

ABSTRACT

**RESEARCH PAPER AND POSTER
COMPETITION**



Content of kynurenic acid in cosmetics – is it a risk for skin cells?

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Introduction: In our previous study it was shown that herbal plants used for skin care and honeybee products are rich in kynurenic acid (KYNA), a metabolite of tryptophan possessing considerable pharmacological properties, e.g. antibacterial, anti-inflammatory, anti-proliferative. Civilizations throughout history have used various forms of cosmetics and toiletries to improve appearance, health and for fragrance. Bearing in mind high herbal and honey cosmetics usage the safety of their ingredients should be taken into consideration. Therefore, the aim of this study was to (a) determine the amount of KYNA in cosmetics and (b) investigate the influence of KYNA on keratinocytes in vitro.

Materials and Methods: Commercial cosmetics used for skin care were purchased from licensed producers. KYNA content was isolated on an ion exchange resin Dowex 50 and determined by using the high performance liquid chromatography (HPLC) system with fluorescence detection. An immortal human keratinocyte cell line (HaCaT; Cell Lines Service GmbH, Germany) was used. Cell proliferation and DNA damage were determined utilizing 5-bromo-2'-deoxyuridine (BrdU) assay and comet assay, respectively. KYNA and all other reagents were obtained from Sigma (USA).

Results: KYNA was detected in the majority of investigated cosmetics. Its content ranged from 0 to 32 pmol/g. Under in vitro culture conditions KYNA in a wide range of concentrations (1 pM – 5 mM) did not inhibit proliferation of HaCaT cells. In low pico- and micromolar concentrations a slight enhancement of BrdU incorporation into cellular DNA was detected. KYNA (0.1 nM – 5 mM) did not enhance DNA damage in HaCaT cells. KYNA (1 mM) significantly reduced DNA damage.

Conclusions: According to our findings, there is no reason to suspect that KYNA is harmful to skin cells. On the contrary, some results may suggest its ability to act as a protective and trophic agent.

Keywords: cosmetics, keratinocytes, kynurenic acid, proliferation, DNA damage



Diuretic herbal preparations are rich in kynurenic acid

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Introduction: Herbal products have gained popularity over the last years. Nowadays almost all herbal products are available over the counter and are widely used not only in Poland but also in other urbanized countries. Kynurenic acid (KYNA) was firstly discovered in urine in the 19th century. It is a product of metabolism of essential amino acid tryptophan. Its anti-inflammatory, antioxidant, antiproliferative, neuroprotective and antibacterial properties arouse interest of researchers and consumers. Very recently, it was found that KYNA possesses diuretic and natriuretic activity. Therefore, the aim of the study was to assess the presence and compare the content of KYNA in 11 diuretic herbal preparations.

Materials and Methods: Couch grass rhizome, alpine cranberry leaf, corn stigma, bearberry leaf, rosemary leaf, restharrow root, bean pericarp, three-coloured pansy, juniper berry, lovage root and horsetail herb were investigated. The herbs were prepared according to the manufacturer's guidelines. KYNA was isolated on an ion exchange resin Dowex 50. An eluate was subject to a high liquid performance chromatography (HPLC) and then detected fluorometrically. The content of KYNA was expressed in nmol/g wet weight and its recommended maximum daily intake was estimated.

Results: KYNA was detected in all studied herbal preparations. The three-coloured pansy (13.14 nmol/g) and the horsetail herb (9.18 nmol/g) contain the highest amount of KYNA. The lowest content of KYNA was found in the restharrow root (0.32 nmol/g) as well as couch grass rhizome (0.86 nmol/g). The highest calculated daily intake of KYNA in herbal preparations was 15 µg.

Conclusions: It is the first study which demonstrates that KYNA is present in diuretic and natriuretic herbal preparations. Bearing in mind the high content of KYNA in the analyzed preparations, it can be assumed that it contributes, at least partly, to diuretic and natriuretic action of herbs.

Keywords: kynurenic acid, diuretic herbs



**The topical effect of *Glycine max* Linn ethanol extracts
on the enhancement of collagen density
in second degree burn wound care in Wistar Rat**

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Introduction: Burn is skin damage caused of energy conduction that can produce scar resulting of low collagen density. The current treatment of burn wound using NS 0.9% does not support good scar production. Potential nature resource in burn wound care is soybean (*Glycine max*) because of its anti-inflammatory, antibacterial, and fibroblast syntheses effects. This research conducted to investigate the effect of soybean as second degree burn wound care in rat on the enhancement of collagen density percentage.

Material and Methods: The true experimental laboratory post-test only control group design is applied. Burn induced in this research is scalds, 2x2 cm size. Burn caring is done once in 24 hours. Sample is chosen by random method, divided into four groups: NS 0.9% wound care group as control and three groups: soybean extracts concentration 40%, 60%, and 80%, each given topically. Research is carried out in 15 days, which rats are euthanasized on 16th day for histological preparation. Collagen histological slide is analyzed through dividing collagen space by dermis space using gridline method.

Results: There is significance different on control group and three treatment groups (One-Way ANOVA, $p=0.000$). Doubled linier regression test shows that there is an effect of soybean extracts on the enhancement of collagen density percentage ($p=0.002$).

Conclusion: The conclusion results wound care used 80% soybean extracts has been proven most effective on the enhancement of collagen density percentage ($p=0.069$).

Keywords : soybean, burn, wound care, collagen



Oyster mushroom (*Pleurotus ostreatus*) extract regenerate pancreatic islet cell in type II diabetic mice

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Introduction: Diabetes is a major health problem in 21st century. Apparently, it is estimated that in 2023, there will be 333 million people who suffer from diabetes while 80% of them are suffer from type 2 diabetes. Diabetic patient will suffer chronic hyperglycemia and destruction of islet langerhans in pancreas.

Objective: To evaluate anti-diabetic effect of oyster mushroom extract in type 2 diabetic mice based on blood glucose level, hematopoietic stem cell (CD34: Cluster of Difference 34), pancreas weight, islet cell count and morphology.

Materials and Methods: Type 2 diabetes in balb/c mice was induced by a single i.p injection of streptozotocin (100 mg/ kg) and nicotinamide (240 mg/kg). Ethanolic extract of oyster mushroom (25mg/kgBW, 50mg/kgBW and 100mg/kgBW per day) were administered to the diabetic mice per orally for 12 day. At the end of the treatment, blood was analyzed for glucose level and CD34 expression. The pancreas of each mice was studied to check any morphological changes.

Results: Treatment of diabetic mice with oyster extract produced significant fall in blood glucose ($p=0.000$) for about 41.18% (dose 25mg/kg), 55.43% (dose 50mg/kg) and 46.51% (dose 100mg/kg). Significant increase ($p=0.000$) in CD34 expression in the circulation and ($p=0.006$) in pancreas weight. Correlation between oyster extract dose and islet pancreas cell count show significant and very strong correlation ($r=0.937$).

Conclusions: Oyster mushroom extract has significant type 2 anti-diabetic activity and this may be due to increased release of hematopoietic stem cell that may regenerate pancreatic islet cell.

Keyword: CD34, Diabetes, Hematopoietic stem cell, Islet Langerhans , *Pleurotus ostreatus*



Basil (*Ocimum sanctum*) extract decrease AGE, MDA and tracheal tissue destruction in rats induced with cigarette smoke

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Introduction: The number of smokers in Indonesia was estimated to be 69% from all male populations. Cigarette smoke contain a variety of harmful substances that have been proven to damage respiratory organs. Basil (*Ocimum sanctum*) is a plant that easily found in Indonesia, which contains high level of eugenol that having a lot of pharmacological effect, including radical scavenging effect. Therefore, it is necessary to review its effectiveness in inhibiting respiratory tract damage.

Objective: To evaluate anti-oxidant effect of *Ocimum sanctum* extract in rat induced with cigarette smoke and evaluate its AGE level, MDA level and histological pattern that show tracheal tissue destruction

Materials and Methods: Research was conducted using randomized controlled group posttest only design with 30 sample, it divided into negative control group, positive control, treatment group with dose 31.5 mg/kgBW, 63.0 mg/kgBW and 126 mg/kgBW ethanolic extract of basil. Induction of cigarette smoke was given using smoke pump burn clove cigarettes for 7.5 minutes each day

Results: Research showed that administration of basil ethanolic extract dose 31.5 mg/kgBW, 63.0 mg/kgBW and 126 mg/kgBW significantly lowered serum AGE levels ($p=0.000$, $p<0.05$) with inverse correlation ($r = -0.712$), decreased levels of MDA serum ($p=0.000$, $p<0.05$), with inverse correlation ($r = -0.840$). Prevent hyperplasia of epithelium and goblet cell in the trachea.

Conclusions: This research showed that the ethanolic extract of basil leaves (*Ocimum sanctum*) has potential activity to reduce tissue damage in the respiratory tract due to cigarette smoke.

Keywords: advanced glycation end products, cigarette smoke, malondialdehyde, free radical, trachea



A new antiplasmodium from *Dendrophthoe pentandra* extract: in vivo study against *Plasmodium berghei* on swiss mice

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Introduction: Malaria is the most prevalent tropical disease in the world. World Health Organization estimates there are 300-500 million cases of malaria each year in the world and 1.5 - 2.7 million people die causes malaria. The incidence of malaria in the world covering the equatorial regions such as Mexico, Africa, Thailand, India, and Indonesia. In 2011, the number of malaria cases increased from 229,819 in 2010 to 256,592 cases. While the number of deaths from malaria reached 388 cases. Until now, the use of antimalarials generated a lot of resistance so many scientists began the development of research using herbal plant ingredients, for example parasitic plant (*Dendrophthoe pentandra*). Previous studies have shown that *Dendrophthoe pentandra* have antimalarial activity. The objective of this study is to determine the effect of antiplasmodium in vivo.

Methods: Antiplasmodium test conducted on *P. berghei* which were injected into mice with 4 days suppression method according to Peters (1987). The 25 of mice were divided into 5 groups. The first group was given distilled water as a control group, and group II, III, IV, and V received the dose of 25 mg/kgBW, 50 mg/kgBW, 100 mg/kgBW, and 200 mg/kgBW respectively for 4 days. On the 5th day the Thin blood smears were made from each blood of the mouse's tail and stained by 5% Giemsa. Parasitemia was calculated by counting the number of erythrocytes which were infected by *P. berghei* per 1,000 erythrocytes.

Results: Based on calculations using probit analysis show that the *Dendrophthoe pentandra* extract has antiplasmodium activity with ED₅₀ of 146,2 mg/kgBW.

Conclusions: *Dendrophthoe pentandra* has the potential to be developed as an antimalarial agent.

Keywords: *Dendrophthoe pentandra*, malaria, antiplasmodium, *Plasmodium berghei*

Parasite eradicates parasite: a study of antiplasmodial activity, heme polymerase inhibition, and cytotoxicity against to vero cell of *Dendrophthoe pentandra*

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Introduction: Malaria is a disease which to date remains a global health problem. Since 100 years ago, the world has not been able to provide a clear contribution to the treatment of disease. European Commission (2002) says that the disease is not only attacking the tropics but also attacked the subtropical regions around the world. This is supported by the statement Phair and Sommers (1994) which says that many deaths occur in countries that became endemic malaria regions, including Indonesia, India, Mexico, Haiti, Central America, and African countries. Due to the incidences of Plasmodium resistance, more secure malaria therapy using herbal material is being developed. Previous studies have shown that parasitic plant, *Dendrophthoe pentandra* have antimalarial activity. The objective of this study is to determine in vitro antiplasmodial activity, mechanism of heme polymerase inhibition, and cytotoxicity of water and ethanol extracts of *Dendrophthoe pentandra* against Vero cells.

Materials and Methods: Antiplasmodium test conducted on *P. falciparum* using Giemsa staining. The heme polymerase inhibition test was conducted using hematin with test compounds using glacial acetic acid 100% and NaOH 0.1M. Cytotoxic test performed on Vero cells that had been incubated with test compound.

Results: The water and ethanol extract of *Dendrophthoe pentandra* has antiplasmodial activity with IC₅₀ values of 45,4 µg/mL and 169,7 µg/mL respectively. The antiplasmodium mechanism of water and ethanol extract occurs through inhibition of heme polymerase with IC₅₀ values of 1.6 µg/mL and 1969.8 µg/mL respectively. The cytotoxic effect on Vero cells with IC₅₀ values of 1484.5 µg/mL for water and 845.6 µg/mL for ethanol extract.

Conclusions: *Dendrophthoe pentandra* has in vitro antiplasmodial activity against *P. falciparum* through the mechanism of heme polymerase inhibition with low cytotoxic effect on Vero cells.

Keywords: *Dendrophthoe pentandra*, malaria, antiplasmodium, polymerase, cytotoxic.

The coronary sinus valve (Thebesian valve) - anatomical variations and implications for clinical procedures

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Introduction: The development of invasive diagnostic and therapeutic cardiac procedures have made a detailed understanding of the anatomy of the coronary sinus (CS) and its valve, the Thebesian valve (TV), essential. TV is an anatomic barrier during CS cannulation which may become complicated due to the shape and size of the valve. Our aim was to evaluate the characteristic features of the TV anatomy and present a new classification of the shapes of the valve.

Materials and Methods: We examined 273 autopsied human hearts of both sexes (21.61% females); aged from 6 months to 94 years old (48.72 ± 5.84). The height of the TV and the diameter of the CS were measured. According to their shape, the valves were classified into 5 types: remnant (type I), semilunar (type II), fold (type III), cord (type IV), and mesh and fenestrated (type V).

Results: The mean CS ostium diameter was 12.20 ± 3.53 mm. The TV was present in 224 (82.05%) cases. The most common type of TV was type II – 32.59%, followed by, in descending order: type I – 25.45%; type III – 17.41%; type IV – 14.29%; and lastly type V – 10.27%. The mean TV height for types I–III was 5.81 ± 3.00 mm. Thirty-nine of the TVs (17.41%) were classified as obstructive (covering >70% of the CS ostium) and 7 of the TVs (2.87%) covered the entire orifice of the CS. Hearts with larger CS ostium diameter had lower TV height ($p < 0.001$).

Conclusions: We propose a new unified classification of the TV shapes based on the largest sample to date. We assessed that in 2.5% of all 273 cases the present obstructive TV can cause unsuccessful cannulation. We suggest that the increased blood flow in the CS may be indicative of increased CS ostium diameter and may lead to atrophy of the TV.

Keywords: coronary sinus, right atrium, unsuccessful cannulation, perforation, Thebesian valve shape



Septal pouch - incomplete fusion of the interatrial septum: anatomical variations and clinical implications

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Introduction: The interatrial septum is composed of the septum primum (SP) and septum secundum (SS). Physiologically during fetal life the interatrial septum is incomplete and fuse after birth. In approximately 25% of adults, nonadherent SP and SS form a small channel across the interatrial septum - patent foramen ovale (PFO). The condition known as a septal pouch occurs when the PFO is absent but the SP and SS are not completely fused. The presence of a PFO or septal pouch can be a risk factor for serious clinical syndromes.

Materials and Methods: We examined 110 randomly selected autopsied human hearts of both sexes (25.45% females), aged from 2 to 94 years old (49.21 ± 19.11). Focus was put on the patterns by which the SP and SS fuse.

Results: Complete fusion of the SP and SS along the entire zone of overlap was found in 26 (23.63%) of 110 hearts. PFO was noted in 23.63% of the specimens. In the remaining 58 (52.72%) hearts, a PFO was absent, but incomplete fusion of the SP and SS (septal pouch) was observed. A left septal pouch that opened into the left atrial cavity was found in 44 (40%) cases. A right septal pouch was seen in 10 hearts (9.09%). Four hearts (3.64%) had a double septal pouch with openings into each atria.

Conclusions: A significantly higher prevalence of left septal pouches confirm earlier embryological theories that the SP and SS may fuse initially at its caudal limit. This is the first study to give an example of double septal pouch which indicates that the SP and SS may start to fuse from the center. The left and double septal pouches can act as a site of potential thrombosis that can be particularly dangerous and may increase the risk of stroke or myocardial infarction.

Keywords: patent foramen ovale, septum primum, septum secundum, stroke, left atrium



Identification of antiretroviral-resistance mutations in HIV-1 isolates from Indonesia

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Introduction: Human Immunodeficiency Virus type 1 (HIV-1) is an infectious agent causing global health problem. The emergence of antiretroviral resistances is a major issue due to viral mutations. This study was aimed to identify the emergence of antiretroviral (ARV)-resistance mutations in HIV-1 isolates from Indonesia in order to provide insight about general ARV susceptibility in this country.

Materials and Methods: All HIV sequences in Indonesia containing *gag*, *pol* and/or *env* regions were downloaded from GenBank. Some sequences which were unavailable in GenBank were taken with the permission from the identifiers. The sequences were subjected for virus subtyping, identification of ARV-resistance mutations and analysis of virus tropisms.

Results: A total of 579 HIV-1 sequences from Indonesia, including 287 *env*, 219 *gag*, 55 *pol*, 14 *gag-pol* and 4 genome sequences, were analyzed. CRF01_AE was predominant among sequences. A number of cleavage site mutations were observed in *gag* p17, p24/p2, p7/p1 and p1/p6 sequences. Analysis of *pol* sequences showed the emergence of major mutations related to Nucleoside Reverse Transcriptase Inhibitor (NRTI) (M184V, D67N, K70R, L210W, T215Y, K219E and K65R) and Non-Nucleoside Reverse Transcriptase Inhibitor (NNRTI) (K101E, K103N, E138A, Y181C, Y181V, Y188L, G190A, M230L). Additional mutations related to Protease Inhibitor (PI), NRTI and NNRTI were also observed. Neither major PI nor Integrase Inhibitor (INI)-resistance mutation was observed. The HIV tropism analysis found a big amount of R5 strains among sequences, although the majority belonged to X4 strains.

Conclusions: Various mutations related to ARV resistances were identified in HIV-1 sequences from Indonesia. The number of R5 strains was high, which indicated the potential usage of CCR5-antagonist among Indonesian patients. These data were presumably useful for consideration in prescribing ARV drug regimens to Indonesian patients.

Keywords: HIV-1, ARV, mutation, resistance



Use of embryonic stem cells marker expression to determine prognosis of bladder cancer

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Introduction: Bladder cancer is the fourth most common cancer in the UK. There are two main types of bladder cancer: muscle invasive bladder cancer (MIBC) and non-muscle invasive bladder cancer (NMIBC). Recently, it was found that expression of Embryonic Stem Cell factors (ESC) Oct4/Sox2/Nanog correlates with tumour grade and aggressiveness. This study would like to explore the expression of these factors in determining prognosis of bladder cancer patients.

Materials and Methods: We do immunohistochemistry (IHC) staining with antibodies of Oct4/Sox2/Nanog on 172 MIBC and 152 NMIBC tissue samples. Based on the strength of the staining, we determine the level of protein expression in the nucleus and cytoplasm of each sample. Finally, we try to correlate the expressions of these proteins to grade, stage, and survival rate of bladder cancer patients.

Results: There was a trend that Individual expression of Oct4/Sox2/Nanog protein showed a higher risk of bladder cancer mortality or recurrence in both MIBC and NMIBC. However, these trends are not statistically significant. Triple high expression of ESC factors is statistically significant in predicting cancer mortality or recurrence in two types of bladder cancer. This study found no correlation between tumour stage/grade and ESC factors expression.

Conclusion: Simultaneous expressions of all ESC factors of Oct4/Sox2/Nanog can predict bladder cancer mortality and recurrence. There's a potential for using these factors as a biomarker for bladder cancer patients. However, further study must be conducted on determining its efficacy in clinical settings. This investigation was limited by the qualitative nature of IHC interpretation. Quantitative approach to measure ESC proteins may yield better result.

Keywords: cancer stem cell, bladder cancer, prognosis, stem cells marker



The effect of vaccination using *Porphyromonas gingivalis* cell wall against malondealdehyde modified low density lipoprotein (MDA-LDL) level in the sera of atherosclerosis rat model

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Atherosclerosis is a chronic inflammatory disease caused. Oxidation of low-density lipoprotein (LDL) can cause the formation of reactive aldehydes, mainly malondealdehyde. This process will make the LDL can not be recognized by our body. It causes the foam cell formation and thickening of arterial wall which are the start of atherosclerosis process. *Porphyromonas gingivalis* expressing arginine-specific gingipain (RgP) induce anti-RgP antibody response which cross reacts with RgP in malondealdehyde modified lipoprotein (MDA-LDL). Anti-RgP antibody in turn will induce atheroprotective effect. This research was an experimental laboratory research with posttest only controlled group design. 25 male rats were divided into 5 groups, negative control, positive control, G1 (vaccinated by *Porphyromonas gingivalis* cell wall and CFA-IFA, G2 (vaccinated by *Porphyromonas gingivalis* cell wall), and G3 (vaccinated by CFA-IFA). We gave all groups except negative control the atherogenic diet. Vaccine were injected intraperitoneally three times at two-week interval. After 30 days, the rats were dissected to draw the blood for sample. The specificity of antibody was done by western-blot and enzyme linked immunosorbent assay (ELISA) was done for quantifying of MDA-LDL level. Results showed that administration of *Porphyromonas gingivalis* cell wall could induce antibody formation against Rgp. Anova test showed the significant decrease of MDA-LDL level in the sera of atherosclerosis rats ($p < 0,05$). It means that the antibody could bind with MDA-LDL in rats blood. Based on the result, it can be concluded that vaccination using *Porphyromonas gingivalis* cell wall could decrease MDA-LDL level in the sera of atherosclerosis rats model.

Keywords : Atherosclerosis, vaccination, MDA-LDL, *arginine-specific gingipain* (Rgp), *Porphyromonas gingivalis*

The effect of chloro substitution in mefenamic acid towards liver function and analgesic efficacy in mice

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Introduction: Mefenamic acid is an NSAID commonly used as a pain releiver. However it can cause hepatic dysfunction, acute kidney failure, gastric irritation, etc. Chloro substitution in mefenamic acid could produce a mefenamic acid analog substance with similar analgetic effects to mefenamic acid but with less severe side effects and better efficacy.

Materials & Methods: Mefenamic acid analog was synthesized by adding chlorine to Goldberg reaction. Thirty three male mice were divided into three groups. The first group acts as a control group, the second group were injected with mefenamic acid 1,30mg/kg body weight once per day, the third group were injected with mefenamic acid analog with the same dose, both in a week. The concentration of ALT & AST were measured. The second experiment was the Writhing test to figure out the analgesic effect of mefenamic acid analog. The mice were divided into 3 groups, treated as the previous experiment but only injected once. After 30 minutes the three groups were injected with 0.6% acetic acid intraperitoneally to induce pain, the number of writhes in five minute intervals in thirty minutes were counted.

Results: With one way anova tests, the AST and ALT concentration was lower in the group injected with mefenamic acid but the difference was not statistically significant ($p>0.05$). In the writhing test, the number of writhes of the third group was lower on minute 25 and 30 and the results was statistically significant ($p<0,05$).

Conclusion: The side effect of mefenamic acid and mefenamic acid analog towards mice liver function was not significantly different. However, the difference of the two drugs was their pharmacodinamics that the mefenamic acid analog has a higher absorbance rate compared to mefenamic acid.

Keywords: Mefenamic acid, chloro substitution, liver function test, NSAID, writhing test



The profiles of CTL/CD8⁺ and antibody epitopes in Gag, Pol and Env regions of HIV-1 isolates from Indonesia

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Introduction: Human immunodeficiency virus-1 (HIV-1) infection has caused a global health problem. The obstacle in eradicating HIV-1 infection is the difficulty of designing effective vaccine due to viral enormous diversity. Characterization of viral immunological profiles globally is crucial in order to find the best immunogen for vaccine. Since the HIV-1 immunological data from Indonesia are limited, this study aimed to analyze the profiles of CTL/CD8⁺ and antibody epitopes of HIV-1 isolates from this country.

Materials and Methods: All HIV sequences in Indonesia containing *gag*, *pol* and/or *env* regions were downloaded from GenBank. Other sequences were taken with the permission from the identifiers. The sequences were subjected for virus subtyping; identification of sequence conservation and immunogenicity; and identification of CTL/CD8⁺ and antibody epitopes.

Results: As many as 77, 51 and 14 best-defined CTL/CD8⁺ epitopes were identified in Gag (mostly on p24 domain), Pol and Env, respectively. Meanwhile antibody epitopes were predominantly observed in Env (n=53), particularly on its V3 region, followed by Pol (n=16) and Gag (n=2), respectively. Considering the epitope conservation, prevalence and immunogenicity, CTL/CD8⁺ epitopes recognized by HLA A*0301 and B*3501 in Gag p17; B*0702, B*4002, B*2703, B*2705, Cw*18, A*2402, B*1801, B*4402, A*0207, B*1503, Cw*0303, Cw*0304 and B*4801 in Gag p24; A*0301, A2, B*5101, B18, A*3002 and A*6802 in Pol RT; B*1510, B*5401 and B*4002 in Pol IN, and two human antibody epitopes in gp41 (ELDKWA and DKW) appeared as the most prospective epitopes for vaccine immunogens.

Conclusions: This study reports the profiles of CTL/CD8⁺ and antibody epitopes in HIV-1 isolates from Indonesia. These data were useful for HIV-1 molecular surveillance and future vaccine development in this country.

Keywords: HIV-1, CTL/CD8⁺, antibody, epitope, Indonesia



Optimization of light intensity on *Rattus norvegicus* Wistar strain's appetite for the obesity prevention

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Introduction: Obesity is a chronic condition where fat excess in the body which has prevalence increases all the time. Previous research found that light could be one of factor in the disruption of circadian rhythm which regulate our sleep cycle. If this condition occurs, the body will suffer circadian desynchrony, which causes the metabolism impaired and finally can lead obesity.

Materials and Methods: Randomized Controlled Group Post-Test Only Design is used. Twenty adult male white rats aged 1 month and 73-109 gr of weight with a healthy physical condition were taken as samples. The samples were *Rattus norvegicus* Wistar strain rats which were divided into 4 groups. Group I was a control variabel which treated without light. Group II, III, IV were grouped with 5 watt, 10 watt, and 15 watt. Each groups were given 75 gr food per day.

Results: The results which were obtained with the ANOVA test showed that $p > \alpha$, where $\alpha = 0.05$ (CI = 95%) means that there is no significant difference in the initial weight and the final weight, indicates that the average weight rats are both average. Also the Mann-Whitney test first group showed $p < \alpha$, where $\alpha = 0.05$ (CI = 95%) means that there is a difference between the amount of feed group I with three other groups. T-test results of the three tests values, namely p else $p > \alpha$, where $\alpha = 0.05$ level, means that there is no difference between the amount of food in group II, III, and IV.

Conclusions: Weight average growth of white rats which treated without light, showed higher than other white rats which treated. There are't significant difference between treated control group and treated group, but there are significant difference of feed remain between treated control group and treated group. Thus, the presence of light on the nocturnal mammals affect decreased appetite.

***Acalypha indica* linn and *Centella asiatica*: alternative cure for post-stroke sequel**

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Introduction: Stroke is the third leading death-causes in USA. In Indonesia, stroke attacks 35,8% elderly and 12,9% productive age population. Recovering from stroke, 70% of patients suffer from sequele. To overcome these symptoms, giving nootropic agent (such as piracetam) is recommended. Apart from the expensive price, piracetam has several side effects. One of alternative therapy to overcome the stroke's sequele is using herbal medicine (*Acalypha indica* Linn and *Centella asiatica*). The purpose of this study is to obtain the most effective combination doses between these herbal compared with piracetam which is usually used for post-hypoxia neurotherapy.

Materials and Methods: This experimental study used five treatment groups: (1) negative control (aquadest); (2) positive control (piracetam); (3) *Acalypha indica* Linn (AI) extract 150 mg + *Centella asiatica* (CA) extract 150 mg; (4) AI extract 200 mg + CA extract 150 mg; (5) AI extract 250 mg + CA extract 150 mg. Afterwards, the first 500 cells in external dentatus gyrus of hippocampus would be grouped into normal, condensation, and picnotic cells. The results were tested using One Way Anova continued by Post hoc test.

Results: Post hoc test revealed that combination of AI extract 150 mg with CA extract 150 mg and also combination of AI extract 250 mg with CA extract 150 mg did not give significant difference to both aquadest and piracetam ($p > 0.05$). Meanwhile, combination of AI extract 200 mg with CA extract 150 mg showed significant difference to aquadest ($p = 0.001$) although there was no difference to piracetam ($p = 1.000$).

Conclusions: Combination of AI extract 200 mg with CA extract 150 mg provide better results than other treatment groups for neurogenesis post-hypoxic rat's neurons. This combination shows no difference effect to positive control, piracetam. Besides, using combination of AI extract with CA extract can reduce the dose of using one extract, therefore, this combination can also diminish possible side effect.

Keywords: Stroke, piracetam, *Acalypha indica* Linn, *Centella asiatica*, neural therapy effect

Results of the clinical examination of the children with spinal hernias

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Introduction: Spinal hernias are one of the more difficult and poorly understood defect of the central nervous system. The problem of diagnosis and surgical treatment of spinal hernias attracts attention of pediatric surgeons, neurosurgeons, urologists, orthopedists, neurologists and other specialists, is far from the solution.

Material and Methods: The results of clinical examination of 130 children up to 1 year with spinal hernias, being treated in the department neurotraumatology regional children's hospital in Shymkent, South Kazakhstan region for 2009-2013 years. Age of the patients ranged from 1 day to 1 year. Of which there were 52 boys and 78 girls. Children from birth to 1 month were – 74 (56,9%), from 1 month to 3 months – 35 (26,9%), from 3 months to 6 months – 13 (10,0%), from 6 months to 1 year – 8 (6,2%). Among patient with spinal hernias most were children with meningo-myelomeningocele (63,8%). Patients with meningocele was 18 (13,8), with meningo-radikulocele 13 (10,0%), with rachischisis – 13 (10,0%) and 3 children with terminal myelomeningocele (2,3%). In children with congenital spinal hernias performed physical and neurological examination, and a endoscopic methods of diagnostics. Pluricausal, exceptional complexity of the pathogenesis and clinical severity of malformations are places demands on the diagnostic measures.

Results: The results of clinical examination of 130 children up to 1 year with spinal hernias. Found that the disease depends on the location, and the progression of the depth of the lesion of the spinal cord and roots, on the presence and severity of associated malformations, the child's age. There were neurological changes of the lower extremities, pelvic disorders and the combination with other anomalies and malformations. Improved results of treatment of hydrocephalus has been the determining factor of long-term positive results of treatment of spinal hernias in children.

Conclusions: 1. The clinical picture of the spinal hernia is diverse and complex; 2. The features clinical picture of the disease in children with spinal hernias were depends on the location, and the progression of the depth of the lesion of the spinal cord and roots, on the presence and severity of associated malformations, the child's age; 3. In children younger than 1 year at the spinal hernias were observed neurologic lower extremities (paraparesis – 63,3%, paraplegia – 16,6%), pelvic disorders (70,5%) and the combination with other anomalies and malformations (hydrocephalus – 93,3%, bilateral clubfoot – 30,0%, congenital dislocation of the hip – 13,3%, exotropia – 10,0%); 4. The disability of the patients with spinal hernia is mainly determined by the degree of involvement in the pathological process of the spinal cord and its roots (meningo-myelomeningocele – 63,8%); 5. The hydrocephalus is a common and life-threatening brain damage when combined congenital malformations of the central nervous system; 6. The improved results of treatment of hydrocephalus has been the determining factor of long-term positive results of treatment of spinal hernias in children.

Keywords: spinal hernia, congenital malformations, children, nervous system, hydrocephalus

Increased plasma levels of interleukin-32 α in women with endometriosis: a marker of disease activation

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Introduction: Endometriosis (EM) is characterized by the aberrant growth of endometrial cells at sites outside the uterus. There are four stages of endometriosis: minimal, mild, moderate, and severe. Interleukin-32 α (IL-32 α) is a new cytokine, has been implicated in the pro-inflammatory immune responses in several immunological disorders. This study aimed at investigating the potential clinical utility of levels of the Interleukin-32 α as a marker of disease activation in women with endometriosis.

Materials and Methods: We measured plasma levels of Interleukin-32 α in 36 Iranian patients with histologically proven for mild (n = 24) and severe (n = 12) endometriosis in comparison to 29 healthy controls by enzyme-linked immunosorbent assay (ELISA).

Results: Plasma levels of Interleukin-32 α were significantly higher in the women with severe endometriosis 432.01 ± 199.60 pg/mL in comparison with mild 391.11 ± 177.9 pg/mL and healthy controls 232.15 ± 175.42 pg/mL

Conclusions: Our data suggest that increased plasma levels of IL-32 α are associated with inflammatory responses and disease activation in women with endometriosis.

Keywords: Endometriosis, Interleukin-32 α



Assessment of CRB-65 as a predictor of 30-day mortality in hospitalized elderly patients with community-acquired pneumonia compared to CURB-65 scoring system

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Background: CURB-65 is a worldwide-known scoring system for predicting mortality in hospitalized patients with community-acquired pneumonia (CAP). A simplified form of this scoring system, CRB-65, was created so that the assessment can be performed without laboratory examination of blood urea nitrogen, particularly in rural areas of developing countries. The study was aimed to assess the prognostic value of CRB-65 compared to CURB-65 scoring system.

Materials and Methods: a nested-case control, survival analysis study of 145 consecutive elderly patients (age>60) hospitalized with CAP was performed in National General Hospital of Cipto Mangunkusumo, Jakarta, Indonesia between June 2012 and May 2013. Patients were examined on the first day of admission and followed up 30 days later. Patients were classified into high-risk (CURB-65 ≥ 3 , CRB-65 ≥ 2) and low-risk group. The outcome was 30-day mortality. Data were analyzed using Cox Proportional-Hazard Regression test, Kaplan-Meier and ROC curve to determine the prognostic value of each scoring system.

Results: Among the subjects (n=145), consecutively 38 (26.21%) and 41 (28.28%) patients were considered high-risk based on CURB-65 and CRB-65. The 30-day mortality rate was 22.07% (n=32), whereas 30-day survival rate of CURB-65 and CRB-65 high-risk group were 50.00% (p<0.001) and 53.66% (p<0.001) respectively. CURB-65 and CRB-65 generally had high specificity (83.18% vs 80.53%) and negative predictive value (87.85% vs 87.50%) despite its low sensitivity (59.38% vs 59.38%) and positive predictive value (50.00% vs 46.34%). CURB-65 had an area under the curve (AUC) of 0.69 (0.58-0.80), slightly higher than CRB-65 of which AUC was 0.67 (0.56-0.77).

Conclusions: The prognostic value of CRB-65 was not much inferior compared to CURB-65. Thus, it can be considered to be used in places without laboratory facilities.

Keywords: community-acquired pneumonia, CRB-65, CURB-65, mortality, prognostic

Complete blood count analysis in patient with pra-hemodialysis chronic kidney disease: comparative study between each group of CKD etiologies

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Introduction: Anemia frequently found in Chronic Kidney Disease (CKD), contributing to increased morbidity and mortality. Recent epidemiological studies had shown that CKD were associated with anemia at all stages, even in pra-hemodialysis stage. Severity of anemia is dependent on CKD etiology and severity. Thus, we conducted a study to compare CBC profile in each etiologies among CKD patients.

Materials and Method: Cross-sectional study involving total sample from observational study between 1 January – 31 December 2012 in Dr. Soetomo Hospital Surabaya. Subjects were all patients in outpatient wards presenting with pra-hemodialysis CKD. Descriptive studies and CBC analysis were conducted based on their etiologies. There were 418 subjects, 53,8% males and 46,2% females were observed and evaluated in clinical profiles.

Results: From 418 CKD patients, 187 patients (44,7%; $P < 0.05$) had Diabetes Mellitus as their etiologies, 138 patients (33%; $P < 0.05$) had Hypertension as their etiologies. Another CKD etiologies were Gout (21 subjects; 5,0%; $P < 0.05$), Glomerulonephritis & Lupus (20 subjects; 4,8%; $P < 0.05$), Kidney Stone/Renal Calculus (17 subjects; 4,0%), and Uropathy & Cancer (17 subjects; 4,0%; $P < 0.05$). Mean Hb level in all CKD patients were 9,26 g/dL and the average of Hb level in Diabetes CKD groups is 8,71 g/dL ($P < 0.01$); in Hypertensive CKD groups is 9,14 g/dL; in Gout & Kidney Stone etiology is 8,68 g/dL; in Glomerulonephritis etiology is 8,14 g/dL ($P < 0.01$). The mean level of RBC, WBC, and Platelet in CKD patients were 3.392.960 cells/mL for RBC (normal range 4–6 millions cells/mL; $P < 0.005$); 10.720 cells/mL for WBC ($P < 0.005$), and 339.950 cells/mL for Platelet count ($P < 0.005$). For erythrocyte index, the average of MCV were 84,63 fL, MCH 27,31 pg, and MCHC 32,28 g/dL in all groups.

Conclusions: Consistent with another studies, our research revealed that Diabetes Mellitus and Hypertension, which is the most dominant etiology of CKD, contributes to the greatest loss of Hb and erythropoietin level. All etiologies of CKD showed normocytic normochromic anemia profile. Primary care clinicians should promptly identify CKD patients with high risk of being anemia and treat them immediately and appropriately to prevent further damage to cardiovascular and other organs.

Keywords: Anemia, Complete Blood Count, CKD, Erythropoietin, Hemoglobin



Hypnosis as medical application to minimalize pain sensation in dysmenorrhea

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For few of women, sometimes menstruation cause pain in the lower abdomen (hypogastric) and lower back that known as dysmenorrhea (Varney, 2004). According to Harahap (2001), the study results in Indonesia showed that there were complaints of women employees (number of respondents 55 people), and who experience menstrual pain is 58.18%. The complaint indicates that dysmenorrhea experienced by women of reproductive time. Based on these descriptions, dysmenorrhea can interfere all of daily activities which it will reduce productivity.

During this time, the main dysmenorrhea therapy is analgesic drug. In fact, it is known that the drug is a chemical substance, which if taken too much can cause overdose and produce side effects of course.

On the one hand, hypnosis therapy, has been known for an act that can affect subconscious mind through suggestion. Hypnosis can useful as hypno-analgesia and hypno-anesthesia. In association with dysmenorrhea, hypnosis can minimize pain sensation in the lower abdomen and lower back. So, the use of drugs can be minimized or even eliminated (Baradero 2006 & Suzannec, 2001).

Based on the explanation, the authors consider it necessary to do research in order to reduce the amount of consumed analgesic drug while going dysmenorrhea by utilizing the method of hypnosis.

This research method is qualitative observations. There are 16 dysmenorrhea women aged 25-40 years were divided into 2 treatment groups randomly, they are experimental and control groups.

Based on the research, experimental group (receive suggestion for relaxation, reducing pain sensation, reducing emotional reaction to the symptom) had a significant pain sensation reduction. Whereas in control group (was not given any analgesic treatment), there's no change. Furthermore, the experimental group showed lower analgesics consumption.

Based on this research, it can be concluded that the use of hypnosis method effectively lowers the sensation of pain in cases of dysmenorrhea.

Keywords: hypnosis, menstruation, dysmenorrhea



Comparison of plain radiography and computerized tomography in the differential diagnosis of the paranasal sinuses diseases

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Introduction: Although computerized tomography (CT) is the gold standard in the diagnosis of paranasal sinus diseases, diagnostic protocol suggests that initial radiological examination should be performed using standard radiography. However, there are no precise data regarding the overall diagnostic accuracy of the standard radiography compared to CT.

Aim: The aim of this study is to investigate the diagnostic accuracy of the plain radiography in relation to CT method in the diagnosis of paranasal sinus diseases.

Materials and Methods: Radiological examination of the paranasal sinuses were performed in 40 patients with standard radiography in the frontal projection and with CT. The examination was needed in all patients due to suspected paranasal sinus diseases. The following parameters were analyzed on both radiographs: the continuity of the sinus bony walls, the presence of content within the sinus space (Lund-Mackay score), the intensity and homogeneity of the sinus content. Obtained data were statistically analyzed using SPSS 15.0.

Results: The mean age of the patients were 45.98 ± 14.17 years. There were 21 (52.5%) males and 19 (47.5%) females. Assessment of the continuity of the bony walls on a standard X-ray was the most reliable for the posterior ethmoids and sphenoid sinuses (100%). The largest error in assessing the continuity of bony walls on plain radiographs was detected in the case of the maxillary sinuses. Statistical analyses showed the significant difference ($t=-2,765$; $p<0,01$) between Lund Mackay score calculated on plain radiography and CT. The least accurate appeared the assessment of the presence of the sinus content in the case of anterior ethmoids and sphenoid sinuses. Concerning the intensity of the sinus content, plain radiography had the same accuracy as CT in the diagnosis of the lesions with bone-like intensity. However, the plain radiography was less precise in assessing the intensity of content of non-osseous intensity. Plain radiography was also imprecise in detecting the homogeneity of the sinus content.

Conclusions: Sinus wall lesions and presence of the osseous-like content within the sinuses could be accurately estimated with plain radiography, while the general assessment of the presence of the sinus content and its homogeneity could not be estimated with accuracy.

Keywords: Plain radiography, computerized tomography, paranasal sinus diseases



The Difference of ankle brachial index (ABI) between obese and normal weight patients with type 2 diabetes mellitus (DM) in Dr. Moewardi Hospital

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Introduction: Peripheral Arterial Disease (PAD) is the complications of type 2 DM. Obesity is risk factor of PAD. ABI is a method for diagnosing PAD. The ABI value of <0.9 means that the patient suffers PAD. The aims of this study are to know the ABI's difference between obese and normal weight patients with type 2 DM in Dr. Moewardi Hospital and the correlation between ABI and the Body Mass Index (BMI).

Materials and Methods: This study is an analytical observation with a cross sectional approach. The subjects were patients of Dr. Moewardi Hospital registered from April to July 2013, suffering type 2 DM. Subjects were selected through purposive sampling. The data were obtained by measuring the patients' BMI, examining the patients' ABI and checking the patients' medical record. The data were analyzed by unpaired T-test, significant if p value <0.05 , and by Spearman correlation test through Windows SPSS 20.0 Statistic program.

Results: Data were taken from 33 subjects consisting of 11 obese patients and 22 normal weight patients suffering type 2 DM. The result obtained shows that 9 patients were in the borderline category of ABI values, 6 (66.7%) patients were obese and 3 (33.3%) patients had normal weight. The unpaired T-test shows that the ABI's mean of obese vs normal weight patients with type 2 DM is 0.98 ± 0.06 vs 1.01 ± 0.06 , $p=0.221$. The Spearman correlation test between ABI and BMI shows $p=0.028$ and $r=-0.384$.

Conclusions: The study suggested that there is no significant difference mean of ABI between obese and normal weight patients with type 2 DM in Dr. Moewardi Hospital. However, based on the interpretation of ABI values obtained, the percentage of subjects with lower ABI values was found greater in obese patients with type 2 DM (66.7%). There is correlation between ABI and BMI.

Keywords: ABI, obese type 2 DM, normal weight type 2 DM

The relationship between birth distance, parity, perineum injury history and ruptured perineum incidences in Wiradesa primary health station work site, Pekalongan 2013

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Introduction: Ruptured Perineum is torn or damaged organ tissue by forced, which is located between vulva and anus. Birth distance, parity and perineum injury history are causing the incidences of Ruptured Perineum. The aim of research is to figure out the relationship between birth distance, parity, perineum injury history and perineum incidences in Wiradesa primary health station work site, Pekalongan County, in 2013.

Materials and Methods : This research used correlative descriptive method with cross sectional approach. The sampling technique used total sampling for 41 respondents based on the inclusive and exclusive criteria. The data collecting instrument employed the check list. The statistical data analysis used Chi Square test with 5% level of significance.

Results : Based on the Chi Square test results, there was relationship between birth distance (p value = 0,013), perineum injury history (p value = 0,043) and ruptured perineum incidences. Meanwhile, there was not relationship between parity and the incidences of ruptured perineum (p value = 0,168).

Conclusions : The health personel should consider birth distance, parity and perineum injury history as the causes of ruptured perineum incidences. In order to decrease the incidence of ruptured perineum, the health personnel should hold more health education to pregnant women about birth distance, parity and perineum injury history.

Keywords: birth distance, parity, perineum injury history, ruptured perineum, ruptured perineum incidences



Differences of health-related life quality scores between ischemic stroke patients with lesions in left and right of hemisphere at RSUD Dr. Moewardi

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Introduction: The attention has been focused on life quality scores of ischemic stroke disease with neurological lesions in stroke research. The purpose of this study was to compare the health-related life quality scores between ischemic stroke patients with lesions in left and right of hemisphere.

Materials and Methods: This study used observational analytic cross sectional approach. The subjects were ischemic stroke patients with lesions in left and right of hemisphere. Samples were taken with purposive sampling technique. Samples were taken from 30 people consisting of 15 ischemic stroke patients with left hemisphere lesions and 15 ischemic stroke patients with right hemisphere lesions. Health-related quality of life was measured using the Medical Outcomes Study questionnaire SF-36. The collected data was presented in tabular form and analyzed using a t-test.

Results: Scores of health-related life quality in ischemic stroke patients with left hemisphere lesions is lower than ischemic stroke patients with right hemisphere lesions (mean $\pm$ standard deviation, 354.4 ± 1397 to 2482 ± 320.5 , $p < 0.001$). Also obtained a significant difference between the average scores of health-related life quality in the dimensions of physical functioning (26 ± 23.6 to 83 ± 14.2 , $p < 0.001$), role physical (33 ± 32.2 to 33 ± 32.2 , $p < 0.001$), pain (38 ± 21.4 to 63 ± 21.1 , $p = 0.01$), and public health (49 ± 15.6 to 69 ± 14.8 , $p = 0.001$).

Conclusions: Health-related quality of life scores in ischemic stroke patients with left hemisphere lesions is lower than ischemic stroke patients with right hemisphere lesions.

Keywords: Stroke Ischemic, Hemisphere Lesions, Quality of Life



Factors that influence the occurrence of caesarean section on maternal at PKU Muhammadiyah General Hospital Yogyakarta in 2009

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Introduction: One of the four pillars of *Safe Motherhood* is the provision of essential obstetric care for women with high risk pregnancies or complications. One of the actions that can not be avoided by essential obstetric care for mothers whose birth is the act of delivery by caesarean section. Caesarean section is the last option to save the mother and fetal during pregnancy or labor critical. But this time, caesarean section become the preferred choice by some mothers to give birth although not medically indicated.

Materials and Methods : The aim of this research was identifying factors influencing the occurrence of caesarean section. The research design is descriptive with retrospective. The population is all of mothers giving birth at PKU Muhammadiyah General Hospital Yogyakarta in 2009 by caesarean section. Sample used in this study was total sampling, there are 281 respondent. This study used primary data, medical record patient notes.

Results : The results of this research shows that factors influencing the occurrence of caesarean section were 66,5% maternal factor and 33,5% fetal factor. From maternal factors, there were labor induction failed (20,9%), re-caesarean section (16,6%), placenta previa totalis (11,2%), patient asking (12,3%), Cephalopelvic Disproportion (8%), Preeclampsia (8%), Vacuum Extraction failed (4,3%), prolonged labor (3,7%), Oligohidramnion (3,2%), eclampsia (2,7%), low weary placenta (2,7%), postterm (1,1%) and (0,5%) for the others factors. From fetal factors, there were breech presentation (44,7%), fetal distress (19,1%), oblique presentation (14,9%), Intra Uterine Growth Retardation (6,4%), multiple pregnancy (5,3%), macrosomia (5,3%), and (2,1%) for prolapsus funiculli and malposition.

Conclusions: Medical factors are the main indications in caesarean section. The medical workers have an important role in reducing the incidence of caesarean section for non-medical factors. One of them in providing antenatal care.

Keywords: Caesarean section, Maternal factor, Fetal factor, Pregnancy, Labor

Significant collaboration between primary care physicians, internists, nurses, dieticians, psychologists, pharmacists, and medical students in proactive palliative care for supporting patient with terminal AIDS

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Introduction: Psychological stress might have been occurred in AIDS patients while they were being diagnosed as “HIV-positive”, being excommunicated and ostracised by families and colleagues, getting discrimination and violence from society and government. Palliative-care offers supporting system for patients to comfort them and to help enhance quality of life.

Objective: Compare between well-collaboration palliative care as end-of-life care with the enhancing of patient's life-quality.

Materials and Methods: STAS indicator was used for dividing two group of palliative-care providers, group with well-collaboration among care-givers and group with poor-collaboration. Study design is cross-sectional with cluster-random sampling in Surabaya. We evaluated 12 patients in first group and 12 in second group. 58% were male, 42% were female. We compared these two groups in satisfaction level and quality of life improvement. For satisfaction level, subjects were surveyed with questionnaires.

Results: In first group, all patients(100%) reported satisfaction. They assumed that good-collaboration among health-workers can improve holistic care, continuity of care, focused goals of care, and improved planning of treatment courses. In second group, only 4 patients(33%) reported satisfaction. By observation, mean quality of life in first group was significantly higher.

Conclusions: Palliative care was provided by multidisciplinary professionals (clinicians, nurses, psychologists, etc) and volunteers working in hospital or hospice. Thus, effective collaboration are highly needed to improve patient's life-quality, rehabilitate them in society, protect them from stigmatization and discrimination. Furthermore, every care-givers require to improve their knowledge and behavior about interprofessional collaboration.

Keywords: collaboration, life-quality, proactive palliative care, satisfaction level, terminal aids

Depression among Indonesian homosexual men

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Introduction: Variations in sexual preferences and orientations present not only in developed countries but also in developing countries such as Indonesia which result in psychological problems. Lesbian, gay, and bisexual (LGB) people appear to be at greater risk than heterosexual people for mental disorders such as depression because of institutionalised prejudice, social stress, social exclusion and anti-homosexual hatred and violence and often internalise a sense of shame about their sexuality. This study focuses on the characteristic of depression among Indonesia homosexual men which is important to enhance the clinical management effort of clinician and influence the concept of researchers who are investigating neurobiology of sexual preferences and orientation.

Materials and Methods: This is case report study in the field of psychiatry which is done at Psychiatry Department Faculty of Medicine Diponegoro University for a year. Eight adult (35,21±6,784) homosexual men were purposively collected from homosexual communities in Surabaya. The presence of symptoms of depression were obtained from Zung Self-Rating Depression Scale that completely filled in by subjects. Psychological examination/interview also were done to determine the causes of depression.

Results: Our data demonstrated that in homosexual group only 25% of respondent suffer from depression. However, even the symptoms of depression were occurred, its presence is not directly related to their sexual preferences and orientations but due to other reasons such as job, or family problems.

Conclusions: Variation in sexual preferences and orientations is not always result in depression. the depression occurs in homosexual men because of some several reasons.

Keywords: Homosexual, MSM, sexual orientation, depressive disorder, Zung Self Rating Depression Scale.



Influence of climate on malaria incidence in Lampung Province

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Introduction: Malaria is a fever diseases cause of parasite infected by female Anopheles mosquito. In Indonesia Malaria incidence had decreased from 2010 to 2011, meanwhile in Lampung Province showed the opposite, it showed an increasing pattern. The environment factors, especially climate are very influential to its spreading and incidence, and it would be very possible occurs in Lampung Province.

Materials and Methods: The data on the number of Malaria incidences per month for 3 years (2010 – 2012) were taken from the Department of Health of the Lampung Province, while climate data (rain fall, rain days, temperature, humidity, wind direction and wind velocity) were derived from the Meteorology, Climatology and Geophysics Agency (BMKG). In this research linear regression was used to determine the dominant factors related to the Malaria incidence.

Results: In the rainy season in January until April period, climate factors that influenced on Malaria incidence are wind direction and wind velocity in January, February, and April. In the dry season in May until October period, temperature and air humidity are the dominant factors on Malaria incidence. The increase of 1°C of air temperature will reduce the Malaria incidence by 0,096% [regression coefficient (β) = -0,096; p = 0,025]. While the increase of one point of air humidity will increase the Malaria incidence by 0,009% [(β) = 0,009; p = 0,017]. In the rainy season in November until December period, climate factors that influenced on Malaria incidence are wind direction and wind velocity in December.

Conclusions: This research concludes that the influence of climate on Malaria incidence in Lampung Province is different in every season. In the rainy season, climate factors that influenced on Malaria incidence are wind direction and wind velocity, meanwhile in the dry season, climate factors that influenced are temperature and humidity.

Keywords: malaria, rain, temperature, humidity, wind.

The impact of climate variability on dengue cases In Bandar Lampung city, Lampung Province

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Introduction: Dengue Haemorrhagic Fever (DHF) is a fever disease cause of Dengue virus (DENV) infected by *Aedes aegypti* and *Ae. albopictus* mosquito. The environment factors, especially climate are very influential to its spreading and occurrence, and it would be very possible if it occurs in Bandar Lampung City.

Materials and Methods: The data on the number of dengue cases per month for 7 years (2006 – 2012) were taken from the Department of Health of Lampung Province, meanwhile climate data (rain fall, rain day, temperature, and humidity) were derived from the Meteorology, Climatology and Geophysics Agency (BMKG). In this research linear regression was used to determine the dominant factors related to the number of dengue cases.

Results: In the rainy season in January until April period, there is no climate factor that influenced on DHF cases. In the dry season in May until October period, air humidity is the dominant factor on DHF cases. The increase of 1 point of air humidity will increase 4 DHF cases [regression coefficient (β) = 3,847; $p = 0,035$]. In the rainy season in November until December period, rain fall is the dominant factor on DHF cases. The increase of 2,98 mm³ of rain fall will increase one DHF case [$(\beta) = 0,335$; $p = 0,023$].

Conclusions: In short this research concludes that the impact of climate variability on dengue cases in Bandar Lampung City is different in every season. In the dry season, climate factor that influenced on DHF cases is air humidity, meanwhile in the rainy season in November until December period, climate factor that influenced is rain fall.

Keywords: DHF, climate, rain, temperature, humidity.



RCC - arthritis rheumatoid for prevent and decrease of artritis rheumatoid incidence in the rural communities

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Arthritis Rheumatoid is an autoimmune disease that causes chronic inflammation at joints which the disease characteristic is very progressive and attack all ethnicities and ages. Generally, public society considers that Arthritis Rheumatoid is undangerous disease, so that disease is ignored, but the negative effect caused by Arthritis Rheumatoid is serious condition, which Arthritis Rheumatoid can lead to disability, so that disease need to get an attention.

Arthritis Rheumatoid has a wide range of distinctive characteristics among patients with Arthritis Rheumatoid in a rural location which is 1.14 times more than patients in urban areas, this is caused by several factors including public knowledge is low, a low level of public economic and the other community factors. The method to prevent and decrease of arthritis rheumtoid in rural areas is increased the knowledge through rural community empowerment to form the RCC - Arthritis Rheumatoid (Rural Community Care Arthritis Rheumatoid).

The methodology using by the literature, is the critical analysis of the discussion of a topic that has been written by researchers or scientists in a variety of sources. Based on a literature review has been done, there are the impact of the programs and activities of RCC - Arthritis Rheumatoid in alternated the knowledge, attitudes, behavior and the ability of rural communities to take precautions against Arthritis Rheumatoid by IEC (information, education, communication) method in the form of counseling, training, and deployment of health media. With the programs and activities of RCC-Arthritis Rheumatoid, we are expected that rural communities have extensive knowledge for solve the problems related to Arthritis Rheumatoid.

Keywords: RCC, Artritis Rheumatoid, Ural Communities.



The epidemiological features of HIV infection in the Kharkiv region. Epidemiological situation of HIV - infection in Kharkov region, Ukraine

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Introduction: The current epidemiological situation of HIV infection in Ukraine remains high. Epidemic process is characterized by uneven spatial distribution of infections continues its spread among high risk of infection. The aim of study was to evaluate the epidemiological situation of HIV infection in the Kharkiv region .

Materials and Methods: According to official figures retrospective epidemiological analysis of HIV infection in the Kharkiv region in 2011-2012.

Results: In the Kharkiv region HIV incidence in 2012 increased compared to 2011 and amounted to 21.7 and 20.8 per 100,000 persons, but was 1.9 times lower than in Ukraine , where it was registered 41.8 cases per 100,000 persons. In the age structure of the two-third of HIV-infected persons were aged 25 - 49. , the proportion of which ranged from 71.9% in 2011 to 70.7 % in 2012. It was noted an increase in the proportion of children under 14 years from 16.9 % in 2011 to 17.6 % in 2012 , and adults aged 50 and older from 2.1% in 2011 to 4.4% in 2012. Apparently, this was due to the age structure of the dominant modes of transmission HIV infection. In 2012, 39.4 % of cases, whilst in 2011, 33.2% of infections occurred through sexual contact , including 3.9 % of cases in 2012 and 5.3 % of cases in 2011 were associated with unprotected sex between men . Parenteral transmission was 38.9 % of reported cases in 2012 and 46.7 % of cases in 2011. HIV transmission from mother to child during pregnancy was 17.6% and 16.9 % of cases in 2012 and 2011 respectively. Do not set the transmission path, on average 3.7 % of cases. Most (58.7%) reported HIV infections were men .

Conclusions. In Kharkiv region, there is a tendency to increase epidemic process of HIV infection. Most risk groups are young adults of working age . The epidemics is concentrated among behavioral risk groups - female sex workers ,homosexuals, injection drug users. Activation of sexual transmission of HIV can lead to the spread of infection in the general population , so the program of HIV prevention should be a key element in preventing the spread of the virus.

The success rate of OCD (Obsessive Corbuzier's Diet) in reducing the prevalence of adolescent obesity on health and non-health students at University of Jember

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Introduction: The prevalence of adolescent obesity is quite high about 3.4 % in 2004 and increased in 2007 to 10.3 % according to *Survei Kesehatan Rumah Tangga (SKRT)*. It caused by a variety of factors. OCD (Obsessive Corbuzier's Diet) become a trend in Indonesia, and has already proved very successful. The purpose of study to know the success rate of OCD in reducing the prevalence of adolescent obesity on health and non-health students at University of Jember.

Materials and Methods: The study used observational and survey method with interview. The sampling method did by incidental sampling with amount of sample in this study all adolescent obesity at University of Jember. It spread in fifteen faculties and split into two figures, health and non-health with amount of sample 25 respondents.

Results: From each 25 respondents obtained the result that the majority of respondents successfully implemented to decrease the prevalence of OCD. It mean that initially obese adolescents than become normal, they are 18 health students respondents (72%) and 17 non-health student respondents (68%). Than obtained the result that a minority of respondents failed to implement OCD, i.e. 7 health student respondents (28%) and 8 non-health student respondents (32%). Respondents expressed as type I obese (BMI > 25,00) as many as 15 health student respondents (60 %) , and 19 non-health student respondents (76 %) . Respondents expressed as type II obese (BMI >27,00) as many as 10 health students respondents (40%), and 6 non-health student respondents (24%).Classification of BMI to the respondent accordance the rules of the Health Department of Indonesian Republic1994.

Conclusions: Based on the results obtained no dominant differentiation between health students figure and non-health students figure with the success rate of OCD they did.

Keywords: adolescent obesity, OCD, student health, non-health students

Association between eating behaviour and overweight proportion on students of SDN Duren Sawit 08 Pagi, Jakarta, January 2013

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Overweight and obesity are the health problems that keeps raising on prevalence and they occur not only in adults but also in children, especially in big cities. The danger of the morbid complications is alarming that it raise an awareness to discover the risk factors to be a basis for prevention. This study aimed to understand the association between eating behaviour and the proportion of overweight and obesity in children. The study used a cross-sectional design and stratified random sampling method. Data collection was done in January 2013 with a total sample of 288 elementary school students which consist of 48 students from each class from grade 1-6 of Sekolah Dasar Negeri (SDN) Duren Sawit 08 Pagi Jakarta. The method used to collect data to assess the subjects' nutritional status categorized as overweight and not overweight was by calculating body mass index (BMI) from antropometric data and eating behaviour data from a questionnaire filled by the parents. The data was then analyzed with chi-square test. The result of this study found out that the proportion of subjects with overweight is 74 students (25,7 %). Subject groups with the habit of eating vegetarian food from healthy food category, green vegetables from traditional food category, chips from snack category, and take away from junk food category shows a statistically significant different overweight proportion.

Keywords: overweight, elementary school students, eating behaviour, breakfast habit, bringing lunch from home habit

The stress and coping of HIV/AIDS patient among woman in Yogyakarta 2013

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Introduction: HIV/AIDS is the one of diseases, which stills a stigma (unaccepted) within society. Recently, the incidence of HIV/AIDS in woman is increasing. Woman with positive HIV / AIDS are more susceptible to get stress. Every HIV/AIDS patient will get experience about the stress reaction. Stress in HIV / AIDS patient can be resolved by the coping. The coping is intended to restore patient confidence to face their life with self-acceptance on their circumstances.

Materials and Methods: The aim of this research is to know the stress and coping of HIV/ AIDS patient among woman in Yogyakarta in 2013. This research is a qualitative research, that used phenomenological study. The method of collecting data is structured interview. The sampling technique used snowball sampling. The number of participants are 6 participants.

Results: The survey results showed the five important subjects; 1) self responses of HIV/AIDS patient when diagnosed for the first time are experiencing psychological response and adaptive psychology response, 2) patient has experienced stress reaction when got the positive diagnosis, 3) the time needed by the patient accepting the condition at that time, ranged between 6 months until 2 years, 4) patient coping effort dealing with stress is joined the friends community , PMTCT program (*Prevention Mother To Child Transmission*), social support, spiritual contemplation, 5) the health worker has a role to provide psychological support.

Conclusions: Participants are expected to continue ARV therapy, maintain the healthy lifestyle, medical check up routinely during the pregnancy, follow the PMTCT program.

Keywords : stress, coping, HIV/AIDS, woman, experience



Depression among medical students in Bali: the role of adaptive ability and locus of control

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Introduction: Adaptive ability is thought to be influenced by type of locus of control (LOC). This study is aimed to assess the relationship between student's adaptive ability and type of LOC with the prevalence of depression among medical students of Udayana University.

Materials and Methods: A cross-sectional analytic study was completed with 284 students from the first to the third grade. Data were collected using questionnaire, the LOC and Beck Depression Inventory (BDI) instruments. Data were analyzed using univariate and bivariate analysis.

Results: The internal LOC is found to be higher among adaptive students (83.1%) than among non-adaptive students (65.6%) ($p=0.003$). In terms of depression prevalence, this study revealed that the prevalence of mild mood disturbance to borderline clinical depression is higher among non-adaptive students (33.8%) than adaptive students (20.0%) ($p=0.0001$). Similarly, non-adaptive students are found to have higher prevalence of moderate-severe-extreme depression (10.4%) when compare to adaptive students (2.3%) ($p=0.0001$). Student's adaptive ability showed weak-positive relationship with type of LOC [$r=0.277$; 95%CI 0.15 – 0.40] and weak-negative relationship with the prevalence of depression [$r=-0.290$; 95%CI (-0.42) – (-0.15)]. The relationship between the prevalence of depression and the type of LOC was moderate-negative [$r=-0.4$; 95%CI (-0.50) – (-0.28)].

Conclusions: Students in non-adaptive category tend to be in LOC-e type and have higher depression level than the students in adaptive category. LOC has stronger relationship with the prevalence of depression than the adaptive ability. These findings can be used to design program aiming at improving student adaptability in order to reduce the prevalence of depression among medical students in Bali.

Keywords: adaptive, locus of control, depression, medical student, Bali

Association between history of pregnancy & early-life nutrition and risk of excess weight in Duren Sawit 08 Pagi Elementary School Jakarta on January 2013

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Introduction: Overweight is a health problem in the world which is neglected and it is now quite common among children, especially school age children. Identification of factors that associate with the occurrence of excess weight still requires further investigation. The purpose of this study was to identify factors associated with excess weight in children related to early life so that prevention can be done.

Materials and Methods: This study uses cross-sectional design. Data collection was conducted in January 2013 by taking samples 288 elementary school students, 48 peoples from each grade, grade 1 to grade 6 in Duren Sawit 08 Pagi Elementary School Jakarta. Excess weight was assessed by anthropometric measurements and calculation of body mass index. Data history of pregnancy and early-life nutrition gained through a five-question in questionnaire. The data were processed by the SPSS software version 11.5 and analyzed by chi-square and Fischer test.

Results: The proportion of children with excess weight reached 25.7 % (74 students).

Conclusions: The results showed that a history of pregnancy and early-life nutrition was not associated with excess weight in school age children. In brief, the proportion of school age children who have overweight is quite high and it was not associated with a history of pregnancy and early-life nutrition.

Keywords: excess weight, school age children, history of pregnancy, early-life nutrition

**The effectiveness of health promotion towards the knowledge level
improvement of elementary school teachers in Jakarta about clinical
manifestations of trichuriasis in 2011**

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Introduction: Trichuriasis is infectious disease caused by *Trichuris trichiura* and become public health problem in densely-populated and bad sanitation areas. Prevention of trichuriasis is influenced by people's knowledge level about the symptoms. To obtain good level of knowledge, health promotion can be given and need to be evaluated. The research purpose is determining effectiveness of health promotion to increase elementary school teachers' knowledge about symptoms of trichuriasis in Jakarta, 2011.

Materials and Methods: The study used experimental design (pre-post study) and included 67 respondents (total sampling). Data is collected on October 12th, 2011 using questionnaire about symptoms of trichuriasis before and after the health promotion.

Results: Respondents consisted of 21 men (31.3%) and 46 women (68.7%) and at least high school graduated. The results show before health promotion, 6 people (9.0%) with good knowledge level, 9 people (13.4%) in adequate level and 52 people (77.6%) in poor level. After health promotion, 16 people (23.9%) in good knowledge level, 23 people (34.3%) in adequate level and 28 people (41.8%) in poor level. Marginal homogeneity test gives p-value <0.001 which means there is significant difference between knowledge before and after health promotion.

Conclusions: Conclusively, health promotion is effective for increasing elementary school teachers' knowledge about symptoms of trichuriasis.

Keywords: elementary school teacher, health promotion, knowledge level, symptoms, trichuriasis



Fluid intake and its relationship with hydration knowledge level among students aged 10-18 years old in Kasih Keluarga Foundation, Pejaten, South Jakarta, 2012

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Introduction: The high prevalence of mild dehydration in Indonesia, 49.5% among teenagers and 42.5% among adults, showed that most of Indonesian people do not have adequate fluid intake. A study by *The Indonesia Regional Hydration Study (THIRST)* in 2009 showed that hydration knowledge among Indonesian people was poor. The purpose of this study was to determine the association between daily fluid intake and hydration knowledge among students aged 10-18 years old.

Materials and Methods: This cross-sectional study was done to 105 subjects in Kasih Keluarga Foundation, Pejaten, South Jakarta, in January 2012. All of the participants were given a questionnaire consisted of 10 hydration questions and daily fluid intake sheet 2x24 hours which had to be filled on Friday and Saturday. From the answers of questionnaire, we classified hydration knowledge into good, moderate, and poor. From the fluid intake sheet, we classified the daily intake into adequate and inadequate based on Indonesian Recommended Dietary Allowance, Angka Kecukupan Gizi (AKG) 2004. Data analysis was done using chi-square test in SPSS version 16.

Results: The result was 52.5% subjects having moderate hydration knowledge. There was significant difference in hydration knowledge between age groups ($p=0.039$). The median value of daily fluid intake was 2.280 (720-5.520) ml and most of the subjects had adequate daily fluid intake (64.6%). There was no significant difference in daily fluid intake between sex and age groups. 84.2% subjects with good hydration knowledge and 71.2% with moderate hydration knowledge had adequate daily fluid intake. From low hydration knowledge group, there were 60.7% subjects having inadequate daily fluid intake.

Conclusion: In this study, there was significant association between daily fluid intake and hydration knowledge in students aged 10-18 years old ($p=0.002$).

Keywords: daily fluid intake, dehydration, students aged 10-18 years old, hydration knowledge

Fertility desires and contraceptive use in patients of Puskesmas Cakung maternity ward

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Introduction: There is a discrepancy between fertility desires of Indonesian women, who generally want to limit the number and space out births, and the use of contraception, which is still low, especially for long-term contraceptives despite that the availability of such contraceptive methods is already known by women.

Materials and Methods: This is a questionnaire-based cross-sectional study administered to women of child-bearing age who came to the maternity ward of Puskesmas Cakung.

Results: There are 57 subjects, most of whom are 20-39 years old housewives with high school education. Those with 1 child plans to space the next child for at least 2 years, while those with 2 or 3 children do not want to have another child. Injectable hormonal contraception is the most widely used method; intrauterine device and sterilization are still unpopular. The use of long-term contraceptives is rare, although the need is high. These findings are consistent with the report of Indonesian Demographic and Health Surveys (SDKI) 2012.

Conclusion: Among patients of Puskesmas Cakung maternity ward, there exists a discrepancy between fertility desires and preferred contraception. The findings call for more research and patient education to meet Indonesia's family planning needs.

Keyword: contraception, family planning, maternal health

Transforming heritage into advantage: knowledge, perception, and attitude of FKUI students toward cam and jamu

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Introduction: Rate of Complementary and Alternative Medicine (CAM) use has significantly increased in the last decade. Jamu is an Indonesian traditional herbal medicine, and is widely used in the country. Efforts have been made to scientifically develop jamu and regulate its use within health care system. This paper aims to identify the factors contributing to jamu development and to measure medical students' knowledge, perception, and attitude toward CAM and jamu.

Materials and Method: This is a cross-sectional study using questionnaire administered to Year 1-3 students of Faculty of Medicine, Universitas Indonesia. A literature review was also done to explore the state of CAM in medicine.

Results: There were 250 respondents. Students generally show positive attitude towards CAM and jamu, but their knowledge is not complete. The majority (68,4%) of respondents had previously known about CAM and 90,4% believe that CAM can be integrated into conventional medicine in the future; 91,6% wants CAM materials to be taught in medical faculties. Year 3 students have better knowledge of CAM and jamu compared to Year 1-2. Almost half (48,4%) of the respondents are also users of CAM and/or jamu themselves; female respondents are more likely to have used CAM ($p=0,006$) and jamu ($p=0,038$). There have already been several government regulations on jamu development and use.

Conclusion: Students are open to the development of jamu as a form of CAM and the government has issued policies supporting jamu, including Jamu Scientification Program. However, more scientific evidence is needed, including clinical trials, before jamu can integrate into mainstream medicine.

Keywords: alternative medicine, complementary medicine, herbals, jamu

