School of Medicine

Walailak University

Telephone: 0-75672701, 0-75672703
Fax: 0-75672702
E-mail: kchartch@wu.ac.th
Homepage: http://smd.wu.ac.th
Neuro-Psychopharmacological Studies the Effects of Barakol, a Traditional Thai Medicine

Noppamars WONGWITDECHA

School of Medicine, Walailak University, Nakhon Si Thammarat 80161, Thailand

(E-mail: wnoppa@wu.ac.th)

Barakol, 3a,4-dihydro-3a,8-dihydroxy-2,5-dimethyl-1,4-dioxaphenalene, is a purified extract from the fresh young leaves and flowers of Cassia siamea, a plant that has been used in Thai traditional medicine for the treatment of insomnia, fever, constipation, diabetes and hypertension. This compound has been reported to have the anxiolytic and antidepressant properties (1, 2). The objective of the present experiments was to investigate the neuropharmacological properties of barakol in social and isolation stress rats.

Keywords: Anxiolytic, antidepressant, barakol
Grant: -
Presented: The 33rd Congress on Science and Technology of Thailand (STT 33) 18-20 October 2007, Walailak University, Nakhon Si Thammarat, Thailand.
Pedicle Morphology of the Lumbar Vertebra in Thais

Pitchanee JARIYAPONG\textsuperscript{1} and Pasuk MAHAKANUKRAUH\textsuperscript{2}

\textsuperscript{1}School of Medicine, Walailak University, Nakhon Si Thammarat 80161, Thailand
\textsuperscript{2}Department of Anatomy, Faculty of Medicine, Chiang Mai University, Chiang Mai 50200, Thailand

(E-mail: jpitcha@wu.ac.th)

**Background:** A detail knowledge of the lumbar pedicle morphology is necessary for the treatment of lumbar instability by spinal fusion with posterior spinal fusion in order to avoid risk complication with adjacent vital structure and fracture of pedicle cortex.

**Objective:** To determine the morphological parameters of the lumbar vertebra of Thais.

**Design:** Descriptive study based on numerical survey.

**Setting:** Bone Collection Unit, Department of Anatomy, Faculty of Medicine, Chiangmai University, Thailand.

**Subjects:** Human skeleton L1-5 pedicle from Thai skeleton, 29 males and 21 females between 35 and 85 year of age.

**Material and Methods:** Horizontal and vertical pedicle diameter, pedicle length, pedicle axis point and transverse angle of L1-5 pedicle were determined and recorded.

**Results:** Results show that the largest horizontal pedicle diameter and transverse angle were found at L5 vertebra. The vertical pedicle diameter and sagittal angle were found at L1 vertebra. The longest pedicle was L3 vertebra. L1-L4 pedicle axis point were found superior to the midtransverse process while L5 pedicle axis point was found inferior to the midtransverse process. Difference in horizontal and vertical pedicle diameter and pedicle length between male and female were found to be statistically significant, whereas pedicle axis point and transverse angle were not different between two groups.

**Conclusion:** Morphological parameter of the L1-5 lumbar pedicle provide the useful information for treatment of lumbar instability by spinal fusion. The present study revealed that horizontal and vertical pedicle diameter and pedicle length were statistically different between male and female, whereas pedicle axis point and transverse angle were not different between two groups.

**Keyword:** Lumbar morphology, lumbosacral instability, spinal fusion

**Grant:** Walailak University

**Published:** Srinagarind Medical Journal 2007; 22(4), 325-32.
Cell Signaling Modifiers as Novel Antidotes for Arsenic-Induced Toxicity

Teeradech SURAMANA¹, John M. MURRAY², Verakit TECHAKITIROJ³, Nikorn DISITSIN⁴ and Palarp SINHASENI³

¹Field of Pharmacology and Toxicology, School of Medicine, Walailak University, Nakhon Si Thammarat 80161, Thailand
²Department of Cell and Development Biology, School of Medicine, University of Pennsylvania, Philadelphia, USA
³Department of Pharmacology, Faculty of Pharmaceutical Sciences, Chulalongkorn University, Bangkok 10330, Thailand
⁴The Institute of Health Research, Chulalongkorn University, Bangkok 10330, Thailand

(E-mail: steerade@wu.ac.th)

Contamination of drinking water with arsenic has created health problems (skin cancer and internal cancers) in a number of countries including Thailand. The mechanisms of were studied. We used epidermal growth factor receptor (EGFR) inhibitor (4,5-dianilophthalimide), phosphatidylinositol 3-kinase (PI3K) inhibitor (wortmannin), Rho kinase inhibitor (HA1077) and MAPK inhibitor (PD098059) in our studies. The effects of arsenic on the actin cytoskeleton and vinculin in mouse fibroblasts (Balb/c 3T3) were studied by immunofluorescence microscopy and confocal microscopy. MAP kinase expression especially SAPK/JNK and p38 MAP kinase were studied by immunoblotting assay. We also used FTIR spectroscopy to investigate the toxic effects in arsenite-exposed rat spleen cells. Lamellipodia were formed (Rac activation) when fibroblasts were exposed to arsenite at 5 µM for 16 hours. At 25 µM arsenite caused a severe loss of filamentous actin (F-actin) and vinculin and most cells became rounded but these toxic effects can be blocked by EGFR and PI3K inhibitors. We also found that arsenite can cause FTIR spectra shift of amide bands in arsenite-exposed rat splenocytes in dose-dependent manner but this toxic effect can be completely blocked by Rho kinase and MAPK inhibitors. The inhibitors that work through EGFR and PI3K signaling pathway related to Rho proteins should be developed as novel antidotes for arsenic-induced toxicity.

Keywords: -
Grant: -
Thalassemia Prevention in Nakhon Si Thammarat: A Public Opinion Survey in Secondary School

Wimonman SRIROONGRUENG and Suthon BOONLAOR

1School of Medicine, Walailak University, Nakhon Si Thammarat 80161, Thailand
2Pakphanang School, Pakphanang, Nakhon Si Thammarat 80140, Thailand

(E-mail: swimonma@wu.ac.th)

Due to its excessive cost thalassemia management is a major health care problem in Thailand. The proposed thalassemia prevention project for Nakhon Si Thammarat Province is based on prevention of marriages between carries who are high risk to have thalassemic children. This could be achieved by carries screening and counseling of teenagers and adolescents well before they select their partners. We described the nature of thalassemia diseases to students after that we had a public opinion survey in Paagpanung School in 129 Matthayom Suksa 1 (grade seventh) students. They were 78 females and 51 males which accounted for 60 % and 40 % respectively. Most of students were Buddhism, accounted for 99 %. There were only 1 % of the students knew that they were carries, 35 % knew that they were not carries, 53 % and 64 % of the students had not jet been investigated about thalassemia screening. 86 % of the students wanted to have carries screening and 92 % of the students wanted their partners to have carries screening. Concerning partner selections and marriages students would like to have thalassemia risk-free marriages by marriages people who are non-carriers and some students chose not to marry, account for 37 % and 6 % respectively. The rest of 57 % of the students thought that marriages were up to their fate. 93 % of students wanted to have prenatal diagnosis of thalassemia. If they had thalassemia fetus, 67 % of students wanted to carry on their pregnancy and these were due to their Buddhism because they would not kill any animals to avoid the sin. Therefore thalassemia therapy by bone marrow or stem cell transplantation should have been developed to cure thalassemic children in the hospital in each province. When people have knowledge about thalassemia diseases, they have strong desire to have carries screening for themselves and their partners. Therefore carries screening and genetic counseling for teenagers should be available in the population. Prevention of marriages between carries would reduce the amount of new-born thalassemic patients. To give information about burden in treatment of thalassemic patients will increase awareness in suffering of having thalassemic children to carrier. This may increase the percentage of carriers who marry non-carriers.

Keywords: Thalassemia, prevention, Nakhon Si Thammarat, opinion survey
Grant: -
Presented: The 1st National Congress on Stem Cell Research, 5-6 July 2007, Bangkok, Thailand.