yolk 2ml/200gBW, oxidized oil 1ml/200gBW, beef tallow 2ml/200gBW and fructose 0,36ml/200gBW for 53 days. The 150mg/KgBW and 200mg/KgBW of *Moringa* seeds extract were given to K3 and K4, respectively, for 28 days. TNF-α and IL-1β expressions on hepatic tissues were semi-quantitatively counted by Intensity Distribution Score and analyzed by One-Way ANOVA test, continued with Tukey HSD test. One-Way ANOVA test showed a significant difference of IL-1β and TNF-α expressions between four groups ($p < 0.05$). Tukey HSD test showed significant differences of K1 among K2 and K3, K2 among K3 and K4, also between K3 and K4 ($p < 0.05$). However, there was not significant difference of their expressions between K1 and K4. *Moringa oleifera* Lam. seeds extract has anti-inflammatory effects by reducing the expressions of IL-1β and TNF-α on hepatic tissue of MS white rats (*Rattus norvegicus*).

Keywords: interleukin-1β; metabolic syndrome; Moringa oleifera Lam; seeds extract; TNF-α

Effect of Kelor Leaf Extract (*Moringa oleifera*, Lam.) on Histopathological Structure of Aorta from Hypercholesterolemia Rat Model (*Rattus norvegicus*)

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Abstract

Kelor leaves contain vitamin, sitosterol, and flavonoid such as quercetin and kaempferol. These compounds have hypolipidemic, anti-inflammatory, and antioxidant that potentially protecting and repairing the aorta due to atherosclerosis. This study is aimed to determine the effect of kelor leaves extract (*Moringa oleifera* Lam.) on histopathological structure of aorta from hypercholesterolemia rat model (*Rattus norvegicus*). This was an experimental study with post-test only control group design. Samples were 28 males *Sprague Dawley* rats, used Incidental sampling. Samples were randomly divided into 4 groups. The group were Normal Control [(KN), Negative Control (K(-)), First Treatment (P1), and Second Treatment (P2). High-fat feed was given to K(-), P1 and P2 for 6 weeks. 200 and 400 mg/kg weight of kelor leaves extract were given respectively to P1 and P2 at week 7 until 11. Termination was done the day after the last extract feeding. The section of aorta was made with hematoxylin eosin staining. Wall thickness of aorta was examined on three slices of each sample. The data were analyzed using Kruskal Wallis test, followed by Mann Whitney test (a=0.05). The thickness of the aorta wall for KN, K(-), P1 and P2 were 85.19±8.35; 95.78±17.64; 80.50±8.41; 86.79±16.42 µm. Kruskal Wallis test results showed p=0.018(p<a). Mann Whitney test results showed significant differences between KN-K(-) and P1-K(-), but significant difference is not showed in between KNP1, P2-KN, K(-)-P2, and P1-P2. The conclution is Kelor leaves extract can reduces atherosclerosis in histopathology structure of aorta from hypercholesterolemia rat model.

Keyword: *Kelor leaves extract; hypercholesterolemia; aorta; rat; atherosclerosis.*

Bryophyllum pinnatum Leaves Ethanol Extract as Biosimiliar Therapy Decrease B cell Hyperactivity in Pristane-induced SLE BALB/c Mice Model: In silico, In vitro, and In vivo Approaches

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Abstract

The purpose of this study is determining the biosimilar therapy of *Bryophyllum pinnatum* on B cell hypereactivity in pristane-induced SLE mice. *In silico* was conducted to understand affinity of *Bryophyllum pinnatum* compounds against BAFF and its receptors: BAFF-R, TACI, and BCMA. *In vitro* was done by culturing splenocytes from mice's spleen. B cells were cultured by adding BAFF with and without *Bryophyllum pinnatum* (0, 0.02, 0.1, or 0.5 µg/ml) for 72 hours. Maturation (CD19+/CD38+) and apoptosis (Annexin V+/PI+) of B cells were determined using flowcytometry. *In vivo*, 20 female BALB/c mice, 6–8 weeks old received a single i.p. injection of 0.5 cc pristane for lupus induction. 12 weeks after injection, pristane-induced SLE mice were divided based on the doses of *Bryophyllum pinnatum* received intragastrically: 0, 10.5, 21 and 42 mg/kg/day for 8 weeks. 20 weeks after injection, all of mice were assessed for mature B cells (CD19+/CD22+) percentages from spleen using flowcytometry. Molecular docking results of *Bryophyllum pinnatum* compounds interact with BAFF-R, TACI, BCMA and BAFF. *In vitro*, Flowcytometry showed significant decrease in B cells maturation in all doses (p<0.05) and significantly increase apoptotic B cells in dose 0.5 ug/ml (p<0.05). Percentages of both parameters were significantly correlated (p<0.001). *In vivo*, Treatment with 42 mg/kg/day of *Bryophyllum pinnatum* decreased mature B cells (p<0.05), significantly. *In silico*, *In vitro*, and *In vivo* studies in pristane-induced SLE BALB/c mice revealed that *Bryophyllum pinnatum* is a potensial candidate for biosimiliar therapy decreasing B cells hyperactivity on SLE.

Keywords: *Autoimmune; B cells; Bryophyllum pinnatum; Immunotherapy; SLE.*

N-acetylcysteine promotes skin wound healing by increased expression of growth factors, cytokines, CAMs and MMPs in rat experimental model.

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Abstract

N-acetylcysteine is a free radical scavenger. Prolonged inflammation stage results in unfavorable wound healing effect. The study aimed at defining the role of pre-incisional administration of NAC in surgical wound curation. Study design had ethical approval (No 304/2017). 24 male SPRD rats were administered intradermally with 3 concentrations of NAC with lidocaine and epinephrine (0,015-0,045%) and contralaterally with lidocaine and epinephrine alone in place of planned incision (3 on each side of back). Wounds were photographed regularly in 11 time-points for planimetric analysis with ImageJ (wound length, width, area). On 3rd, 7th, 14th and 60th post-op day 6 rats were sacrificed to excise wounds for gene expression analysis. qPCR in 384-well plates was performed for 88 targets associated with wound healing and 6 endogenous controls (SYBR Green, designed sets of primers). Results were verified with Kruskal- Wallis and Mann-U-Whitney tests. NAC addition to anesthetic solution decreased the length of wounds and their area (from 28th and 14th day respectively, $p<0,01$). Each concentration of NAC produced statistically significantly ($p<0,05$) higher expression of growth factors (FGF2, FGF7, IGF, IGF-1, HGF), cytokines (TGF-A, B1 and B2, TNF), adhesion molecules (CDH1, ITA5) and matrix metalloproteinases (MMP-1, -2, -9) in scar tissue, regardless of timepoint. NAC may be a promising additive to local anesthetic solution commonly used before any surgical incision. By increasing levels of growth factors and cytokines, NAC reduces the size of wounds even in distant timepoints.

Keywords: *N-acetylcysteine; preincisional injection; wound healing; growth factors; rat.*

Identification of novel prognostic marker 3q29 copy number gain driver gene in pediatric B-NHL

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Abstract

Despite the major improvement in treatment response for pediatric B-NHL, survival from relapsed and refractory lymphoma is dramatically diminished. The copy number abnormality (CNA) 17q loss of heterozygosity (LOH) and 3q29 copy number gain have recently been associated with poor prognosis. This study integrated analysis of exome mutation and copy number variation from cohort of 126 pediatric patients in the UK, followed by gene expression analysis using SurvExpress online biomarker validation tool, to identify potential gene in these novel markers driving the oncogenic transformation. Mutation analysis revealed 31 genes from 17q and four genes from 3q29 to be recurrently mutated. CNA analysis showed 3q29 gain significantly occurs more in relapsed cases (23%, P = 0. 018). No significant difference was observed in mutation frequency of recurrently mutated genes between cases with and without 17qLOH, while PAK2 is the only gene that was more frequently mutated in cases with 3q29 gain (30.8%, P = 0.01). Taken together, these results suggest overexpression of wild-type genes instead of somatic mutations plays major role in driving patients poor prognosis in cases with 3q29 gain. With log-rank test, SurvExpress revealed overexpression of three recurrently mutated genes from 3q29 region is associated with worse survival outcome, among which OPA1 was shown to have the best prognostic value (P = 0.0006). OPA1 regulates mitochondrial dynamic by promoting mitochondrial fusion leading to resistance against apoptosis. Thereby, OPA1 may be a potential gene driver of aggressive oncogenic transformation and a valuable prognostic biomarker for predicting clinical outcome in B-NHL.

Keyword: 3q29; B-NHL; biomarker; OPA1

The Effect of Exposure to Valproic Acid in Maternal Rats During Early Trimester of Pregnancy on the Presence of Autistic-like Behaviour Symptoms in Offspring Rats

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Abstract

Autism spectrum Disorder (ASD) is a disorder in the field of pediatric psychiatry which its exact cause remains idiopathic. Exposure to valproic acid (VPA) during pregnancy is thought to be one of the environmental factors for ASD development in children. This study aimed to measure the effect of exposure to valproic acid (VPA) in maternal rats on the presence of autistic-like behaviour (ALB) symptoms in their offspring. This was an experimental study with an observational analytic design. The subjects of this study were 12 Sprague Dawley-strain rats aged 21 days. Rats were divided into two groups, the control group (C) and the treatment group (T). Observation of the autistic-like behaviour (ALB) symptoms was carried out at the age of 21 days of rats using Closed Circuit Television (CCTV) at two different times. The mean behaviour observed was analyzed using the Chi-square bivariate test. The results showed that there were 100% of offspring in the treatment group (T) showed symptoms of autistic-like behaviour (ALB). Bivariate analysis showed the value of p = 0.015 (p <0.05), where there was a significant relationship between valproic acid (VPA) exposure to the presence of autistic-like behaviour (ALB) symptoms. The conclusion of the study was that there was an effect from the exposure to valproic acid (VPA) in the maternal rats during early trimester of pregnancy on the presence of autistic-like behaviour (ALB) symptoms in the offspring rats.

Keywords: *Autistic-like Behavior (ALB); Autism spectrum disorder (ASD); Valproic Acid (VPA).*

Nephroprotective activity of fingerroot (*Boesenbergia pandurata*) extract against cisplatin-induced nephrotoxicity in mice : molecular, biochemical, and histopathological approach

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Abstract

The extensive use of chemotherapy agent caused chronic nephrotoxicity, therefore it is essential to find alternative therapy to minimize the cause from this side effect. Fingerroot (*Boesenbergia pandurata*) contains several flavonoid compounds abundantly and act as antioxidant to prevent nephrotoxicity activity. This study aims to examine the nephroprotective activity of fingerroot extract in cisplatin induced-mice. Fingerroot was extracted by maceration using 96% of ethanol and its phytochemical profile was determined by TLC. Cytotoxic activity was performed by MTT assay in ephitelial kidney (Vero) cells. In vivo observation of antioxidant activity which was carried out in male BALB/c mice induced by Cisplatin for 5 days, then after necropsy, the urea and serum creatinine levels was analyzed by colorimetric method and renal histopathology was examined by hematoxyllin-eosin staining. The interaction between pinostrobin to caspase-3 was performed by molecular docking. Based on the study, the yield of collected extract was 5.19% and the TLC profile showed the presence of pinostrobin with hRf value of 63. The fingerroot extract with concentration up to 50 g/mL was found to be not toxic on Vero cells, and the combination with cisplatin showed antagonism activity. Furthermore, urea and serum creatinine level was decreased and renal cell profile showed the improvement after treatment with extract. The data was also supported with in silico study that pinostrobin bound as inhibitor to caspase-3 which responsible for cell necrosis. In conclusion, fingerroot extract showed bright future as a nephroprotective therapy to overcome the side effect of chemotherapy agent.

Keywords: *fingerroot; nephroprotective; cisplatin; pinostrobin.*

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Changes in Level of Anxiety Before and After Umrah

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Abstract

Anxiety is a feeling of worry reacting to some issues in everyday life. Anxiety is a normal condition, but it could be a disorder if it becomes intense and disturbing daily activities. The *Diagnostic and Statistical Manual of Mental Disorder V* (DSM-5) classified anxiety into 12 distinct disorders, such as generalised anxiety disorder (GAD), OCD, phobias, stress disorders, panic disorder, substance-induced anxiety disorder, and anxiety disorder not otherwise specified. Anxiety disorder caused by a combination complex of genetic, environmental, psychological, hormones, brain function, and other developmental factors contributing the growth of the anxieties. The aim of this research was to observe and compare the changes of anxiety level in a patient with anxiety disorder after umrah. This study was an observational-descriptive in case study design with a questionnaire about the changes of anxiety level in the patient with anxiety disorder after umrah. Methods: Medical students of UIN Maliki Malang who have done umrah in 2017-2018 were asked HAM-A (Hamilton Anxiety Rating Scale) before and after umrah, then interviewed semi-structurally. The results were analysed with SPSS 21. Results: The Wilcoxon test shows the asym sign was <0.05. Conclusion: there were significances change in anxiety level before and after umrah among anxiety disorder patients.

Keyword: *anxiety; umrah; worry*

A Mood and Behavioral Changes in Patient with Bipolar Disorder after Umrah

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Abstract

Bipolar disorder is a brain disorder that causes irregular rhythms in the mood, activity levels, energy and the ability to carry out day-to-day tasks. The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) determine a spectrum of bipolar diagnoses that differ in duration of bipolar episodes/periods and impairment: bipolar I disorder (BD-I), bipolar II disorder (BD-II), BD otherwise specified, and BD unspecified. The causes of bipolar disorder are genetic factors, neurochemical factors, and environmental factors. The aim of this study was to observe the mood and behavioral changes in a patient with bipolar disorder after hajj. This study was an observational design with a questionnaire about the mood and behavioral change after Hajj in the patient with bipolar disorder. Methods: the bipolar patients from medical records some health care provider in Malang and Batu were asked MDQ (mood disorder questions) before and after Hajj. The results were analyzed with SPSS 21. Results: The Wilcoxon test shows the asym sign was <0.05 so that there were significances mood and behavioral changes before and after Hajj among bipolar patients.

Keywords: *Behavioral, Bipolar; Hajj; Mood.*

Validity of Bioreactance Method in Evaluation of Cardiac Output in Patients with Advanced Heart Failure

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Abstract

An accurate, easy-to-use, non-invasive method for evaluation of cardiac function may improve risk stratification, management and outcomes in patients with chronic heart failure. The aim of the present study was to assess accuracy/validity of the bioreactance method in estimating cardiac output at rest and in response to stress. Eighteen patients with advanced heart failure with reduced left ventricular ejection fraction (LVEF,19±7%, age 52±9y, 5 females) underwent right heart catheterisation using the Swan-Ganz catheter. Thermodilution (TD) was used to evaluate cardiac output at rest and in stress. Simultaneously cardiac output was also estimated with bioreactance technology (BR). Following resting measurements, all patients performed active straight leg raise test (SLR) to volitional exertion. At rest, there was a non-significant difference in cardiac output obtained by the TD and BR methods (4.72±1.42vs4.94±1.21L/min, p=0.17), with strong positive relationship between the methods (r=0.88, p<0.01). The mean duration of SLR was 142±54 seconds, and rate of perceived exertion ranging from 5-8 ("hard to very hard", Borg scale score 6.1±1.5). In response to SLR, the TD cardiac output increased by 22% and BR by 21%. There was no significant difference between TD and BR cardiac outputs at peak SLR (6.04±1.70vs6.22±1.36L/min,p=0.29). There was strong relationship between TD and BR cardiac outputs at peak SLR (r=0.92, p<0.01). The major findings of the present study suggest that cardiac output estimates by bioreactance method are like those obtained by thermodilution method. Therefore, bioreactance method may be used in clinical practice to complement existing haemodynamic assessments in patients with chronic heart failure.

Keywords: Cardiac Output; Heart Failure; Monitoring; Validity.

Continuous reduction in irrigation rate during irrigated radiofrequency catheter ablation results in a more optimised lesion shape through reduced endocardial sparing

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Abstract

Irrigated radiofrequency (RF) catheter ablation is the standard interventional therapy for arrhythmia. However, lesions made by fixed-rate irrigation show "tear-drop" shape and relative endocardial sparing. Thus, overlap of lesions is needed to achieve anatomical contiguity. In this study, we are investigating the effect of altering irrigation rate on lesion shape and volume. Irrigated RF ablation was performed on strips of porcine ventricles in an *ex vivo* experimental setup. Five different irrigation protocols were tested: A. fixed rate (30ml/min); B. continuous reduction (30 to 2ml/min); C. continuous increase (2 to 30ml/min); D. stepwise reduction (30 to 16 to 2ml/min); E. stepwise increase (2 to 16 to 30ml/min). Other parameters such as contact force (10g), power (30W), and total ablation duration (30s) were constant. Occurrence of steam pops or char were recorded. Lesion volume, dimensions, and degree of endocardial sparing were assessed through triphenyltetrazolium chloride (TTC) staining and imaging. 10-20 lesions were performed for each protocol. Protocol B resulted in the most optimal lesion shape. Compared to fixed-rate irrigation, endocardial sparing area was significantly reduced (1.60 vs. 2.62mm^2, $P<0.01$), with a trend towards an increase in surface diameter (9.41 vs. 8.57, $P=0.08$). Lesion depth was significantly greater (4.70 vs. 4.24mm, $P=0.02$), with no significant difference in lesion volume (378 vs. 333mm^3, $P=0.38$) or maximum diameter (10.3 vs. 10.6mm, $P=0.53$). Steam pop occurred in 1 out of 20 lesions (5%) made with protocol 1 and 2.A continuous reduction in irrigated-catheter results in reduced endocardial sparing, with greater (rather than reduced) lesion depth and similar lesion volume.

Keywords: ablation; arrhythmia; radiofrequency.

Association Between Leukocyte Count And Absolute Neutrophil Count To Muscle Strength In Acute Ischemic Stroke Patient

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Abstract

Acute phase of ischemic stroke will release Reactive Oxygen Species (ROS) and pro-inflammatory mediators quickly on the damaged brain tissue. The inflammatory response in acute ischemic stroke in the form of the mobilization of leukocytes, especially neutrophils will aggravate ischemic stroke. Stroke is a disease that often causes weakness in the muscles. This drawback can be assessed by examination of muscle strength in patients with stroke. This study aims to determine the association of leukocyte count and absolute neutrophil count muscle strength in acute ischemic stroke patients. This study is a retrospective analytic study using medical records all patients admitted with a diagnosis of acute ischemic stroke at Dr. M. Djamil Padang Hospital. Samples numbered 77 people and conducted bivariate analysis using the Mann-Whitney test. Results of this study, the patients with leukocytosis by 45 (58.4%) patients and the absolute neutrophil count is higher by 40 (51.9%) patients. This research obtains a significant association between the number of leukocytes to the muscle strength ($p<0.001$) and a significant association between the absolute neutrophil count to the muscle strength acute ischemic stroke patients ($p<0.001$). Conclusion of this study found a significant association between leukocyte count and absolute neutrophil count to muscle strength in acute ischemic stroke patients.

Keywords: *Absolute neutrophil count; acute ischemic stroke; leukocyte count; muscle strength; brain.*

The Relationship Between Depersonalization And Social Adjustment In Patients With
Dissociative Identity Disorder (DID)

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Abstract

Patients will experience feelings that are not real, feel separate from themselves both physically and mentally. Patients feel like observing themselves, as if they were watching themselves in a film. And patients also feel that they don't inhabit their own bodies and consider themselves strangers or unreal. These characteristics are called depersonalization. Depersonalization greatly affects the patient's social adjustment when interacting with the surrounding environment. Therefore this research analyzed with *Eta* statistic testing to identify the relation between depersonalization and social adjustment in patients with DID. The research design used is cross sectional with purposive sampling technique by means of the *slovin* sample unit calculation formulae, so that it involves 53 patients. There are two types of data analysis used in this research namely univariat analysis with central tendency statistic testing and frequency distribution, whereas bivariat analysis with *Eta* statistic testing. The results of this study show that the results of statistical tests obtained a value of $p = 0.001 < \alpha = 0.05$ which indicates that there is a significant relation between depersonalization and social adjustment in patients with DID. In addition, the results of the analysis obtained also the value of the correlation coefficient $(r) = 0.351$ which indicates that depersonalization is positively correlated with the strength of a weak correlation with social adjustment in patients with DID. Therefore, it can be concluded that the more patients with DID experience depersonalization, the worse the social adjustment will be.

Keywords: *depersonalization; dissociative identity disorder; social adjustment.*

Effect of Harvard Step Test on Blood Pressure Measurement in Young Adult

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Abstract

Measurement of blood pressure is a method for recognizing hypertension. Many factors influence hypertension, one of which is lack of physical activity. The aim of this study was to determine the effect of the Harvard Step Test on blood pressure and pulse rate. This study was conducted to 21 students of the Islamic University of Indonesia aged 18-24 years. This study method used is the experimental study with the study design used is one group pretest-posttest. Before and after the Harvard Step Test, the subject is measured for blood pressure using a standard sphygmomanometer and the pulse was measured using the manual method. Statistical analysis shows that there was no significant difference between blood pressure before and after the Harvard Step Test ($p > 0.05$), whereas in the pulse there was a significant difference between the pulse before and after the Harvard Step Test ($p < 0,05$). The Harvard Step Test does not show a significant effect on the result of blood pressure measurement but shows a significant effect on the pulse rate.

Keywords**:** *Blood pressure; Harvard Step Test; measurement; young adult.*

Indonesia International (bio)Medical Students' Congress
Research Paper and Poster
Epidemiological Cluster
Book of Abstract

Community-based Genotype Profiling of ESBL-producing *Enterobacteriaceae* Using PCR Method in Makassar

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Abstract

Antibiotic resistance due to Extended Spectrum Beta Lactamase-producing (ESBL) bacteria is a common occurrence nowadays. The *Enterobacteriaceae* which colonizes the digestive tract is deemed as the source of ESBL transmission. Cases of resistance by ESBL frequently occur in hospitals through nosocomial infection. However, it's possible to find such cases at community level. Regrettably, very minimal amount of data are found regarding the prevalence of genotype ESBL in Indonesia, particularly in Makassar, so further studies on the community are necessary. To detect genotype profile of ESBL-producing *Enterobacteriaceae* from stool samples of Elementary School students in Makassar. A seven-month cross-sectional study was conducted on samples from two elementary schools. The data collection consists of stool sample collection, sample extraction, and ESBL-producing gene detection by PCR and electrophoresis. The data is analyzed and concluded on the result. Among 100 *Enterobacteriaceae* stool samples from students 8-12 of age, 73 samples are found containing ESBL genes, which are TEM, CTX-M, and SHV, and 34 samples with single gene distribution, reported as 31 of TEM, 2 of SHV, and 1 of CTX-M. Two or more genes are found in 39 samples; the most are in SHV+TEM with 37 samples and CTX-M+SHV+TEM in the remaining 2 samples. Among 100 collected samples, 27 are found without ESBL-producing genes. With the detection of genotype of ESBL-producing *Enterobacteriaceae* from stool samples of Elementary School students in Makassar, it shows that the prevalence of genotype ESBL are quite significant in Makassar particularly at community level.

Keywords: *Community; Enterobacteriaceae; ESBL; Genotype; PCR*

Conversion disorder as a growing issue among children

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Abstract

Conversion disorder refer to body dysfunction characterized by neurological symptoms that cannot be explained by a medical condition, but are rather symptoms reflecting unconscious conflict. The aim of the study was to evaluate all patients admitted to our clinic with diagnosis of conversion disorder (ICD-10 F.44) Methods: We retrospectively analyzed all children hospitalized in our Clinic because of conversion disorder between January 2016 and April 2019. We identified 7 cases, one was excluded because of later diagnosis of epilepsy. Results: 6 patients were included in study. Mean age was 15 years old (13 -16). All of the patients were female, with recent history of problems in family or in school. All of them reported global weakness. 3 of them reported dizziness, different sensory symptoms, consciousness disturbances. 3 patients had gait disturbances, 2 had hemiparesis, also 2 had speech disturbances. 2 patients presented with psychogenic non-epileptic seizures. 3 out of 6 girls were diagnosed between June 2018-March 2019. Also 3 patients had history of depression and drug usage. Conclusions: During childhood conversion disorder occurs most commonly in the 13-16 years girls. An anxiety state, depression or drug usage can predispose to development of this disorder. Early diagnosis can be achieved by detailed physical examination and the identification of inconquities.

Keywords: *Conversion disorder; Children; Functional neurological symptoms; Pediatric.*

LASWENYAY Telemedicine

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Abstract

In a Haiti that wants to emerge in 2030, the field of health plays a big role in the development of the country. However, although there are referral hospitals, the common Haitians still suffer from difficulties of access to health. Having found that information technology (IT) plays a key role in the profound transformations that we are trying to apply to the Haitian health system. This project first proposes an integrated vision of new organizational models of clinical care made possible by recent technological advances. Teleconsultation is a broad term that can group several different applications. The application LASWENYAY allows to evaluate a patient, or data concerning him, by a or several medical professionals, without direct physical interaction, via a teleconsultation system and who also wants to improve the relationship between pharmacies, pharmaceutical laboratories and cosmetic companies with the Haitian population: all in one. send to the experts that certain elements of the medical files are required on an ad hoc basis, such as radiological images, biological examinations, genetic tests. Teleconsultation can take several forms, in particular a synchronous remote medical consultation, that is to say that the experts use communication techniques simultaneously (videoconferencing) or asynchronously that exchanges between professionals are organized under the form of messaging, which allows to overcome the constraints of availability of doctors. Emerging IT deployment, such as electronic patient record, shareable patient record, digital radiology, telemedicine, has become one of the essential milestones for the achievement of several priority objectives put forward by the reforms undertaken, including home care services, front-line services and integrated care networks. The rapid diffusion of these technologies in clinical settings to promote the management and exchange of relevant data can improve medical decision-making but, at the same time, is a huge challenge. Research shows that the main causes of these difficulties are overestimation of technological capabilities, lack of knowledge of the complexity of the clinical organization and the consequent insufficient efforts to adapt new IT to this context. And here is the alternative is needed in Haiti which is **"LASWENYAY".** Our services are aimed at the Haitian population in general. The trend shows that many companies realizing the importance of social networks and the increasing number of people growing in its latest, create FACEBOOK pages for lack of having a website. This is confirmed by a study issued World Bank 2011 reports that Haiti has about 4200000 Internet users in Haiti (a rate of 41.49%), against only 0.5% in 2010. In parallel we do not count less than 379 pharmacies on the expanse of the territory and the cosmetic market is expanding with an estimated turnover of 150 billion. The problems facing the Haitian population in access to care show that this sector has needs of hospitals that meet the demands of the population (the population makes queues in reference hospitals.) Haiti has only 5.9 doctors per 10,000 inhabitants while the World Health Organization Health (WHO) recommends 25 doctors.

Keywords: *Laswenyay; Telemedicine; Teleconsultation; Teleexpertise; TeleDiagnosis.*

P-flap (Pseudomonas fluorescens anti pneumonia): utilization of membrane bacteria Pseudomonas fluorescens as pneumonia therapy

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Abstract

Pneumonia is a lung infection caused by *Streptococcus pneumoniae*. The annual incidents occur in 15% of children under five year old. The current treatment is with antibiotics, but most patients with Pneumoniae are resistant to antibiotics currently exist. LasR is an agent of replication and transcription of *Streptoccocus pneumoniae*. Viscosin is a lipoprotein synthesized by *Pseudomonas fluorescens* that serves as a medium in motility which also have antimicrobial effects that can be used as antibiotics and inhibit the biosynthesis of polysaccharides. The purpose of this study is to use Viscosin as a treatment for pediatric pneumonia in Indonesia. This research was conducted *in silico* using LasR protein and disk diffusion in vitro study. *In silico* study shows that Viscosin can bind to the active side of LasR in valin 144 with a bond strength of -7.9 Kcal/mol. This bond will inhibit the replication or transcription of *Streptococcus pneumoniae*. *In vitro* study exhibited Using different concentrations of Viscosin, the zone of inhibition obtained using One way ANOVA was found to be statistically significant ($p<0.05$). Pearson correlation test showed a very strong and positive relationship (coefficient A = 0.776 and B = 0.119) thus with increasing concentration of Viscosin, the antimicrobial potential is stronger. Based on this study, it can be concluded that Viscosin have prospective antimicrobial properties against *Streptococcus pneumoniae* bacteria. Viscosin can be potential as pneumonia treatment.

Keywords: *Pneumoniae; Pseudomonas flourescens; Streptococcus pneumoniae; Viscosin.*

Prevalence of sleep disorder in athletes in Surabaya; Indonesia

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Abstract

Sleep has an important role in athlete's performances. Sleep disorder can cause many symptoms that affect athletes physiologically and physically. This was a descriptive observational retrospective study in at Dr. Soetomo Hospital Surabaya Indonesia. Data was taken from medical record from 2017-2018. The variables for this study were sleep latency; sleep time; Epsworth Sleep Scale; Pittsburg Sleep Quality Index; Stop Bang Score; and Mallampati Score. 61 athletes were examined from 21 sport fields. The mean for sleep time in this study was 6.3 ± 1.3 hours. 85% sleep less than 8 hours. The average sleep latency is 54.2 minutes. 34 athletes (55.7%) needed more than 15 minute to sleep. 77% athletes had a good sleep. From Epsworth daytime sleepiness found 91;8% normal. The stop bang questionnaire results were 91.8% had low risk for OSA and 8;2% had intermediate risk for OSA. From the mallampati 36.1% had mallampati score of 1. This study found that 23% athletes had poor sleep quality; 8.2% had excessive daytime sleepiness and 8;2% had intermediate risk of OSA. Early detection of sleep disorders in athletes is recommended because it will affect their performances.

Keyword**:** Sleep; athlete; sleep profile; sleep pattern; athlete sleep profile

Indonesia International (bio)Medical Students' Congress
Literature Review Competition
Book of Abstract

Current Updates of Parkinson's disease Biomarker by a Combined approach of Quantitative Proteomics and Phosphoproteomics for a Development of Decoy Peptide Therapeutics Methods

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Abstract

One of the key therapeutic therapies is vaccine approach targeting biomarker in PD; which the specific targeted decoy peptide or vaccine candidate is injected in order to bind to target protein and clear the accumulation in the brain. Phosphorylation is a key mechanism for achieving signal integration in cells; characterizing the phosphorylation signature of a protein is essential. The phosphorylation of any site on a given protein can affect its activity; degradation rate; ability to dock with other proteins or bind divalent cations; and localization. The objective of structural analysis after proteomics phosphopeptide enrichment is twofold: Firstly; to demonstrate the preliminary Parkinson's disease biomarkers (pPD biomarkers) three dimensional structure with predicted functions based on a significant structure-based optimized sensitivity enhanced in IMAC-based methodology enriched phosphopeptides from a standard protein mixture. Secondly; to determine key variables that most influenced the outcome of these experiment for further quantivative phosphoproteomic applications. The integrated workflow was also applied to Parkinson's disease cell lines to identify site-specific changes for characterizing phosphorylation sites. Further structural analysis of the pPD Biomarker not only have provided fresh insights into the catalytic mechanism and functional prediction of pPD Biomarker; but also are generating valuable information to drive the quest for effective neuropsychiatric diseases therapies.

Keywords: *Parkinson Disease; Phosphorylation; Structural Analysis; Decoy Peptide; Biomarker*

Discovery and Comparison Antidepressants Based on Pharmacological Mechanism of Action: Review

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Abstract

Pharmacological antidepressant concepts thoroughly explain and reveal the therapeutic actions and side effects currently available. Discovery and comparison of new antidepressant becomes necessary for looking at future developments in the treatment of depression especially those related to the mechanism of action. The two classic mechanisms are shown by tricyclic antidepressants (TCA) and by monoamine oxidase (MAOI) inhibitors; while the most prescribed mechanism for non-classical antidepressants is selective serotonin reuptake inhibitors (SSRIs). This review made by using and analyzing some journal article as sources and it will become a secondary literature. By the journal article resources; early antidepressant drugs - tricyclic antidepressants (TCA) and monoamine oxidase (MAOI) inhibitors were found through clever clinical observation. These first generation drugs are effective because they enhance the serotonergic or noradrenergic mechanism or both. The latest generation of antidepressants; including single-selective serotonin reuptake inhibitors (SSRIs) target one or more specific brain receptor sites without; in many cases; activating unwanted sites such as histamine and acetylcholine. Therefore; in this study; we aimed to do a literature review and discussion about kind of antidepressant agents.

Keywords: *antidepressant; monoamine oxidase inhibitors; tricyclic antidepressants.*

Understanding Dissociative Identity Disorder (DID) in Developing Awareness of Psychiatry Disease

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Abstract

This interest in the study of dissociative identity disorder (DID) has developed in psychiatric field with rapid development. Although epidemiologically the cases of patients with DID are still small; with improved diagnostic skills and increasing awareness of mental health; cases of DID are more found. This literature review uses the database *www.pubmed.com* and *scholar.google.com* using keywords "dissociative'; "dissociative identity"; "dissociative identity disorder"; "diagnosis of dissociative identity disorder"; and "treatment of dissociative identity disorder" that have validity tested; relate to each other; and support discussion or analysis of the discussion. We find 31 journal which meet from our inclusion criteria. The range of countries were represented including Austria; Netherland; New Zealand; Norway; UK; USA; and Turkey. The population size in some trials and study ranged from 1-80 men and women from patient; therapist; and clinicians. All studies included had adequate power to assess treatment effects and monitoring to follow up during controlling time. DID can be caused by traumatic exposure which causes changes in the patient's brain structure. Diagnosis of DID must be diagnosed by carefully experienced clinicians with clinical interviews. Current DID therapy aims to strengthen the patient's control identity and prevent symptoms of the disease that disrupt the patient's social functioning. More research is still needed on DID as a whole in order to determine the true diagnosis and therapy for patients with DID.

Keywords: *dissociative; dissociative identity; dissociative identity disorder; diagnosis of dissociative identity disorder; dissociative identity disorder treatment.*

Depression in correlation to social media addiction: Psychological and physiological perspective in triggering depression

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Abstract

The use of social media has increased rapidly worldwide. Excessive use of social media may cause social media addiction. Lack of self-confidence may happen due to social media addiction; which is associated with depression. The purpose of this literature review is to determine the relation between social media addiction and depression from psychological and physiological aspect. Literature study method was used to find references related to social media and depression. The sources are from free-based journals and publications with verified validity; related to one another and corresponding with the discussion. Social media addiction have contribution in psychological and physiological aspect. Maslow's hierarchy of needs is applied to study how humans take part in behavioral motivation. Social media addiction may affect sleep quality and causing poor sleep that lead to depression; and also causing digital eye strain that could impaired daily life resulting in depression. Lack of self-esteem that cause by social media addiction have a correlation with depression. Prevention such as filtering social media information and reducing screen time is needed.

Keywords: *Addiction; Blue Light; Depression; Maslow's Theory; Social Media.*

Recent Studies about Alzheimer's Disease Prevention Based on the Effects of Amyloid-β Protein Plaques Toward Cognitive Health

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Abstract

Alzheimer's disease (AD) is defined as a significant; persistent; and progressive loss of memory combined with cognitive impairment and change in personality. The major risk factors of AD are Amyloid-beta and Tau proteins. Data from published studies with valid statistics that are relatable to the topic of discussion are collected; analyzed; and written systematically in the making of this article. Study shows that the amount of Aβ in the productive ages may affect the tendency of cognitive impairments caused by Alzheimer's later in life. Aβ plaques are formed through various steps; a way to prevent the plaques to form is to stop the formation process midway by inhibiting and/or metabolizing the Aβ. Prevention of AD can be conveyed through a pharmaceutical approach; which tackles AD in a molecular scale; as well as through a non-pharmaceutical approach which modifies one's lifestyle while still applying molecular concepts. This review aims to evaluate the effects of Aβ plaques towards cognitive health in order to yield further advancement to prevent AD.

Keywords: *Alzheimer's Disease; Alzheimer's Disease Prevention; Amyloid-β; APOE-ε4*

Bipolar Disorder in the Era of Medical Genetics and Precision Medicine: Where Are We Now; Where Will We Go and How Do We Go?

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Abstract

Around 14 million Indonesians are diagnosed with bipolar disorder; a disorder known as a chronic psychiatric disturbance. Through medical genetics and precision medicine; it is expected to create reducement in incidence rate and advancement in treatment accuracy with minimum side effects. There 2 types of bipolar disorder; namely bipolar type I and bipolar type II. The aforementioned disorder is affected by genetic abnormalities; neurohormonal factor; brain structure differences; and psychosocial influences. Gene characteristics is known to be the strongest interaction factor with 59 - 85% interaction. Bipolar disorder treatment management includes pharmacological intervention and psychological intervention. Pharmacogenomic is a study that support medical genetics and precision medicine by understanding genome variations that influences drug response to enhance medicaments with minimum side effects. Pharmacogenomic testing application in bipolar disorder is capable of improving treatment efficacy but there is quite the room to grow until it reaches precision medicine.

Keywords*: bipolar disorder; medical genetics; mood disorder; precision medicine; pharmacogenomic.*

The Search for a Potential Novel Biomarker for Borderline Personality Disorder

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Abstract

The impact of Borderline Personality Disorder; or BPD; to millennials' life urges neuropsychiatrists to intensify studies related to BPD; especially to understand how BPD can be developed and the mechanism of BPD itself on a genetic level. This paper aims to summarize and simplify all new genes that have been proposed as a new biomarker. This paper concerning the search for a novel biomarker for Borderline Personality Disorder was conducted using search engines Pubmed; EBSCOhost; ScienceDirect; and Scorpus. The keywords used were "borderline personality disorder"; "BPD"; "genetic"; "genetics"; and "biomarker". In this search; 541 studies were identified. After examining the title and abstract; 510 studies were excluded due either one of the following reasons: non-correlation with BPD; overlapping with neurohormone; and overlapping with neuroanatomy. 8 more studies were excluded after examining the abstract. We finally obtained 21 articles that fulfill the criteria of this paper to be assessed. miR124-3 is the microRNA responsible for regulating all genes that are related to hypothalamus-pituitary-adrenal axis. FKBP5 is involved in sustaining the regulation of Glucocorticoid Receptor by decreasing the affinity of this receptor to its ligand and also reducing the expression of GR-responsive genes. PKP4/p0017 is a protein which has a role in coordinating cytoskeleton and protein transport in cellular vesicle. The authors suggest miR124-3; PKP4; and FKBP5 as biomarkers for BPD.

Keywords: *BPD; Borderline Personality Disorder; Gene; Biomarker.*

The Implementation of Quran by Listening; Reciting; and Understanding the Ayah about Salah; Sadaqa; Dietary Supplementation; and Physical Exercise to Prevent Major Depressive Disorder

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Abstract

Depression or Major Depressive Disorder (MDD) is a common mental disorder; that is caused by several factors; such as biological; genetic; and psychosocial factors. Based on data from WHO; more than 300 million people in the world get depressed with 27 percent of these people is in the South-East Asia Region. In Indonesian; people at age 15 years old and older; it is estimated that 16;1 million affected by depression based on data from RISKESDAS. Preventing depression might be key to sustaining and improving population health. To make this paper; the authors made the analysis and synthesis from selected journal to find out what can prevent the development of MDD. Overall this paper reveals that the implementation of the Qur'an including listening; reciting; and understanding the ayah about salah; fasting; sadaqa; dietary supplementation; and physical exercise has proven some beneficial effect to prevent depression through increasing in mental health score and magnitude of alpha wave; effect of relaxation; spiritual intervention; VS and SA activity; HPA-axis activation; increase BDNF level; induces endorphin release; and alteration of tryptophan distribution.

Keywords: *depression; major depressive disorder; mental health; prevention; qur'an.*

Overview of MicroRNAs Dysregulation: New Diagnosis Sight of Bipolar Disorders

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Abstract

Bipolar disorder (BD) is one of the neuropsychiatric diseases caused by the abnormality of neurodevelopment in the human brain. The similarity symptoms and epidemiology between bipolar disorder and other neuropsychiatric diseases such as schizophrenia leads us to seek another method to diagnose the diseases. MicroRNA (miRNA) is a small non-coding RNA that play important roles in regulating gene expression. Therefore; MiRNAs can be used to predict the implication of multiple genes targets in BD patients. This experiment used postmortem cerebellar tissue and induced pluripotent stem cells (iPSCs). The results show that the expression of miR-34a is increased in BD patients. Expression of ankyrin-3 (ANK3) and voltage-dependent L-type calcium channel subunit beta-3 (CACNB3) which has already been known as BD risk gene target are fondly decreasing. The study which related to the nature of this mental disorders will help us to decide which therapy option will be the best suited for the patients.

Keywords : *Bipolar disorder (BD); miR-34a; ANK3; and CACNB3*

CARE (Coaching Caregiver): A Novel Application to Handling and Understanding Schizophrenia Patients

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Abstract

Schizophrenia is a serious concern in psychiatric problem around the world with negative and positive symptoms. In 2018; this disorder have affecting 6.7 per 1000 incidence in Indonesia. Treatment recommendation for schizophrenia is using pharmacology and non-pharmacology that need others help in improving their quality life called caregiver. Nowadays; family play important role in caregiving schizophrenia patients. However; caregiver do not really understand in taking care the patients. So that; caregiver need some education and other information to understand. Based on Ozkan and Khatri research; providing psychoeducation data via technology that has given to caregiver got a significant result in caregiving schizophrenia patients. In reducing family caregiver burden of the patients with schizophrenia; CARE (Coaching Caregiver) is the innovation to train family caregiver in taking care their family. Some aspects in this program based on PPDGJ III and ICD X such as education; consultation and decision support; psychosocial and behavior therapy; social support; and monitoring. Using a technology-based approach expected to be able to provide and encourage health services that reach the wider community. In addition; it expected to be able to reduce the burden on family caregivers in caring for family or relatives who experience psychiatric disorders.

Keyword**:** *schizophrenia; family caregiver; telehealth; coaching.*

Combination between Stem Cell Therapy and Cocoa Consumption for Treatment of Parkinson's Disease in Indonesia

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Abstract

Parkinson's disease (PD) is a long-term; progressive neurodegenerative disease that results in motoric and non-motoric disorders. Global prevalence of PD has doubled over the last two decades. The mechanism underlying PD lies in the loss of midbrain dopaminergic neurons; leading to a fall in dopamine production. The aim of this literature review is to assess the potential synergistic combination between stem cell therapy and cocoa consumption in PD treatment. Literature searching was done through Google Scholar; EBSCOhost; Scopus; Science Direct; and PubMed with keywords including "Parkinson's disease"; "stem cell"; "cocoa" and "treatment". The four types of stem cell for PD allow replacement of damaged dopaminergic neurons and production of neuroprotective factors. However; microglia and astrocytes in the brain may induce inflammation which in turn stimulates stem cell to develop into tumor. On the other hand; cocoa is a rich source of flavonoids; which has anti-inflammatory and antioxidant properties; mitigating risk of tumor development and potentiate its therapeutic effectiveness. Therapeutic effects of stem cell and cocoa for PD management are proven to be synergistic. Future research should study the precise combination between stem cell and cocoa in order to reach maximum therapeutic effect for PD.

Keywords*: cocoa; Indonesia; Parkinson's disease; stem cell therapy.*

Psychological Trauma Susceptibility in Children and Adolescent with Autism Spectrum Disorder: A Novel Psychopathology Review and Possible Future Treatment

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Abstract

Autistic Spectrum Disorders (ASD) are lifelong syndromes that may cause abnormalities to the central nervous system; such as problems in brain's maturation and cortical organization. It is often recognizable since childhood and have severely reduced social communication and repetitive behaviors. They will have poor understanding of information around them; and lack of executive functions control. Children with ASD can be exposed to trauma; and may cause negative physical; psychological and adaptive responses. Mostly; the trauma comes in many states; such as bullying; violence; disasters; and bullying. Some trauma can be easily dismissed; but some may lead to chronic illness. If these traumas happen chronically; it will double the anxiety and depressive disorders. These traumas can also develop to Post Traumatic Stress Disorders; and some neural structure changes; such as reduced cerebellum functions. Traumatic exposure can also cause negative outcomes; lower IQ; worse social support; repeated traumatization; and psychological instability. Hypothalamic pituitary adrenocortical (HPA) axis can be triggered by these stresses or traumas. It will release adrenocorticotropic hormones through its path; and bind with mineralocorticoid and glucocorticoid receptors. Brain regions with high density of glucocorticoid can impair neural plasticity. Children with ASD receiving trauma can be a risk factor for violent behavior. In several regions; increased oxidative stresses are increased; and may be more susceptible to additional oxidatice stresses.

Keywords*: Autism Spectrum Disorder; traumatic event; psychopathology; Possible treatment*

Mixed maladaptive perfectionist subclass targeted therapy as a preventive measures of poor medical students' mental health

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Abstract

Perfectionism has been proven to be associated with depression and anxiety. The identicality of medical students' and perfectionism makes it an ideal focus prevention potential for protecting medical students' mental health. Recent study has demonstrated that perfectionists can be classified into six subclasses. It makes it easier for targeting the most vulnerable class to be given prevention. Along with it; another recent study has proven that the newest therapy; Internet-based Cognitive Behavioural Therapy; hold promising result on reducing perfectionism with its underlying mental health problems. By combining these two findings; the new preventive strategy of perfectionism traits is made.

Keywords*: medical students; mental health; perfectionism; perfectionist classification; cognitive behavioural therapy.*

The Potential Use of Acoustically Targeted Chemogenetics as an Effective Minimally Invasive Treatment for Depression

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Abstract

Depression is a worldwide mental health problem due to the high rates of treatment resistance and recurrence; and often leads to suicide. Currently; a various technology was used as a neuromodulation treatment; but lately it was found that those methods carry significant risk by its cognitive adverse effect and invasive property. Recent studies have found a new concept of neuromodulation approach namely Acoustically Target Chemogenetics (ATAC) that has been developed recently to treat depression in minimally invasive way. Therefore; this literature review was made to discuss the potential of ATAC as novel method to treat depression in the most effective and minimally invasive manner. The review materials used in this paper were taken from journals found through PubMed with several searching strategies; then arranged systematically. Based on the previous study; the Drd1 neuron in the medial prefrontal cortex (mPFC) play a significant role in modulating antidepressant effect during treatment. In addition; magnetic resonance guided focused ultrasound-blood brain barrier opening (MRgFUS-BBBO) and AAV-2 containing hM3Dq receptor has successfully used in the treatment of Alzheimer disease. These finding suggest that targeting the Drd1 neuron in the mPFC using MRgFUS to open BBB in order to deliver AAV-2 containing gene for hM3Dq expression; will potentially lead to an excitatory effect on Drd1 neuron by inert molecules; which will provide more rapid and long-lasting antidepressant effect. It's concluded that ATAC can be choose as a minimally invasive novel method to treat people whose living with depression.

Keywords*: AAV; ATAC; Chemogenetic; Depression; FUS-BBO*

The coercion act in mental healthcare setting: a review from medical; ethical; and social-law perspective of psychiatric practice

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Abstract

Coercion act is one of the most common acts conducted in mental healthcare settings. Coercion is viewed as a necessary act toward patients with mental disorders because of mental disorder's nature which could be unpredictable. This topic gains a lot of debate within healthcare professionals and human rights activists. This practice is supported as the best method to ease mental disorder management; which might improve the success rate of therapy. While on the other side; this practice is viewed as an inhumane practice because it might lead to physical and psychological abuse toward patients. In Indonesia; the coercion act is not only conducted in the mental healthcare setting; but also in a social setting; known as *pasung*. Up to this day; there are no clear criteria within medical nor law setting to determine whether coercion act is necessary and when it should be conducted necessarily. With the high rate of mental disorder cases in Indonesia; unclear criteria and permitted abuse might create a bigger problem in mental healthcare setting. Therefore; this paper will aim about coercion act in the mental healthcare setting; how does it affect the patients and how medical; ethic; social; and law view this phenomenon to suggest a basis of criteria in the future if coercion act is found to be something necessary.

Keywords*: Coercion; Ethic; Mental Health; Medical; Social-Law*

The potential of in vivo retinal imaging as a novel approach in diagnosing Alzheimer's disease

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Abstract

Alzheimer's disease (AD) is a neurodegenerative disease with a sizable prevalence and mortality rate; accounting for the fifth most common cause of death in 2016 with 2.6 millions estimated global deaths annually. However; treatment of AD has been problematic and inefficient as there is no current definitive and punctual method in confirming AD diagnosis. We conducted an analytic study with a basis data from Pubmed; PMC; Google Scholar; and Clinical Key. Our results demonstrated that a definitive diagnosis of AD has been possible through the detection of amyloid-β plaques on in vivo retinal imaging with solid-lipid curcumin. Moreover; ocular amyloid levels and quantitative PET analysis has a significant association in predicting correct clinical diagnosis of AD (r^2 = .33; $p < .0006$; 95% CI). The findings of this literature review indicates that detection of amyloid-β protein plaques through retinal imaging does indeed have a potential in the future of diagnosing Alzheimer's disease.

Keywords*: amyloid-β plaques; alzheimer's disease; retinal imaging*

Externalization α-Synuclein and Zinc Homeostasis via Exosome with ATP13A2 Intervention Encapsulated Adenosine-associated Virus Vector: A Narrative Literature Review on Update Curative Modality of Parkinson Disease

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Abstract

Parkinson disease was a complex neurodegenerative or neuropsychiatry disorder characterized by loss of nerve function and survival in the brain. Parkinson disease was the second most incidence of neurodegenerative disorder after Alzheimer disease worldwide. The management of Parkinson disease has a limited impact on non-motor symptoms with a worse side effect. The α-synuclein as a key role on etiopathogenesis or progression of Parkinson disease were regulated by various gene. The aim of this study was to review the underlying potency of ATP13A2 as a genetic-based therapy with AAV-conjugated to reduce the α-synuclein intracellular via zinc homeostasis and exosome. The method used is a narrative literature review. The author selects full-text journals and book for most recent 10 years through various global journal publication website. Base on the literature; ATP13A2 were highly expressed in dopaminergic neuronal degeneration and have a negative feedback to α-synuclein. Transfected ATP13A2 will stabilize intracellular microenvironment; including to decrease sensitivity of metal ion like zinc; and form a circular membrane to help autophagosome-MVB fusion. Recent studies suggest that mechanism of action by ATP13A2 to reduce α-synuclein level mediated by exosome. While Adenone-associated virus vector that containing of capsid virus which have non-pathogenic; low immunogenicity and high gene delivery efficiency will be the most potential candidate of gene co-delivery therapy. Therefore; the combination of ATP13A2 intervention and capsulated with AAV capsid vector have a good potential strategies to treat the Parkinson disease.

Keywords*: Parkinson disease; ATP13A2; zinc; exosome; AAV*

Potential Metformin Repositioning for Alzheimer's Disease Patients Management

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Abstract

Alzheimer's disease (AD) remains an emerging public health problem due to the increasing prevalence and cost. The absence of effective management that slows the progress of AD is a big problem. It is accompanied by inappropriate drug development during the clinical phase. Drug repositioning seems a promising approach to accelerate drug development in AD with a high award and low cost. Interestingly; AD shows brain insulin resistance induced by amyloid-β oligomers. Metformin; an insulin-sensitizing drug; show a neuroprotective property. It seems beneficial for repositioning metformin in AD patient management. Therefore; we aimed the study to identify related signaling pathways; metabolic pathways; and protein interaction networks in AD and metformin and to connect AD underlying pathophysiology signaling network to metformin action to reverse neurological outcomes in AD as a repositioned drug. We use signature matching by text mining to identify the connection between impaired brain insulin signaling and metformin mechanism of action which underlying amelioration brain insulin signaling in AD pathology. We found that metformin activates 5' AMP-activated protein kinase (AMPK) as a key regulator which has several signaling cascade implication; such mammalian target of rapamycin complex-1 (mTORC1) inhibition; phosphoinositide 3-kinases (PI3K)/AKT activation; glycogen synthase kinase 3β (GSK-3β) inactivation; MID1 complex dissociation; and protein phosphatase A2 (PPA2) activation; insulin-degrading enzyme (IDE) activation. On the other hand; metformin decreases intracellular Ca^{2+} level and has anti-inflammatory property. Furthermore; these neuroprotective actions interact with impaired brain signaling and relief AD pathology.

Keywords*: Alzheimer's disease; Brain insulin resistance; Drug repositioning; Metformin.*

Living life to the fullest as a childhood bullying survivor: mitigating long-term adverse effects and fostering post-traumatic growth after childhood victimization experience

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Abstract

Childhood bullying victimization have been well established to cause numerous long-term adverse effects. However; the picture isn't all bleak; more studies explore the possibility of bullying as a source of post-traumatic growth. This article aims to summarize the process of adjustment and maladjustment in childhood bullying victims; thus providing possible strategies for those who have already been victimized from childhood bullying to mitigate the long-term effects and foster PTG; enabling them to have the highest quality of life attainable as adults. A total of 48 articles are included in this review. Bullying is found to correlate with various neuroendocrinal changes which may cause maladaptive response to stress and is linked to poorer long-term general health. Emotional response; which may be caused by the neuroendocrinal changes; is found to mediate both adjustment and maladjustment.

Keywords: childhood bullying; long-term adverse effect; post-traumatic growth

Microbiome engineering based on synthetic gut microbiome as a potential novel therapeutic application for Schizoprenia

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Abstract

Schizophrenia is a severe neuropsychiatric disorder that consists of complex etiology involving genetic and environmental factors. One of these factors consist of microbiome alterations. The alterations in microbiome has been thought to affect the host physiological processes. In this paper; we reviewed current evidential data that support the microbiota-gut-brain axis in the development of Schizophrenia and the potential synthetic biology approach of microbiome engineering by constructing synthetic gut microbiome as a novel therapeutic strategy to treat schizophrenic patients. To obtain relevant publication related to microbiome and neuropsychiatric and schizophrenia; PubMed were searched using the keywords (Microbiota OR Microbiome) AND (Neuropsychiatric OR Schizophrenia). Microbiome engineering related publications were obtained from ACS Synthetic Biology Journal. Based on current results; it is shown that from metabolomic and metagenomic analysis; there are significant differences in microbiome profiles in Schizophrenia and can be a target for novel therapeutic strategy. By using microbiome engineering; it possible to modulate and reshaping altered microbial community by using synthetic probiotic and genetic circuit that consists of killing switches and quorum sensing molecule as growth and gene expression inducer. It is hoped that by advancing our knowledge in structure of gut bacterial community; we can implement more complex synthetic system to rebalance the dyshomeostasis as a novel therapeutic strategy for Schizophrenia.

Keywords*: brain; microbiome engineering; neuroinflammation; schizophrenia*

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