Comparison of Blood Lactate Levels in Patient with and without Tourniquet in BhumibolAdulyadej hospital

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Background: Nowadays in the process of blood collection in Thailand, blood lactate could be measured from venous blood sampling without using a tourniquet. Though, blood lactate drawn without the use of the tourniquet is often impractically to obtain due to both resources and time constrains. A few studies emphasized that tourniquet using appears to have no impact on measured lactate levels; however, there was currently limited data as well as limited numbers of samples.

Objective: This study aimed to compare blood lactate level with and without tourniquet using during venous blood drawing

Material and methods: A Prospective cohort study was carried out on emergency department patients whose clinical presentation led a physician to order a lactate level. After the patients were selected by inclusion and exclusion criteria of this study and informed consent was written, there were two type of blood specimen that was collected with and without tourniquet using for each patient and was sent to the laboratory together. The pair of blood lactate results were recorded and analyzed by SPSS program.

Results: 101 patients were consented and enrolled. The mean age was 69 and there mainly had two or more in qSOFA score (63 %). The mean level of clinical blood lactate of patient with and without tourniquet use during venous drawing was 3.40 mmol. / L and 3.38 mmol./L. There was no difference between paired lactate values (P>0.05).

Conclusion: Our results suggest that venous blood drawing regarding tourniquet using or not have no impact on blood lactate level. Therefore, the common practice of blood lactate drawn in Thailand should be reconsidered in order reduce the time and saving the cost of these monitoring.

Keyword: Blood lactate level, Tourniquet use, and Thai patient

Factors Related with Length of Stay More than 8 Hours at The Emergency Department of BhumibolAdulyadej Hospital

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Background: Emergency department plays an important role in patient care. Time is very crucial in the ER. But in today setting, the department is faced with patient overcrowding which leads to other problems, such as patient congestion and decreased working efficiency, which can ultimately result in mistreatment. Since timing is very important, to study the factors that increase the time patients spend in ER can lead to better management and improve the quality of health services.

Aim: To study factors cause the non-traumatic patients to spend more than 8 hours in the emergency room of Bhumibol Adulyadej Hospital.

Material and methods: Patients will be classified into 2 groups of 500 each. One group consists of patients who had spent more than 8 hours, and another, equal to or less than 8 hours in the ER. The data will be collected via medical record and statistical analysis will be performed by logistic regression

Results: Factors that cause non-traumatic patient to spend time more than 8 hours in the ER are: 1) Imaging study (OR 21.612 (95% CI 9.731, 47.990), 2) Arrival time at 16.00-24.00 shifts (OR 2.831 (95% CI 1.670, 4.798), and 3) Specialist consultation (OR 21.699 (95% CI 7.300, 64.501)

Conclusion: Time spent for imaging study, arrival at evening shift (16.00-24.00), and specialist consultation are the leading causes that make the patients spent more than 8 hours in the ER at our institute. Future study should be done to address the specific issues in each factor in order to improve the healthcare system in the ER.

Keywords: length of stay, overcrowding, emergency room

Comparison of Vaginal pH with Cervical Length in the

Second Trimester for Prediction Preterm Birth

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Objective: To find the diagnostic value of combined vaginal pH and cervical length measurement in the second trimester of pregnancy as a preterm birth predictor.

Materials and methods: A descriptive, diagnostic test of 311 singleton pregnant women between 18 and 24 weeks of gestation were measured vaginal pH and cervical length. The cut-off values for vaginal pH and cervical length were defined as 5 and <3 cm.pH-indicator strips were used for vaginal pH andtransvaginal ultrasound was used for cervical length.

Results: The incidence of preterm birth was 37 (11.9%). Alkaline vaginal pH was found 122women (39.23%), shorted cervical length wasfound 61 (19.6%) and both was found 45 (14.5%). Low positive predictive value of vaginal pH (9.84) and short cervical length (14.75) was not significantly in predicting PTL. Buthigh specificity (81.08%) and NPV (88.2) of short cervical length could use to exclude PTL and combine with both cervical length and vaginal pH has better result than cervical length (86.86), (89.37)respectively. Alkaline vaginal pH significantly decreases the oddsof preterm labor (OR=0.72). But short cervical length and combine both increases the odds (OR=1.37), (OR=2.21).

Conclusion: Low risk population, cervical length measurements more than 3 cm at 18-24 weeksgestation, preterm birth is low. Vaginal pH alone cannot be a good predictor for preterm birth. When combined these two parameters, negative result can be good sign to preclude spontaneous preterm birth.

Keywords: Bacterial vaginosis, cervical length measurement, preterm birth, second trimester

Comparison of Pain Reduction by Using Cold Normal Saline after Undergoing Tonsillectomy in BhumibolAdulyadejHospital: A Randomized Controlled Trial

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Objective: The aim of this study, that cold normal saline irrigate was superior to room temperature normal saline irrigation to reduce postoperative pain in patient after undergoing tonsillectomy.

Material and methods: In this randomized double blind controlled trial, 40 patients undergoing tonsillectomy in BhumibolAdulyadej Hospitalwas randomized into 2 groups, 20 patients were assigned to treatment group who received cold normal saline irrigate, while the remaining 20 patients were assigned to control group who received room-temperature normal saline irrigate. By using Postoperative pain questionnaires (Visual analog scale) after undergoing tonsillectomy at 4,8,12, 24 hours & after treatment in 1, 2, 3 day and Additional pain control medication, length of hospital stay were recorded

Results: Postoperative pain in 4, 8, 16, 24 hours and in first day after tonsillectomy of intervention group who received cold normal saline irrigate were significant less pain than controlled group (p<0.05). However, according to the postoperative pain in 2, 3 days, number of patient who need additional pain control medication, postoperative bleeding and the length of hospitalization between two groups are not appreciably different (P-value>0.05).

Conclusion: Postoperative cold normal saline irrigate can decrease postoperative throat pain in 24 hours and in first day after tonsillectomy. However, there is no effect in number of patient who need additional pain control medication and the length of hospitalization.

Keywords: tonsillectomy, pain, normal saline irrigation

Comparison Rate of Hospitalization between Noninvasive Ventilator and Standard Medical Therapy in Acute Asthmatic Attack in Emergency Department, BhumibolAdulyadej hospital, RTAF

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Background: Noninvasive ventilation (NIV) has a greater role in the management of patients with acute respiratory failure recently, especially in management of exacerbation of chronic obstructive airway disease which has pathophysiology similar to asthma. However, its efficacy in treating patient with acute asthmatic attack is not well defined.

Objective: The purpose of this study was to compare the rate of hospitalization between applying NIV to standard medical therapy and standard medical therapy alone in the patients with acute asthmatic attack.

Material and methods: The patients were randomized to receive standard medical therapy combines with NIV or standard medical therapy alone. The primary outcome was the rate of hospitalization. The secondary outcomes were the rate of intubation, duration of hospitalization, doses of bronchodilator and the percentage of change of the peak flow. The inspiratory positive airway pressure (IPAP) and expiratory positive airway pressure (EPAP) started at 10 cmH$_2$0 and 5 cmH$_2$O. The IPAP was titrated by 2 cmH$_2$O each time (max = 20 cmH$_2$O)

Results: 61 patients who presented with acute asthmatic attack were divided in 2 groups. 30 patients were randomly assigned to NIV plus standard medical therapy and 31 patients to standard medical therapy alone. The intubation rate (control = 0%, NIV = 0% p=NA) was not significantly different between two groups). NIV can decreased hospitalization rate (control = 48.4%, NIV = 30% p=0.142) but not significantly. There was significant improvement in pulmonary function in the group using NIV than another group. The duration of hospitalization (control = 46.8±17.2 hours, NIV =37.9±12.4 hours p=0.024) and doses of bronchodilator (control = 31.2±13.6 times, NIV = 25.1±8.8 times p=0.044) were significantly decrease in the NIV group.

Conclusion: The applying of NIV to standard medical therapy can decrease rate of hospitalization but not significantly.   NIV significantly shortened the duration of hospitalization, decreased doses of bronchodilator and improved pulmonary function. These can be the solution for overcrowding problem in hospital.

Keywords: acute asthmatic attack, noninvasive ventilation, NIV, bronchodilator

Prevalence and Adverse Pregnancy Outcomes of

Gestational Diabetes Detected by Two Methods of Screening

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Objective: To compare the prevalence and pregnancy outcomes in women diagnosed with gestational diabetic mellitus (GDM) by Carperter-Coustan(CC) criteria (old criteria) and new gestational diabetes by the International Association of the Diabetes and Pregnancy Study Groups (IADPSG)criteria.

Material and Methods: A retrospective study was carried out by reviewing medical record of 900 pregnant women from January 2012 to June 2013 using criteria and in 900 pregnant women from January 2015 to December 2015 using IADPSG criteria between 24-28 weeks gestation. Both groups were similar in therapy and follow up protocol.

Results: IADPSG criteria increased the prevalence of gestational diabetic mellitus diagnosed to 15.3% compared with 11.3% by CC criteria. Adopting IADPSG criteria was associated with higher rate of cesarean section (P 0.01), reduce birth weight (P 0.027) and increase asymptomatic neonatal hypoglycemia. No significant pregnancy outcomes between diabetes pregnant in both groups.

Conclusions: The adaptations of the IDAPSG criteria for diagnosis GDM would increase but not associated with improve pregnancy outcomes.

Keywords: gestational diabetes mellitus, 50-grams glucose challenge test, 75-gram glucose tolerance test

Accuracy of New Formulation Using Combined 3-D Cross Sectional Area of the Umbilical Cord with 2-D Sonographic Femur Length and

Biparietal Diameter for Birth Weight Prediction

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Objective: to generate a new equation for estimation of fetal weight using 3-D cross sectional area of the umbilical cord (UCA) combined with 2-D biparietal diameter (BPD) and femur length (FL), and compares the accuracy of birth weight prediction using new equation with Hadlock's formula.

Material and Method: A prospective, cross-sectional study was conducted. 216 low-risk pregnancies from 37-42 weeks of gestation were sonographic examined within 7 days before delivery. The conventional fetal biometry was collected by 2-D US, and UCA was performed using 3-D US. Data from first 107 pregnancies were used to generate a new equation. The birth weight estimation of the latter 109 cases was then calculated using the new equation. Pearson's correlation, Paired t-test and intraclass correlation coefficient (ICC) were used for data analysis.

Results: Birth weight estimation equation was generated; birth weight (grams) = − 2414.2 + 23.12BPD + 22.97FL + 1009.03UCA; and validation of this equation was done. UCA-BPD-FL equation and actual birth weight were correlated ($r = 0.807$). The mean percentage error (PE) was 0.025 with absolute percentage error (APE) was 8.05%.

Conclusion: The new equation using UCA, BPD, and FL shows a good correlation with actual birth weight, and is more accurate than the Hadlock's formula.

Keywords: cross-sectional area of the umbilical cord, 2-D ultrasonography biometry, estimated fetal weight

Metabolic Disturbances in the First Seizure with Fever:

Study of Children in Thai Hospital

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Background: Seizure with fever is common neurological manifestation in children. The most common cause is febrile seizure. In almost all cases, clinical practice includes laboratory investigation. In spite of multiple studies, no evidence suggests routine blood studies improve pediatric diagnosis.

Objective: Determine association between metabolic disturbances and first seizure with fever in children.

Material and methods: Retrospective descriptive study consisting of review of children admitted with first seizure with fever, 3 months to 6 years, between January 1, 2012, and December 31, 2016. Demographic and clinical data, etiology of fever, characteristic of seizure, metabolic laboratory investigations and cerebrospinal fluid profiles were collected. Statistical significance was set at $p < 0.05$.

Results: The study included 319 children, median age 1.3 years (range 0.17 to 5.83 years). Respiratory tract infection (58%) was the most common etiology of fever. Abnormal laboratory results included anemia for age (25.1%), hyponatremia(24.7%), hypocalcaemia(2.3%) and metabolic acidosis (88.1%). Complex febrile seizure was found in 53 cases (16.7%). Comparing simple febrile seizure with complex febrile seizure, statistical significance between the two groups was found only with respect to delayed development and family history of febrile seizure or epilepsy in first degree relatives. Age, sex, duration of seizure, and metabolic laboratory test results were not significantly different between these two groups.

Conclusion: The level of metabolic disturbance was not significant associated with the febrile seizure. As a result of this study, laboratory investigations are no longer recommended for all patients, except in the presence of clinically suspicious factors.

Keywords: metabolic disturbances, first seizure, fever, children, Thai hospitalThe

Prevalence of Abnormal Cerebro-Placental Doppler Indices Ratio (CPR) in Hypertensive Disorders of Pregnancy

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Objective: 1. to determine the prevalence of abnormal Cerebro-Placental Doppler Indices Ratio (CPR) in hypertensive disorders of pregnancy.

2. To analyze the association between abnormal CPR and perinatal outcomes.

Material and Method: Across sectional study was conducted from July 2016 to July 2017 at Bhumibol Adulyadej Hospital. 148 singleton pregnancies with hypertensive disorders during 28 to 40 weeks of gestation were enrolled for study. Doppler ultrasound analysis of the fetal umbilical and middle cerebral arteries was performed and the CPR was calculated and interpreted. Patient was followed up till delivery and perinatal outcomes were analyzed.

Results:35.62% (52) of the population in this study showed abnormal CPR. Pregnancies with abnormal CPR had a significantly increase risk of SGA (odds ratio, 3.15; 95% confidence interval, 1.24 to 7.98; p=0.013) and NICU admission (odds ratio, 2.19; 95% confidence interval, 1.07 to 4.47; p=0.030). No significant difference in preterm delivery, non-reassuring fetal heart rate pattern, low Apgar score, hypoglycemia, hypothermia and hyperbilirubinemia.

Conclusion: The prevalence of abnormal CPR in hypertensive disorders of pregnancy was 35.62%. Compared to pregnancies with normal CPR, pregnancies with abnormal CPR was significantly associated with SGA and NICU admission. CPR parameters should be interpreted with caution for assessing the fetal status and prediction of pregnancy outcomes in hypertensive disorders of pregnancy.

Keywords: CPR, perinatal outcomes, hypertensive disorders of pregnancy

Clinical Characteristics of Anaphylaxis in Pediatric Patients at a Tertiary-Care Hospital

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Background: Anaphylaxis is an important allergic reaction because it may cause life-threatening condition. The previous clinical studies in Thailand did not categorize the severity of anaphylaxis. Besides the study in clinical characteristics, severity of anaphylaxis was graded into mild, moderate and severe in this study. The benefit of grading was to elucidate the factors that may influence severity of anaphylaxis, proper management and prevention.

Objectives: To investigate the incidence, clinical characteristics and anaphylaxis grading in pediatric patients at Bhumibol Adulyadej hospital and investigate the factors that related to moderate to severe anaphylaxis.

Material and methods: A retrospective descriptive study was performed in pediatric patients, who were diagnosed as having anaphylaxis and admitted to pediatric department, Bhumibol Adulyadej hospital between January 1st, 2011 and December 31th, 2016.

Results: The incidence of anaphylaxis in pediatric patients was 260 per 100,000 admitted pediatric patients per year between 2011 and 2016. The mean age was 8.61 years (range 0.25 to 15 years). The most common clinical characteristic was skin and subcutaneous symptoms (98.3%). 6.8% was graded as severe anaphylaxis. Cardiovascular symptoms were associated with moderate to severe anaphylaxis (p<0.001). 44.9% of patients had atopic diseases. Asthma was the potential factor for moderate to severe anaphylaxis (p<0.001). No death was found in this study. Recurrent of anaphylaxis was 15.3%. Biphasic anaphylaxis was 28.4%. Delayed administration of epinephrine was associated with biphasic anaphylaxis (p<0.001).

Conclusion: Patients who had asthma and cardiovascular symptoms were associated with moderate to severe anaphylaxis. Delayed administration of epinephrine was associated with biphasic anaphylaxis. These patients should be closely followed after admission. 15.3% of patients had recurrent anaphylaxis. Identifying causes, avoidance of triggers and portable epinephrine carriage together with proper instruction of self-administration are very important in all anaphylactic patients.

Keywords: clinical characteristics, anaphylaxis, pediatric patients, tertiary-care hospital

Pediatric Respiratory Severity Score (PRESS) Evaluates Disease Severity of Respiratory Tract Infection in Children

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Background: Acute Respiratory Infections (ARIs) are commonly found as a cause of morbidity and mortality in children aged below 5 years old. PRESS Score is a simple severity scoring system.Healthcare providers can apply it as a preliminary patient assessment for proper treatments.

Objective: To evaluate PRESS Score as aseverity assessment for pediatric patient with acute respiratory infections.

Material and methods: This is a prospective study from 1st September 2016 to 31st October 2017. The study group includes patients aged 3 months to 14 years old. There are 120 cases diagnosed with ARIs. The use of PRESS Score as an assessment tool has 5 parameters: respiratory rate, wheezing, accessory muscle use, peripheral oxygen saturation (SpO2), and feeding difficulties, and can be classified into 3 groups: mild (score 0 or 1), moderate (score of 2 or 3), and severe (score of 4 or 5). The primary outcomes are sensitivity, and specificity of hospitalization. The secondary outcomes are sensitivity, specificity of ICU admission, mean and standard deviation of duration of oxygen therapy and nebulized bronchodilator.

Results: The admitted regular patients in moderate, and severe group have a sensitivity of 0.94 and a specificity of 0.88, whilst the ICU patients in severe group have a sensitivity of 0.75 and a specificity of 0.66, longer duration for oxygen treatment, and longer duration for nebulized bronchodilator treatment, orderly, and statistically significantly. Furthermore, this system is more reliable than previous respiratory severity score.

Conclusions:PRESS score could predict condition severity and might guide a proper treatment of acute respiratory infection in children.

Keywords: pediatric severity score, respiratory tract infection.

Probiotics Strain Lactobacillus Acidophilus and BifidobacteriumBifidum in the Treatment of Acute Diarrhea in Children:

A Randomized, Double- Blind, Placebo-Controlled Trial

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Background: Despite unproven effectiveness, probiotics combination strain *Lactobacillus acidophilus* and *Bifidobacteriumbifidum*are widely used in the treatment of pediatric diarrhea.

Objectives: To evaluate the effectiveness of probiotics strain *acidophilus andB. bifidum* for the treatment of acute diarrhea in infants and young children.

Material and methods: A randomized, double-blind, placebo-controlled trial was performed in acute diarrheal patients aged 6 months-5years. The primary outcome was the duration of diarrhea. The secondary outcomes included the 48-hour cessation rate, the duration of hospitalization and adverse effects.

Results: Ninety-five patients completed the study, 47 in probiotic group and 48 in placebo group. The mean duration of diarrhea was 37.28 hours in probiotic group and 50.67 hours in placebo group (mean difference 13.39 hours; 95% CI 5.73-21.05, *P* 0.002). The 48-hour cessation rate in probiotic group was 85.1% vs. 41.7% in placebo group (*P*<0.001). By subgroup analysis in rotavirus-positive patients, the mean duration of diarrhea was 39.84 hours in the probiotic group and 51.29 hours in the placebo group (mean difference 11.45 hours; 95% CI 1.04-21.86, *P* 0.027) and the 48-hour cessation rate was 84.21%, 37.5% in the probiotic group, placebo group respectively (*P* 0.002). The mean duration of hospitalization was 15.09 hours shorter in probiotic group (95% CI 3.32-26.85, *P* 0.013). No adverse effects were found in both groups. The cost of treatment among 2 groups was not significantly different (*P* 0.451).

Conclusion: Probiotics strain L. Acidophilusand B.Bifidum are effective adjuvant therapy for the treatment of acute diarrhea in infants and young children.

Keywords: Probiotics, L.Acidophilus, B. Bifidum,acute diarrhea,