

การประชุมวิชาการทางการแพทย์ประจำปี 2565
โรงพยาบาลภูมิพลอดุลยเดช กรมแพทย์ทหารอากาศ

การประชุมวิชาการทางการแพทย์ประจำปี 2565 โรงพยาบาลภูมิพลอดุลยเดช กรมแพทย์ทหารอากาศ ได้จัดให้มีการประกวดการนำเสนอผลงานวิจัยของแพทย์ประจำบ้านแบบ oral presentation และการนำเสนอผลงานวิจัยทางการแพทย์แบบ free paper ของแพทย์ประจำบ้านและบุคลากรทางการแพทย์ โดยมีวัตถุประสงค์เพื่อพัฒนาความรู้ของแพทย์ พยาบาล บุคลากรทางการแพทย์และนิสิตแพทย์ให้เกิดการศึกษาย่างต่อเนื่อง การแลกเปลี่ยนความรู้ทางวิชาการ และประสบการณ์ในการดูแลรักษาผู้ป่วย

ในการประชุมครั้งนี้แพทย์ประจำบ้านส่งผลงานเข้าประกวดจำนวน 27 เรื่อง การตัดสินใจโดยคณะกรรมการใช้เกณฑ์ระเบียบวิธีวิจัย (Methodology Research) และประโยชน์ทางคลินิกต่อผู้ป่วย (Clinical used) มีผลงานเข้ารอบประกวดการนำเสนอผลงานวิจัยของแพทย์ประจำบ้านจำนวน 10 เรื่อง และการนำเสนอผลงานวิจัยทางการแพทย์แบบ Free paper ของแพทย์ประจำบ้านและบุคลากรทางการแพทย์จำนวน 26 เรื่อง

ดิฉันในนามของศูนย์วิจัยและพัฒนาสิ่งประดิษฐ์คิดค้นทางการแพทย์ โรงพยาบาลภูมิพลอดุลยเดช กรมแพทย์ทหารอากาศ ขอขอบคุณผู้นำเสนอผลงานทางวิชาการทุกท่าน ที่ได้กรุณาเสียสละเวลาอันมีค่ามาให้ความรู้ ข้อคิดเห็นและประสบการณ์ในงานวิจัย ขอขอบคุณคณะกรรมการตัดสินการประกวด คณะกรรมการและเจ้าหน้าที่จัดประชุมวิชาการและฝึกอบรม โรงพยาบาลภูมิพลอดุลยเดช กรมแพทย์ทหารอากาศ เจ้าหน้าที่ผู้เกี่ยวข้องและผู้ให้การสนับสนุนทุกท่าน ดิฉันหวังเป็นอย่างยิ่งว่าการนำเสนอผลงานวิจัยในครั้งนี้จะเป็นประโยชน์แก่ทุกท่าน และสามารถนำความรู้ที่ได้ไปเป็นแนวทางในการพัฒนางานทางวิชาการของตนเอง หน่วยงานรวมทั้งพัฒนาประเทศไทยต่อไปในอนาคต

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ประธานกรรมการศูนย์วิจัยและพัฒนาสิ่งประดิษฐ์คิดค้นทางการแพทย์

โรงพยาบาลภูมิพลอดุลยเดช กรมแพทย์ทหารอากาศ

ผลงานวิจัยทางการแพทย์

**Quality of Chest Compression between One Minute Versus Two Minutes
Rotation During Cardiopulmonary Resuscitation in COVID-19 Pandemic
with Personal Protective Equipment, at Emergency Department of
Bhumibol Adulyadej Hospital**

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Background : During the global COVID-19 pandemic, which transmitted through respiratory droplets. The healthcare workers were recommended to use of personal protective equipment (PPE) during chest compression. The previous studies showed that the higher rescuer's fatigue scores when equipped PPE in comparison to when equipped without PPE. Therefore, it was assumed that chest compression when wearing PPE may impact the quality of chest compression.

Objective : To compare the quality of chest compression with wearing PPE level C between alternating rescuers in performing one-minute and two-minute rotation of chest compression.

Methods : This randomized crossover simulation study was conducted at Emergency Department of Bhumibol Adulyadej Hospital. The emergency medicine residents and nurses were enrolled and randomly grouped them into pairs to perform 8 minutes of chest compression with PPE level C, performing both the one-minute and two-minute rotation after rest for 60 minutes. The primary outcomes were qualities of chest compression. The secondary outcomes were rescuer's vital signs and fatigue scores. All statistical analyses were performed using STATA version 14.

Results : The 90 participants were recruited. Compared with participants in two-minute group, participants in one-minute group had significantly higher mean (standard deviation, SD) compression depth (mm.) (54.73 ± 3.14 vs 54.24 ± 2.93 , $P=0.003$), percent of adequate depth compression (SD) (79.66 ± 19.94 vs 74.84 ± 20.22 , $P=0.005$) and percent of fully chest recoil (SD) (31.75 ± 17.06 vs 26.55 ± 16.39 , $P=0.009$). The participants in one-minute group had significant less fatigue score (p -value <0.05)

Conclusion : One-minute rotation of chest compression with wearing PPE was more effective than two-minute group, in term of chest compression depth, percent of adequate compression depth, and percent of fully chest recoil. The rescuer's fatigue scores were lower in oneminute group.

Keywords : *Personal protective equipment, Cardiac arrest, Cardiopulmonary resuscitation*

Factors Related to Fear of Falling in Elderly Patients of Bhumibol Adulyadej Hospital

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Background : Fear of falling is a serious problem in the elderly. The activities in daily life are limited when the elderly is not confident in moving, standing and walking. The fear of falling is also part of the cycle of falling problems in the elderly. Therefore, the fear of falling negatively affects the quality of life of the elderly both physical, mental and social health.

Objective : The purpose of this study was study factors associated with the fear of falling in elderly patients.

Design : Case control study.

Material and Methods : Data were collected from 180 elderly people aged 60 years and over who received treatment at Bhumibol Adulyadej Hospital by quota sampling. They were divided into 90 people with fear of falling groups and 90 people without fear of falling groups by using a questionnaire. SPSS program was used to analyze frequency, mean \pm SD, Chi-square statistic, Independent simple T-test and Binary logistic regression with statistical significance at p-value <0.05.

Result : The factors associated with fear of falling included orthostatic hypotension symptoms (OR=10.601, 95 %CI=3.73-30.13), History of fall in the previous year (OR=2.718, 95 %CI=1.19-6.23) and impaired balance (OR=3.079, 95 %CI=1.33-7.15).

Conclusion : Study results can be utilized for access the elderly care to reduce factors that contribute to the fear of falling, including history taking and providing care for orthostatic hypotension, fall prevention, physical and mental rehabilitation after a fall and exercises to practice good balance.

Keywords : *fear of falling, elderly, fall*

Attitudes and Willingness to Attend Cardiopulmonary Resuscitation Training and Intervene Out-of-Hospital Cardiac Arrest (Non-Health Care Worker in Royal Thai Air Force Area)

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Background : Out-of-hospital cardiac arrest (OHCA) is a major cause of mortality worldwide. The American heart association (AHA) publish guidelines for sudden cardiac arrest and chain of survivor to improves the chance of survival and recovery for victims of sudden cardiac arrest.

Objective : To compared the attitudes and willingness to attend cardiopulmonary resuscitation (CPR) in OHCA, before and after training basic life support (BLS) and to study the major reason to not performed the CPR in OHCA in general population.

Methods : This is an experimental study involving a total population of 131 people. They were trained the BLS course in the Royal Thai Air force area in Don Mueang. The questionnaire was used to ask samples about the attitude and willingness to attend the CPR in OHCA, before and after trained as a primary outcome, and the major reason to not performed the CPR as a secondary outcome. Data were analyzed using the pair T-test.

Results : Attitudes and willingness to attend CPR compares between before and after training BLS is 7.90 ± 2.39 and 9.03 ± 1.34 , the P-value of < 0.001 . The major reason to not performed the CPR are the lack of experience and confidence, fear of harming the victim, lack of knowledge and skill, and fear of legal trouble.

Conclusion : Training the BLS is an important program to improve attitude and willingness to perform CPR in OHCA and early CPR in general population will increase a victim's survival chance. This program should be widely informed to all people to enhance the survival chance of patients with sudden cardiac arrest outside the hospital.

Keywords : *Attitudes and willingness, Out-Of-Hospital cardiac arrest (OHCA), basic life support (BLS)*

The Comparative Study on the Length of Stay of Patients with Alcohol Withdrawal Syndrome Treated with Vitamin C with Standard Treatment and Another Group with Standard Treatment Alone in Bhumibol Adulyadej Hospital

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Background : The guideline for the treatment of patients with alcohol withdrawal syndrome at Bhumibol Adulyadej Hospital has been carried out by giving Vitamin B Complex. According to the United Kingdom's guidelines, a combination of vitamin C and vitamin B complex has been used to treat patients with an alcohol withdrawal syndrome. However, the treatment for patients with alcohol withdrawal syndrome by using vitamin C is not yet available in Thailand. Therefore, the researcher decided to employ vitamin C combined with vitamin B complex to treat patients with alcohol withdrawal syndrome and hoped that the treatment can reduce the length of stay in a hospital.

Objective : The objective of this study was to compare the length of stay of patients with alcohol withdrawal syndrome treated with intravenous vitamin C and standard treatment and another group with placebo and standard therapy.

Method : This study was a randomized control trial, double-blind in diagnosed patients with alcohol withdrawal syndrome in the emergency room at Bhumibol Adulyadej Hospital from April to November 2021. Patients were randomly divided into 2 groups: those receiving 500 mg of intravenous vitamin C every 8 hours for 2 days along with standard treatment and those receiving placebo and standard treatment.

Result : 24 randomized populations were divided into two groups: the first group of 12 patients with alcohol withdrawal syndrome treated with intravenous vitamin C and standard treatment and the second group of 12 patients treated with placebo and standard treatment. There was no statistically significant difference in the length of stay between 3.5 days in the group receiving vitamin C and 4 days in the group receiving placebo (p-value = 0.858).

Conclusion : According to the result analysis, it was found that the treatment with intravenous vitamin C and standard treatment compared with the treatment with placebo and standard treatment did not reduce the length of stay in a hospital.

Key words : *Vitamin C, Alcohol withdrawal syndrome, Alcohol*

The Comparison of Rapid Sequence Intubation (RSI) Drug Calculation Time Between The RSI Dosing Chart Method and Using an Application Method

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Background : Rapid sequence intubation (RSI) is the method of choice in emergency department (ED) for airway management, which are common problem in the emergency room and need to be dealt with instantly to prevent further complication. Rapid sequence intubation (RSI) is intubating procedure with immediate unresponsiveness using inducing agent and neuromuscular blocking agent which are different in dose, therefore it came to find a method that calculates to get the right amount of medication in shortest period.

Objective : To determine the fastest way to calculate the drugs agent used for Rapid sequence intubation (RSI) at Emergency room, Bhumibol Adulyadej Hospital.

Methods : This was a single center, prospective cross-sectional study involving a total of 29 population who met the inclusion criteria. There were 19 patients in group of using dosing chart method and 10 patients in group of using application calculation the data were recorded by Emergency Resident at Emergency room, Bhumibol Adulyadej Hospital. Data were analyzed using t-test, chi square, fisher's exact test statistic. Statistical analysis was performed by STATA version 15 program.

Results : Drugs preparation time according to dosing chart method were 2.71 ± 0.93 minutes compared to application method 3.63 ± 0.96 minutes which there was statistically significant (p-value 0.019), but after linear regression analysis Coefficient 0.73, (95 %CI -0.10) which result in no statistically significant differences (p-value 0.084).

Conclusion : There were no statistically significant differences of preparation time between the RSI dosing chart method and using an application method.

Keywords : *Rapid sequence intubation, RSI, intubation, induction agent, neuromuscular blocking agent, RSI dosing chart, RSI application*

The Comparison of Outcomes of Out-of-Hospital Cardiac Arrest Before and During COVID-19 Pandemic at the Emergency Room, Bhumibol Adulyadej Hospital

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Background : COVID-19 is an infectious disease that is easily transmitted from person to person. It spreads rapidly through droplets and exposure. Medical personnel is at high risk of getting the infection from taking care of patients. This has led to new guidelines for screening and taking care of patients. Medical personnel has difficulties and unfamiliarity in taking care of patients during the COVID-19 outbreak. Out-of-hospital cardiac arrest (OHCA) may be treated late or ineffective.

Objective : To compare the return of spontaneous circulation (ROSC) of the treatment of patients with non-traumatic out-of-hospital cardiac arrest before the outbreak and during the outbreak COVID-19 at the emergency room, Bhumibol Adulyadej Hospital.

Methods : This study was a cross-sectional analytic study involving a total of 126 patients who met the inclusion criteria. 77 patients in 2019 and 49 patients in 2020 were collected from medical records recorded by physicians who took history, physical examination, and treated OHCA patients. Data were analyzed using chi-square and fisher's exact test. Statistical analysis was performed by the SPSS version 22.

Results : The ROSC was 29.87 % in 2019 and 36.73 % in 2020 (p-value 0.42). The 72-hour survival rate was in 2019 was 11.69 % and in 2020 was 18.37 % (p-value 0.30). The 30-days survival rate was in 2019 at 5.19 % and in 2020 at 2.04 % (p-value 0.65), with no statistically significant difference.

Conclusion : ROSC of out-of-hospital cardiac arrest patients in 2019 or the year before the outbreak of COVID-19 had no difference from the year 2020 or during the post- COVID-19 outbreak at the emergency room at Bhumibol Adulyadej Hospital. Including survival rates at 72 hours and 30 days were not different before and after the COVID-19 outbreak.

Keywords : COVID-19, out-of-hospital cardiac arrest, survival rate, return of spontaneous circulation

Use of LINE Communication to Reduce Treatment Time for STEMI Patient

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Background : STEMI is one of the most emergency & life-threatening condition if the treatment got delay. Use of LINE might be able to reduce treatment time and improve patient's outcome. Objective Compare time from hospital arrival to cardiac intervention of STEMI patients between LINE using and non-LINE using groups.

Methods : Retrospective analytic study compare Door to PCI time of STEMI patients which came to Bhumibol Adulyadej Hospital (BAH) since October 1, 2019 to November 30, 2021 total in 104 patients.

Results : The total number of STEMI patients whom under goes cardiac intervention in this study is 71. 34 were assigned to communication via LINE group and 37 were assigned to communication without LINE group. There was no statistical difference between these group in term of STEMI Door To PCI time : communication via social network group Mean 75.70 min 95 %CI 64.20-87.19 min, were assigned to communication without social network group Mean 88.94 min 95 %CI 73.54-104.33 min (p-value 0.753).

Conclusion : Use of LINE has no effect on time from hospital arrival to cardiac intervention.

Keywords : STEMI, LINE, cardiac catheterization, Door To balloon time

The Effect of Intravenous Tranexamic Acid in Reducing of Blood Transfusion for Upper Gastrointestinal Bleeding Patient

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Background : Upper gastrointestinal hemorrhage is a common emergency problem. In Thailand has a mortality rate from upper gastrointestinal bleeding about 10-15 %. These cases have required resuscitation such as intravenous fluid, blood transfusion. Massive blood transfusion has a chance to blood transfusion reaction and infection from contaminated virus. This 5 study uses tranexamic acid to reduce blood transfusion and mortality rate in upper gastrointestinal bleeding patients.

Objective : This study was compared blood transfusion rate in patients who has received tranexamic acid drug and not received tranexamic acid drug.

Methods : This study was randomized control trial, single blind in upper gastrointestinal bleeding patients, who has been treated at emergency department of Bhumibol Adulyadej Hospital. Since 15 Oct 2021-1 Dec 2021, patients were randomized 1:1. Tranexamic acid group had received tranexamic acid 1gm intravenous slowly push. Placebo group had received NSS 20 ml intravenous slowly push and two groups has a standard treatment, proton pump inhibitor or octreotide drug and blood transfusion.

Results : Of the 104 patients remaining for the evaluation, 52 had received tranexamic acid and 52 had received placebo. In case group has 2 case was referral to another hospital, 1 case was loss follow up. These received tranexamic acid group were 3 unit of blood transfusion, these received placebo group were 3 unit of blood transfusion, not a statistically significant difference (p-value 0.997). Mortality rate in 30 days in tranexamic acid group and placebo group is not a statistically significant difference (odd ratio 0.41, 95 %CI 0.02,5.71).

Conclusion : In this study, compared blood transfusion rate in patients who has received tranexamic acid drug and not received tranexamic acid drug was not different (p-value 0.997).

Keywords : upper gastrointestinal bleeding, tranexamic acid drug, blood transfusion

The Retrospective Cohort Study About Incidence of Rebound Hyperglycemia After The Routine Treatment with 50 % Glucose 25 g. Bolus Then 10 % Glucose 10 g/hr. iv Drip in Hypoglycemic Patients with Diabetes Mellitus in The Emergency Department

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Background : Hypoglycemia in diabetes mellitus patients that used antidiabetic medication is the disease that commonly present in prehospital setting and emergency department. The patients are rapidly diagnosed by the point of care glucose meter and then they will be treated by admitting 50 % glucose 25 g bolus then 10 % glucose 10 g/hr iv drip in almost all level point of care glucose that is the maximum recommend dose, 25 gram. The patients may have the rebound hyperglycemia when follow-up point of care glucose at emergency department.

Objective : The purpose of this study is to investigate the incidence rate of rebound hyperglycemia after treatment in hypoglycemic diabetic mellitus patients that have 3 levels of the point of care glucose (POCT) include POCT <30 mg/dl, POCT 30-50 mg/dl and POCT >51-70 mg/dl group.

Methods : This is the retrospective cohort study of the incidence rate of rebound hyperglycemia after treatment in 30-60 minutes in 314 hypoglycemic diabetic mellitus patients between 1st of March 2020 to 30nd June 2021 who are transferred or treated in emergency department of Bhumibol Adulyadej Hospital.

Results : Total subjects of this study is 314 patients. The incidence rates of rebound hyperglycemia in all groups, POCT <30 mg/dl group, POCT 30-50 mg/dl group and POCT 51-70 mg/dl group are 60.1 %, 54.4 %, 64.2 % and 68.1 % respectively. The P values comparing between POCT <30 mg/dl group to POCT 30-50 mg/dl group and POCT 51-70 mg/dl group are 0.10 and 0.09 respectively.

Conclusion : The incidence rate of rebound hyperglycemia after routine treatment is 60.1 %. However, this study does not significantly found the different incidence rate comparing with the level of initial point of care glucose.

Comparison of Length of Stay in The Emergency Department Between The ESC 0/1-hour and 0/3-hour hs-Troponin-T Algorithm in Patients with Suspected Myocardial Infraction in Bhumibol Adulyadej Hospital

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Introduction : Due to Bhumibol Adulyadej hospital (BAH) adjusted guideline to 0/1-hour hs-Troponin-T algorithm that reference from 2020 ESC guideline for management of acute coronary syndromes in patients presenting without persistent ST-segment elevation.

Objective : To study efficacy and cost-effectiveness of using 0/1-hour hs-Troponin-T algorithm in reducing crowding in the emergency department of Bhumibol Adulyadej Hospital. compared to the original approach.

Methods : Patients with suspected acute coronary syndrome at emergency department (ED) were divided into 2 groups, by randomize review medical records between 1st May to 31st October 2020 for before 0/1-hour hs-Troponin-T algorithm group and between 1st November 2020 to 30th April 2021 for after 0/1-hour hs-Troponin-T algorithm group, 160 and 165 patients per group, respectively. The results of the study were comparison of LoS in ED.

Results : Amount of samples 325 patients, both before and after adjusted for age and chronic kidney disease were found LoS ED of 0/1-hour hs-Troponin-T algorithm group ED significantly shorter. The mean LoS ED for after 0/1-hour hs-Troponin-T algorithm group was 162±73 mins, and 256±141 mins for after 0/1-hour hs-Troponin-T algorithm group; pvalue <0.001, adjust age and CKD; p-value <0.001). Cost of diagnosis in 0/1-hour hs-Troponin-T algorithm groups was significantly lessen (The estimated total cost per patient were 2,048±655 baht for group before used 0/1-hour algorithm and 1,620±417 baht for group after used 0/1-hour algorithm; p-value <0.001 , adjust age and CKD; p-value <0.001).

Conclusions : 0/1-hour hs-Troponin-T algorithm has effectiveness of reducing ED crowning and overall diagnostic cost in ED of BAH compared to using the old protocol.

Keywords : *Acute Coronary Syndrome, hs-Troponin-T, emergency department*

Risk Factors Associated with Pneumonia in Pediatric COVID-19 Patients

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Background : Since the Coronavirus disease (COVID-19) pandemic, the majority of reports have become published data in adults. There are few data on the clinical characteristics of COVID-19 infection and/or COVID-19 pneumonia in children.

Objective : To determine the risk factors associated with pneumonia in pediatric COVID-19 patients.

Method : Between 1 April 2021 and 30 November 2021, an analytical retrospective case control study was conducted at Bhumibol Adulyadej Hospital. Children under the age of 15 who had a COVID-19 infection confirmed by a reverse transcription-polymerase chain reaction (RT-PCR) test were included. The cases were children with COVID-19 pneumonia and the controls were those without COVID-19 pneumonia. Age, sex, clinical manifestations, obesity, co-morbidities and cycle threshold values in RT-PCR were collected in both groups. The odds ratios (OR) and 95 % confidence intervals (95 %CI) were calculated. To adjust for covariates correlated with pneumonia, multiple logistic regression models were performed.

Results : A total of 290 COVID-19 individuals were identified, comprising 145 cases and 145 controls. An increased risk of COVID-19 pneumonia was associated with a high proportion of children under the age of three, as well as fever, diarrhea, and rash. In the multivariate logistic regression model, age less than 3 years old (OR, 3.5; 95 %CI, 2.07, 5.92); and fever (OR 4.23; 95 %CI 2.33,7.86) were attributed with a higher likelihood of COVID-19 pneumonia.

Conclusion : Result identify children under the age of three years old and fever have a higher risk of developing pneumonia when infected with COVID-19.

Keywords : COVID-19, pneumonia, risk factor, pediatric

Quality of Life of Children with Attention Deficit/Hyperactivity Disorder

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Background : Attention-deficit/hyperactivity disorder (ADHD) is one of the most common chronic mental illnesses in childhood and adolescence. There are many impacts of ADHD on children in several domain of quality of life (QoL).

Objective : To determine the QoL of children with ADHD aged 6-15 years.

Materials and Methods : A descriptive cross-sectional study was conducted at Bhumibol Adulyadej Hospital (BAH) between July 2019 and December 2021. Children aged 6-15 years with ADHD were recruited from the child development clinic. The child's parent completed a demographic questionnaire, Thai version of the Pediatric Quality of LifeInventory™4.0 Core Scales (PedsQL): parent-proxy report. The Parenting Stress Index-Short Form (PSI-SF) were also measured. Data of ADHD treatment and comorbidities were collected from medical records.

Results : One hundred and ten children were enrolled. The mean PedsQL score of children with ADHD was 64.9 ± 13.02 . The physical health summary score was higher than the psychosocial health summary score. Children with no comorbidity and behavioral treatment had higher PedsQLscore when compared to those with comorbidity as well as both medical and behavioral treatments. Also, there was higher PedsQL score in children whose parents living with a partner ornot having physical health conditions. Moreover, a statically significant negative relationship was noted between level of parenting stress and child's PedsQL score ($r=0.541$, $p<0.001$).

Conclusion : Children with ADHD have worse psychological rather than physical domain QoL, with the poorest QoL in school functioning. Parental stress was negatively correlated with quality of life in ADHD children. Holistic assessment and care for ADHD children and their families may result in a better quality of life for these pediatric patients.

Keywords : *Quality of life, Attention-deficit/hyperactivity disorder*

Acute Kidney Injury (AKI) in Pre and Post Treatment of 0.9 % Sodium Chloride Solution in Pediatric Shock in Tertiary Center

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Background : Pediatric shock is a life-threatening condition. Pediatric Advanced Life Support (PALS) guideline was recommended administration of large volume intravenous crystalloid solution for treatment of pediatric shock. From other study¹ found that incidence of acute kidney injury (AKI) and hyperchloremic metabolic acidosis after received 0.9 %NaCl, it has been used as the isotonic crystalloid of choice in treating pediatric shock for a long time due to its availability.

Objective : Primary outcome to evaluate the prevalence of AKI in pediatric shock patients that received large volume of 0.9 %NaCl within 48 h. Secondary outcomes to evaluate the prevalence of electrolytes imbalance in pediatric shock patients that received large volume of 0.9 %NaCl and mortality rate.

Materials and Methods : Thirty pediatric shock patients age 3 months to 15 years old, which received large volume of 0.9 %NaCl since 2015 to December 2021, were included in our study. Baseline characteristics and laboratory data : electrolytes data and renal function test at 0, 24 and 48 h. after resuscitation were recorded. McNemar's test was used for calculation of AKI different during treatment. Friedman test was used for calculation of electrolyte imbalance during treatment.

Results : The prevalence of AKI was statistically significant decreased from 0 h. (60 %), 24 h. (23.3 %) ($p=0.003$) and 48 h. (16.7 %) ($p<0.001$). The prevalence of hypokalemia and hyperchloremia at 24 h. was significantly increased after receiving large volume of 0.9 %NaCl resuscitation ($p=0.008$), ($p<0.001$) respectively. The mortality rate was 16.7 % (5/30), four were diagnosed septic shock with three had hematologic malignancy as an underlying disease and one was diagnosed hypovolemic shock.

Conclusion : The prevalence of AKI in pediatric shock patients decreased after receiving 0.9 %NaCl iv resuscitation at 24 and 48 h. Electrolytes imbalance such as hyperchloremia and hypokalemia could be found. Patients with underlying hematologic malignancy had higher mortality rate than other pediatric patients.

Keywords : Shock, Pediatrics, Isotonic crystalloid, Kidney injury

Seroprevalence of Coronavirus Disease 2019 (COVID-19) Infection Among Blood Donors in a Tertiary Care Hospital in Thailand

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Background : In Thailand, five months into COVID-19 from the first report case, low prevalence of 0.0043 % was reported. At that time, reverse transcriptase polymerase chain reaction (RT-PCR) for the SARS-CoV-2 virus was performed only in patients who met the national criteria for COVID-19 PCR evaluation.

Objective : To determine the seroprevalence of SARS-CoV-2 virus in asymptomatic blood donors.

Method : An observational descriptive cross-sectional study was conducted at the Department of Blood Transfusion Service, Bhumibol Adulyadej Hospital (BAH), over a two-month period from September 2020 to October 2020. Voluntary blood donors between the ages of 17 and 70 were included. The remaining aliquot of blood from regular serologic collection was utilized to test for total SARS-CoV-2 antibodies. Those who tested positive for total SARS-CoV-2 antibody were subsequently asked to return to BAH within 7 days for a nasal swap RT-PCR for SARS-CoV-2 viral antigen.

Results : A total of 1,550 subjects were enrolled. During the period of the study, COVID-19 vaccine was not available for the participants in the current study. Only two blood donors tested positive for Anti-SARS-CoV2 antibodies (0.13 %, 95 %CI: 0.04-0.47). The result of an RT-PCR for SARS-CoV-2 antigen using a nasal sample was undetectable. Both individuals had no history of COVID-19 infection, travel to a high-risk country, or confirmed contact with suspected or confirmed COVID-19 patients in the past 3 months.

Conclusion : The seroprevalence rate of healthy blood donor in Thailand during year 2020 was 0.13 percents.

Keywords : *Seroprevalence, COVID-19, SARS-CoV-2*

Complications and Outcomes of Nutritional Guidelines Implementation in Low Birth Weight Infants

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Background : Low birth weight (LBW) infants are at risk of various comorbidities. Necrotizing enterocolitis (NEC) is one of the most disastrous complications of premature infants. From previous studies, using of preterm feeding protocols in neonatal intensive care unit can improve feeding intolerance and decrease NEC risk. The objective of this study was to compare the rate of NEC and other comorbidities between LBW infants who received a BAH proposed standardized feeding protocol and those who underwent previous nutritional practice.

Materials and Methods : A quasi-experimental study was conducted at neonatal intensive care unit (NICU) in Bhumibol Adulyadej Hospital (BAH), Thailand. Participants were LBW newborns delivered at BAH between 1st December 2018 to 31st March 2020. The subject was divided into two groups. The Control group were subjects who underwent previous nutritional practice. The study group was subjects who were implemented with new nutritional guidelines. Primary outcome was NEC rate. Secondary outcomes were preterm complications such as neonatal sepsis, catheter-related bloodstream infection, parenteral nutrition-associated liver disease, osteopenia of prematurity, and intraventricular hemorrhage. Not only complications, feeding achievement outcomes were evaluated in terms of day of life that enteral feeding was started, time to full enteral feeding, number of NPO days, number of days that infant received parenteral nutrition, and day of life when start fortification. Furthermore, other outcomes are growth outcome parameters.

Results : Data were analyzed on 71 infants in the control group and 68 infants in study group. Rate of NEC was not different between control group and study group (7 % in control vs 5.9 % in study, $p=1.000$). However, time to reaching full enteral feeding were shorter in the nutritional guideline group (17.07 ± 10.46 control vs 11.36 ± 10.98 study, $p<0.001$). Day of life when start fortification was significantly shorter in the nutritional guideline group (19.83 ± 13.08 control vs 13.60 ± 7.11 study, $p=0.01$). Other feeding achievement outcomes also improved which evidenced by fewer PN days (11.55 ± 10.32 control vs 7.87 ± 10.36 study, $p=0.038$) and shorter duration of indwelling central line (8.10 ± 4.67 control vs 5.16 ± 4.81 study, $p<0.001$).

Conclusion : Initiation of a nutritional guideline shortened time to full enteral feeding, parenteral nutrition (PN) days, and central line days with an acceptably low rate of NEC to previous protocol.

Keywords : Low birth weight, nutrition, complication

The Assessment of Ultrasound Confirmation of Umbilical Venous Catheter Positioning by Thoracoabdominal X-Ray in Newborns

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Background : Umbilical venous catheter (UVC) is the most common and convenient method of central venous access in sick newborn infants. Thoracoabdominal x-ray (TAX) is the most common and widely used method to confirm UVC position. However, serious complications could be found despite the correct position as seen on TAX which was supported that TAX only might not be adequate to evaluate UVC tip position.

Nowadays, the availability of bedside ultrasound allowed its place in many NICUs and the recent studies had evaluated the superior role of ultrasound in UVC positioning in comparison to the gold standard TAX.

Objective : To evaluate the ultrasound confirmation of umbilical venous catheter positioning by thoracoabdominal x-ray in newborns.

Method : A single-center-based retrospective study. Patients are all neonates admitted in NICU, Bhumibol Adulyadej Hospital who require umbilical venous catheter insertion during November 2019 to September 2021. All UVC insertions were evaluated the position both by thoracoabdominal x-ray (TAX) and ultrasound. The correct UVC tip position were at IVC-RA junction determined by ultrasound. The protocol was approved by the ethic review committee.

Results : By TAX, the estimated correct UVC tip position in IVC-RA junction was 22 from 74 catheter insertions (29.7 %), T8 level had the highest rate of correct position (13.5 %) and the other incorrect positions were the most common at RA (51.3 %). In addition, the result in $\leq 1,500$ and $> 1,500$ g. birth weight newborns were similar which was the percentage of incorrect UVC positioning at 70.5 and 70 % respectively with no statistically significance.

Conclusion : This study supported that the use of TAX alone was not adequate in determining the proper position of UVC tip in neonates. The UVC tip placement accuracy was similar regardless of the birth weight. The use of ultrasound assisted clinicians in the proper placement of the UVC tips by providing appropriate visual anatomical detail in the image.

Keywords : umbilical venous catheter, UVC, newborn infants

Effect of Continuous Rectus Sheath Block on Postoperative Pain and Early Outcomes after Laparoscopic Sleeve Gastrectomy

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Introduction : Laparoscopic sleeve gastrectomy (LSG) has become an effective surgical treatment for patients with morbid obesity. Various regional anesthesia techniques have been shown to reduce postoperative pain and improve overall outcomes. However, the effectiveness of continuous rectus sheath block (RSB) has not been fully established. This study aimed to evaluate the effect of continuous RSB on postoperative pain and early outcomes following LSG.

Methods : A retrospective study using medical record review was conducted on 103 obese patients who underwent LSG from January 2014 to December 2019. Patients were divided into 2 groups: RSB group (n=46) and Non-RSB group (n=57). In RSB group, a nerve block catheter was placed anterior to the posterior rectus sheath by a surgeon during abdominal closure, using a modified intraoperative insertion technique developed at our institution, and a continuous infusion of 0.15 % bupivacaine at a fixed rate of 5 mL/h. was administered via elastomeric infusion pump. The catheter was removed at 48 h. postoperatively. All procedures were performed by a single surgeon using standard five-trocar technique. Both groups received standardized general anesthesia and routine postoperative care under a uniform pathway. Baseline demographic patient characteristics were obtained. Primary outcome was pain score assessed by 0-10 numeric rating scale over the first 48 h. postoperatively. Early outcomes included time to ambulation, length of hospital stay, number of rescue analgesia, postoperative nausea/vomiting, and surgical site complication.

Results : There was no significant difference in age, gender, body mass index, ASA classification, and intraoperative blood loss between RSB and non-RSB groups. Mean operative time was not significantly different between groups (120.24 vs 142.74, p=ns). Mean postoperative pain scores were significantly lower at 2 h., 4 h., 8 h., 12 h., and 24 h. in RSB group compared to non-RSB group (p<0.001) despite no significant difference at 48 h. Mean average pain scores in 24 h. (2.57 vs 4.02, p<0.05) and 48 h. (2.35 vs 2.96, p<0.05) were both lower in RSB group. RSB group had faster time to ambulation (p=0.001), shorter length of stay (p<0.001), and less doses of rescue analgesia (p<0.001) without a statistical difference in nausea/vomiting. No surgical site bleeding or infection was observed in both groups.

Conclusion : Continuous RSB provided a safe and useful modality for postoperative pain management. Our study showed a significant reduction in postoperative pain throughout the first 24 h. in patients with continuous RSB after LSG. In addition to its feasibility, continuous RSB was also associated with improved early postoperative outcomes.

Sublingual Misoprostol Versus Oxytocin to Induce Labor in Term Premature Rupture of Membranes Pregnant Women, A Randomized Single-Blind Controlled Trial

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Objective : The aim of this study was to compare maternal and neonatal outcomes between sublingual misoprostol and oxytocin on stimulating labor in term premature rupture of membranes (PROM) pregnant women.

Materials and method : This randomized single-blind control trial was conducted at Bhumibol Adulyadej Hospital (BAH), Royal Thai Air Force, Bangkok, Thailand. Between September 2020 and February 2021. Subjects were term pregnant women who had PROM and came to BAH for delivery. Participants were allocated into study (misoprostol) and control (oxytocin) groups. The study and control groups were respectively administered sublingual misoprostol and intravenous oxytocin to induce labor. Induction time and second stage of labor were recorded. Neonatal outcomes, maternal and fetal complications were also recorded and analyzed.

Result : A total of 170 women were enrolled and equally divided into study and control groups. Mean maternal age, body mass index, parity, gestational age and bishop score of both groups were comparable. Induction time of the study group was statistically shorter than the control group (338 and 399 min, respectively). Duration of active phase (450/427 min) and the second stage (19/21 min) of labor between study and control groups were not significantly different. Cesarean section delivery rate of study was lower than the control group (13.3 and 28.8 %, p=0.002). Intrapartum complications, neonatal outcomes, intra and postpartum complications among both groups were not significantly differentiated. There was no instance of postpartum hemorrhage or uterine rupture in the present study.

Conclusion : Induction time and cesarean section rates of sublingual misoprostol group were significantly lower than intravenous oxytocin group in full-term PROM pregnancy.

Keywords : *Sublingual misoprostol, oxytocin, labor induction, term premature rupture of membranes, pregnancy*

Comparison Study of Lidocaine and Lidocaine Combined with Metoclopramide for Decreased Episiotomy Wound Pain due to Vaginal Delivery: Randomized Controlled Trial

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Background : Episiotomy is a procedure during parturition for vaginal outlet enlargement and perineal laceration prevention. Local lidocaine infiltration before episiotomy is the most common practice in modern obstetrics. Metoclopramide is an antiemetic drug and has similar molecular structure to lidocaine. Combination of metoclopramide and lidocaine could increase analgesic effect. The aim of this study was to compare lidocaine and lidocaine combination with metoclopramide to decrease pain from episiotomy.

Materials and method : Mean age of study group was significantly older than control group (26.6 and 24.8 years old). GA, BMI, duration of labor, episiotomy repair and EBL of both group were comparable. The study group received a lower pain score compared to the control group with statistical significant at T0 (0.37/0.74), T2 (0.70/1.08), T4 (2.01/2.41) and T6 (1.71/2.13), respectively. There was no episiotomy wound complication nor serious side effects in the current study.

Results : Mean age of study group was significantly older than control group (26.6 and 24.8 years old). GA, BMI, duration of labor, episiotomy repair and EBL of both group were comparable. The study group received a lower pain score compared to the control group with statistical significant at T0 (0.37/0.74), T2 (0.70/1.08), T4 (2.01/2.41) and T6 (1.71/2.13), respectively. There was no episiotomy wound complication nor serious side effects in the current study.

Conclusion : Metoclopramide combined with lidocaine is more effective than lidocaine alone for episiotomy wound pain control.

Keywords : Lidocaine, Metoclopramide, Episiotomy, Pain

Multiple Deep Neck Space Infection in Patient Post-COVID-19 Infection: A Case Report

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Objective : This study reviews our experience with multiple deep neck space infections (DNIs) requiring surgical intervention, including cervical lymph node abscess and ipsilateral unilateral sinusitis.

Material and method : Case report.

Results : Deep neck space infections (DNIs) are a group of severe bacterial infections in potential spaces and fascial planes of the neck. Abscesses, cellulitis and phlegmons can spread along these fascial planes from the skull base to the mediastinum and cause serious and potentially life-threatening complications. (1) Head and neck space infections may be superficial or deep. The latter includes parapharyngeal space abscesses, which form 11 % of deep neck space infections; these are difficult to diagnose early and have a high risk of complications. (2) The masticator space is an important suprahyoid tissue compartment. Infection of the masticator space can break through the fascia and involve the adjacent space. Severe complications including mediastinitis, pericarditis and death have been reported. (3) Deep neck infections are a serious but treatable group of infections affecting the deep cervical space and characterized by rapid progression and life-threatening complications. These infections remain an important health problem with significant morbidity and potential mortality. These infections most frequently arise from the local extension of infections from tonsils, parotid glands, cervical lymph nodes, and odontogenic structures. They classically present with symptoms related to local pressure effects on the respiratory, nervous, or gastrointestinal (GI) tract (particularly neck mass/swelling/induration, dysphagia, dysphonia, and trismus). The specific presenting symptoms will depend on the deep neck space involved (parapharyngeal, retropharyngeal, prevertebral, submental, masticator, etc). (4) Nevertheless, the DNIs remain a continuous challenge because of the significant morbidity and mortality rates. (5-8)

Conclusion : The aim of the study was to examine the management of multiple deep neck space infection a patient post-COVID-19 infection.

Keywords : COVID-19, deep neck infection, Sars-COV-2

Efficacy of Cryotherapy Combined with Local Infiltration Analgesia and Adductor Canal Block after TKA – Pilot Study

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Background : Total knee arthroplasty (TKA) is known to be a very painful orthopedic procedure. Post-operative pain management remains a challenging task for early relief and pain-free after TKA. Adductor canal block (ACB) has become more widely used in recent years and has a promising result. Local infiltration analgesia (LAI) has shown effectiveness on post-operative pain control. Cryotherapy can also reduce pain and swelling. Efficacy of LAI combined with cryotherapy for post-operative pain control remains elusive. The aim of our study is to evaluate the efficacy of ACB in comparison with local infiltration analgesia and cryotherapy for pain control in patients undergoing primary total knee arthroplasty.

Methods : Thirty one patients undergoing surgery for unilateral total knee replacement were collected basic information before surgery. Patients were randomly divided into two groups consisting of postoperative ACB (Group ACB) and local infiltration analgesia combined with cryotherapy (Group CRYO). Morphine consumption at 24-hour postoperative was measured as primary outcome. Then, morphine consumption a 12-hour, 48-hour, 72-hour and Timed Up and Go Test were measured.

Result : The median (interquartile range) 24 post-operative hour morphine consumption was 0 mg. (0-3) in the ACB group and 12 mg. (12-15.25) in the CRYO group, $p=0.001$. The 12 post-operative hour, 48 post-operative hour, and 72 post-operative hour morphine consumption between the ACB group and the CRYO group were 0 mg. (0-1) VS 4 mg. (3.75-6) $p=0.01$; 0 mg. (0-3) VS 20 mg. (15.75-24.25) $p=0.01$; 0 mg. (0-3) VS 20 mg. (18.25-26.75) $p=0.01$. The mean VAS at 12 post-operative hour and discharge date in the ACB group were significantly lower than the CRYO group (1.00 ± 1.69 VS 3.21 ± 0.893 , $p=0.008$; 1.00 ± 0.50 VS 1.29 ± 0.914 , $p=0.016$) respectively. There were no statistically significant differences in the other secondary outcomes.

Conclusion : The ACB group had significantly lower total morphine consumption in the first 24 post-operative hour, 12 post-operative hour, 48 post-operative hour and 72 post-operative hour as compared to the CRYO group. The ACB technique provided better post-operative analgesia outcome than the CRYO group.

Keyword : *adductor canal block, local analgesic infiltration, cryotherapy, pain, total knee arthroplasty*

Open Reduction and Internal Fixation with Calcaneal Anatomical Plate via Subtalar Arthroscopic Assisted Minimal Incision Approach for Displaced Intra-Articular Calcaneal Fractures

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Purpose : The open reduction and internal fixation with Calcaneal anatomical plate via Subtalar arthroscopic assisted minimal incision approach for displaced intra-articular calcaneal fractures is to verify if the method can achieve the operation standard without any wound complication. Since the current standard operation method (ELA) for intra-articular calcaneal fractures can achieve a good result but not without noticeable wound complication. Furthermore, the minimal invasive operation (STA) still has some limitations of joint reduction.

Method : The radiologic data of Bohler's angle, Calcaneal length, height, and width, and posterior facet residual stepping/gapping data were labeled to display the injury conditions. We collected and compared the data of the pre-operation, post-operation, and uninjured calcaneal bone. We collected the Thai FAAM clinical data three and six months after the operation. We collected the wound complication, time to operation, length of the operation, and length of the hospital stay period data. All the data are collected from the patients diagnosed with displaced intra-articular calcaneal fractures Sander classification IIA, IIB, III at Bhumibol Adulyadej Hospital from April 1st, 2019 to December 31st, 2021.

Result : From the post-operation data of twelve suitable candidates, the median (min, max) of Bohler's angle, Calcaneal height, width, Stepping, and Gapping data in order are at 21.34 (16.64, 39.43), 39.78 (34.91, 50.3), 36.41 (29.09, 42.51), 0 (0, 2.36), 1.62 (1.39, 3.32). Which were significantly different from the pre-operation data with $P=0.002$, 0.034, 0.003, 0.004, 0.002 in the same order. By comparing them with the data from the uninjured one, the Bohler's angle was still significantly different from the post-operation with $P=0.01$. The Calcaneal length, height, and width were insignificantly different from the post-operation data. This method can achieve 66.67 % anatomical reduction, 25 % nearly anatomical reduction, and 8.33 % approximately anatomical reduction. The Thai FAAM clinical data after three and six months did have a significant difference only in the point of daily activity. There was no reported serious wound complication. The average day to surgery was $18+6.34$ days, the average length of the operation was $199.92+81.26$ minutes and the average length of the hospital stay was $22.42+12.61$ days.

Conclusion : From the research, we found that the operation performed well in terms of radiological and clinical outcomes without any severe wound complication. This can be applied on operations for patients diagnosed with Displaced intra-articular calcaneal fractures (DIACF) type Sander IIA, IIB, III. Still, the length of operation has to be reduced to be closer to the current method. With the constraints of small sample size, length of the follow-up period, and that we need to compare to more operational methods, more experimental studies are needed to get a more accurate and reliable conclusion for future applications.

Keywords : *Subtalar arthroscopic assisted, Minimal invasive surgery, Displaced intra-articular calcaneal fractures, Bohler's angle*

Coracoclavicular Stabilization with and Without K-wire Augmentation for Acute Acromioclavicular Joint Dislocation: A Comparative Biomechanical Study

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Purpose : High grade dislocation of acromioclavicular (AC) joint is necessary for surgery. However, the best surgical technique currently debates. Now a day, Biomechanics and fixation to restore the coracoclavicular (CC) ligaments together with AC joint augmentation is an interesting topic to discuss for treating AC joint dislocation. The purpose of this study to compare biomechanics of two surgical reconstruction technique between CC stabilization with K-wire augmentation and CC stabilization alone.

Methods : An experimental cadaveric study. Total 16 cadaveric shoulders were assigned in three groups: Native joint, CC stabilization with K-wire augmentation and CC stabilization alone. After surgery, the position of AC joint complex was checked by fluoroscope. The biomechanical strength and stiffness were tested and mode of failure were observed.

Results : Statistically, there was a significant decreased ultimate load in CC stabilization alone compared with K-wire augmentation and native joint (287.74, ราชวิทยาลัยแพทย์ออร์โธปิดิกส์แห่งประเทศไทย 2564:5490;92 and 605.14 N., $p < 0.001$). But the axial stiffness was increased in CC stabilization with K-wire augmentation (15.21, 9.72 and 9.36 N/mm., $p = 0.01$). However, we found no difference in elongation failure between the three groups. Most failure mode of K-wire group was both elongation failure between the three groups. Most failure mode of K-wire group was both K-wire bending and fracture cut through acromion process of scapula (66.7 %).

Conclusion : CC stabilization with K-wire augmentation is a method that improves the strength of AC joint complex compared with CC stabilization alone. Conversely, the stiffness of AC joint complex increases after applies K-wire augmentation. Thus, we recommend CC stabilization with K-wire augmentation that effective technique for treating AC joint dislocation.

Keywords : *Acromioclavicular (AC) joint dislocation, Coracoclavicular (CC) stabilization, AC joint augmentation, Biomechanics*

Efficacy of Cell saver use to minimized perioperative allogeneic blood transfusion in pelvic and acetabulum surgery

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Purpose : Surgical procedures for operative fixation of pelvic and acetabulum fractures are long, complicated with high blood loss. Blood supply in the hospital's blood bank are also high demand and limited for such operations. Also, the risk from the disease transmission and other complications from massive blood transfusion are well established. The use of intraoperative autologous blood transfusion has been known to be able to reduce allogeneic blood transfusion. The purpose of this study is to determine the effectiveness of cell saver in reducing intraoperative blood transfusion during pelvic and acetabulum surgeries.

Methods : This is historical cohort study in single trauma center. We recruited perioperative data in pelvic and acetabulum fractures from 2017 to May 2021. All the cases were operated by single surgeon. The use of cell saver was selected for patients from the surgeon's preference and based on the availability of the system. The cases were divided into two groups, the group which used cell saver and the group that did not. The primary outcome was the comparison. In the volume of allogeneic blood transfusion during the surgery between the two groups. The ratio between the allogeneic blood transfusion and estimated blood loss and other secondary outcomes were also recorded.

Results : Cell savers were used in 22 cases from a total of 116 pelvic and acetabulum surgeries. There was significantly lower volume of allogeneic blood transfusion in the cell saver group (405.35 ± 218.89 vs 1559.21 ± 419.34 ml; $p=0.019$). The ratio between allogeneic blood transfusion and estimated blood loss was also significantly lower in the cell saver group (0.181 ± 0.103 vs 0.439 ± 0.201 ml; $p=0.014$). Estimated blood loss, days to surgery, operation time, pre-post operative hematocrit level and post op blood transfusion were not different in two groups.

Conclusion : The use of autologous blood transfusion from cell saver during operative fixation of pelvic and acetabulum fracture surgeries can reduce intraoperative allogeneic blood transfusion. The limitation of this study is that we were unable to collect symmetrical amount of data between two groups, further study such as a randomized controlled trial is needed to reach a more reliable conclusion.

Keywords : pelvic surgery, acetabulum surgery, cell saver, blood transfusion

Optimal Screw Length in Variable-Angle Locking Plate for Distal Radius Fracture

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Purpose : The distal radius fracture is a common fracture in adult patients. Operative treatment with variable-angle volar locking plate is become increasingly popular and has shown good results. After variable-angle volar locking plate fixation, the most important complication is extensor pollicis longus rupture. Screw penetration of the dorsal cortex is most common cause and may result in tendon irritation and rupture. Therefore, we are interested in optimal screw length for distal radius fracture fixation. The aim of study is postoperative complications prevention.

Methods : 10 pairs of fresh-frozen human cadaver wrist were used for this study. The variable-angle locking plates (APTUS Radius 2.5, Medartis, Switzerland) were positioned to the best anatomical fit and proximal from watershed line 3 mm. We labeled variable-angle locking plate holes with number of screw positions. There were number 1-3 in distal row and number 4-5 in proximal row, arranged from lateral to medial. All screw holes were drilled through dorsal cortex with k-wires. Distal row was drilled 90 degrees perpendicular to variable-angle locking plate and proximal row was drilled 15 degrees distally vertical to variable-angle locking plate. A vernier caliper was used to measure screw length between screw head and dorsal cortex for each hole.

Result : 20 specimens were tested successful. The mean of optimal screw length of No.1 screw was 20.89 ± 1.48 mm., No.2 screw was 22.48 ± 1.38 mm., No.3 screw was 21.51 ± 1.35 mm., No.4 screw was 23.74 ± 1.03 mm. and No.5 screw was 24.14 ± 1.03 mm. The most of mean of screw length in distal row was No. 2 screw and in proximal row was No.5 screw. Gender factor and wrist side factor were no statistically significant difference in screw length in all screw holes of variable-angle volar locking plate.

Conclusion : Using variable-angle volar locking plate in distal radius fracture fixation, the most screw length in distal row was No. 2 screw and proximal row was No. 5 because the direction of screws were near the convex dome of Lister tubercle at dorsal cortex of distal radius. We recommended the placement of optimal screw length wasn't longer than 24-mm. length size both distal row and proximal row. This knowledge could be applied in all patients because gender factor and wrist side factor weren't correlated with screw length.

Keyword : *Distal radius fracture, Screw length, Variable-angle locking plate*

The Correlation Between Serum Pro-Calcitonin Level and Sarcopenia

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Background : Sarcopenia is a syndrome in which the muscles throughout the body are weak and less muscle mass that causes disabilities and affect to quality of life of patient and may be led to death. However, the current diagnosis of disease has limit because the muscle mass test requires an MRI which has a high cost, long time to check and patient cooperation. In addition, sarcopenia is caused by variety of causes. In current, it is not conclusive that either biomarker will be a tool at can help diagnose sarcopenia. In this study, aim to study the between he levels of pro-calcitonin in blood with sarcopenia and predict the chance of disease in patient at risk of developing the disease.

Method : The pilot study of prospective, cohort, observational study in elderly aged over 65 and was diagnosed with osteoporosis that's a volunteer for the bone mineral density (BMD) by guideline of Thai osteoporosis foundation in 2017 and was diagnosed with sarcopenia followed by EWGSOP. The at least 40 volunteers that separate to 2 groups by sarcopenia group has 20 persons and non-disease group has 20 persons. The volunteers will receive laboratory examination (CBC, BUN, Cr, Pro-calcitonin, ESR, CRP, Calcium, Vitamin D level), FRAX score examination, muscle strength test by dynamometer, muscle mass test by MRI and bone mineral density by DXA. Duration of study that follow in 3 months, 6 months and 9 months. The data is analyzed by using statistics of chi square test and linear regression to use data to predict the chance of disease in patient at risk of developing the disease.

Result : From the collection of data from FLS clinical, there were total of 138 participants. 65 patients were diagnosed to be sarcopenia by criteria from EWGSOP. There was no statistical difference in the level of Pro- Calcitonin in both groups and can be concluded that there was no correlation between sarcopenia and Pro-Calcintonin level. However, we found that sarcopenic patients had more advance age, lower body weight, lower BMI, higher FRAX score when compared to non-sarcopenic paiteints.

Conclusion : The level of serum Pro-Calcitonin is not related to either amount of skeletal muscle mass or the diagnosis of sarcopenia. The factors that are correlated with sarcopenia are advancing age, low body weight, low BMI, history of hip or spine fracture.

Keywords : *Sarcopenia, skeletal muscle mass, pro-calcitonin, grip strength*

Efficacy of Glucosamine Plus Diacerein Versus Glucosamine Only Versus Diacerein Only in Osteoarthritis Knee Patients: A Retrospective Cohort Study

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Purpose : Aim of this study was comparisons regimen treatment osteoarthritis knee patients between Analgesic drug with Glucosamine monotherapy with Diacerein monotherapy with Glucosamine plus Diacerein. Clinical outcome evaluation included Visual analog score(VAS) and McMaster Universities Osteoarthritis index (WOMAC) that divided into 3 domains (Pain,Stiffness,Function).

Method : Retrospective study from medical record from January 2021 to January 2022. Data was collected before treatment and after treatment 3 months. All 200 Patients data was collected and divided into 4 group of 50. Reduction VAS and WOMAC score of 4 groups were analyzed by one-way ANOVA using SPSS version 26. P-value <0.05 was considered significant.

Result : Mean VAS before treatment were 7.1 in Analgesic group, 7.6 in Glucosamine group, 7.6 in Diacerein group, 7.5 in Glucosamine plus Diacerein group. Mean reduction of VAS were 1.86 in analgesic group, 5.46 in Glucosamine group, 5.26 in Diacerein group, 5.92 in Glucosamine plus Diacerein group. Mean reduction WOMAC Pain score were 9.1 in analgesic group, 18.6 in Glucosamine group, 18.8 in Diacerein group, 20.1 in Glucosamine plus Diacerein group. Mean reduction WOMAC stiffness score were 0.4 in analgesic group, 0.3 in Glucosamine group, 1.0 in Diacerein group, 1.2 in Glucosamine plus Diacerein group. Mean reduction functional score were 1.8 in analgesic group, 3.1 in Glucosamine group, 2.2 in Diacerein group, 4.0 in Glucosamine plus Diacerein group.

Conclusion : In OA knee patients, Glucosamine and Diacerein and Combination of Glucosamine and Diacerein not superior to Glucosamine monotherapy or Diacerein monotherapy for reduction VAS score and WOMAC pain score and WOMAC stiffness score and WOMAC functional score.

Keywords : *Glucosamine, Diacerein, Combination, Osteoarthritis knee*

The efficacy of Ultrasound-guided Hydrodissection at Kager's fat pad to reduce symptom in Achilles tendinopathy patients

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Purpose : Achilles tendinopathy is one of the most common cause of foot and ankle disability. Conservative treatment is recommended as many patient's pain and function will improve such as stretching, orthotics, medication etc. However, there were many patients poorly responsive to standard management. Recently, case series study, ultrasound-guided hydrodissection at Kager's fat-pad can produce pain relief in the Achilles tendinopathy patients. Therefore, we interested in this technique may reduce symptoms in our Achilles tendinopathy patients.

Methods : The study-enrolled patients showed persistent pain for more than 3 months after to all conservative treatment in the Achilles tendon. All patients were accessed for plain film of the affected heels and document the presence or absence of calcaneal spur and other information about foot deformity). VAS and FFI-TH data were performed by patient before treatment. Evaluated complication for 1 week after ultrasound-guided hydrodissection at out patient department, VAS and FFI-TH were accessed again at this visit. Finally, 2 weeks and 4 weeks after treatment, we review VAS and FFI-TH by telephone visited.

Result : Enroll of thirteen suitable candidates, 6 male (46 %) and 7 female (54 %) patients, the median of age was 45 years (range : 34-62). 9 patients was insertional Achilles tendinopathy (69 %). Initial median VAS and FFI-TH were 5.98 and 160.77 respectively. At 1 week follow-up, the median of VAS was 5.45 that significant improvement in pain score (P-value = 0.02) but not significantly different from 2 and 4 weeks after Hydrodissection. The median FFI-TH before intervention comparing with 1, 2 and 4 weeks follow-up were significantly different (P-value = 0.03, 0.01, 0.01 in the same order). There were no adverse effect or complication event along in this study.

Conclusion : From the research, we found that Ultrasound-guided Hydrodissection at Kager's fat pad can reduce symptoms in both insertional and non-insertional Achilles tendinopathy patients at a short time period, but in 4 weeks follow-up, the outcome of foot functional score was improved.

Keywords : *Achilles tendinopathy, Ultrasound-guide hydrodissection, Kager's fat-pad*

**Efficacy of Regional Citrate Anticoagulation versus Saline Flushing during
Intermittent Hemodialysis on blood circuit clotting prevention;
A Randomized Clinical Trial (The Citra-Saline-IHD)**

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Background : Conventional hemodialysis requires anticoagulation to prevent clotting in the extracorporeal circuit. For patients unable to receive heparin anticoagulation during hemodialysis, saline flushing technique is a common practice but clots have been found. Regional citrate anticoagulation (RCA) is effective but not routinely use in dialysis unit. We wished to evaluate the efficacy and safety of the optimal dose of regional citrate anticoagulation (RCA) compared to saline flushing technique.

Methods : A prospective randomized, open label, cross over study on 60 sessions of 30 HD patients was conducted in hemodialysis unit of Bhumibol Adulyadej hospital. Patients were allocated to RCA group and saline group. Citrate was infused and adjusted according to the degree of anticoagulation and level of ionized calcium within the systemic circuit. Assessment of clot formation in dialysis circuit, blood electrolyte, acid-base balance, treatment time and adverse events were evaluated compared between RCA group and saline group.

Results : No dialyzer clotting event in the RCA group while dialyzer clotting events occurred 6 of 30 sessions (20 %) and resulted in early termination of dialysis 6 cases (20 %) in the saline group. The citrate infusion rate was 41.6 ± 1.6 mmol/l/min when use with 1.75 mEq/L dialysate calcium and infuse post-filter of 10 % calcium gluconate rate 30 ml/hr. No incidence of hypernatremia, hypocalcemia, metabolic alkalosis in RCA group.

Conclusions : RCA is safe and more effective for preventing dialysis circuit clots than saline flushing technique. We demonstrated the optimal dose of RCA can imply to be the protocol for intermittent hemodialysis.

Keywords : *Regional Citrate Anticoagulant, Saline Flushing, Intermittent Hemodialysis*

A Retrospective Cohort Study to Evaluate the Efficacy on Mortality of Large Bore Suction Thrombectomy Suction in Acute Massive & Submassive Pulmonary Embolism in Bhumibol Adulyadej Hospital, Real World Data

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Background : Acute massive pulmonary embolism remains one of the highest mortality diseases. Even systemic thrombolysis and surgical embolectomy are the treatment of choices for the disease, but some patients with contraindication for surgery or thrombolysis is still lack data for the standard of care.

Methods : This study was a study at Bhumibol Adulyadej hospital. The patients with diagnosed acute massive and submassive pulmonary embolism were recruited from January 2017 until November 2021. The primary outcome is in-hospital mortality in massive pulmonary embolism between 2 treatment groups. One received the treatment of large bore suction thrombectomy, the latter received conventional treatment (systemic thrombolysis and surgical embolectomy).

Results : From January 2017 to November 2021, 26 patients were diagnosed with acute massive pulmonary embolism; 8 were treated with large bore suction thrombectomy; 18 were treated with conventional treatment, consisting of 1 for surgical embolectomy, 6 for systemic thrombolysis, 8 for unfractionated heparin, 3 for low-molecular-weight heparin (estimated to have 16 cases per group). In-hospital mortality in massive pulmonary embolism was 37.5 %, and 50 % in large bore suction thrombectomy and conventional treatment by order, with relative risk at 0.75 (95 %CI 0.27 to 2.05, p-value 0.57). Risk of developed acute kidney injury were 0 % and 22 % with RR 0.23 (95 %CI 0.01-3.90, p-value 0.31). Risk of developed significant bleeding complication were 12.5 % and 27.8 % with RR 0.45 (95 %CI 0.06-3.26, p-value 0.79).

Conclusion : Large bore suction thrombectomy for treatment of massive pulmonary embolism seems to cause lower in-hospital mortality, the risk for acute kidney injury and significant bleeding complication compared to conventional study, but not statistically significant.

Factors Associated with Renal Recovery in Patients with Septic Acute-Kidney Injury

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Background : Acute kidney injury (AKI) is one of the most common complications in septic patients admitted in hospital contributing high mortality and long hospital stays. Many studies aim for early diagnosis for timely intervention for prevention, while factors associated with renal recovery, the main outcome to predict prognosis, remain unclear.

Objective : To identify the factor associated with renal recovery in patients with septic AKI Method: The retrospective single centered study was conducted in admitted patients with AKI associated with infection in Bhumibol Adulyadej Hospital from January 1st, 2015, to December 31st, 2020. Fully renal recovery and non-renal recovery were identified together with attentive risk factors. All factors were analyzed to show the relations between outcomes.

Results : A total of 10,724 cases with AKI, 4,708 patients were considered Septic AKI with the exclusion of 227 patients for chronic kidney disease (CKD) stage 5. There were 2,429 (54.82 %) cases with fully renal recovery and 2,002 (48.51 %) with non-renal recovery. The factors associated with non-renal recovery in univariate analysis were male gender, age, stage of CKD, stage of AKI, hemodialysis, duration of hemodialysis, assisted ventilation, moderate to severe anemia, thrombocytopenia, serum phosphorus, serum magnesium, and lower serum albumin. However, only age, gender, stage of AKI, hemodialysis, thrombocytopenia, serum phosphorus, serum magnesium, and lower serum albumin were associated with non-renal recovery in multivariate analysis.

Conclusion : The factors diminished fully recovery of septic AKI were age, gender, stage of AKI, hemodialysis, thrombocytopenia, serum phosphorus, serum magnesium while higher serum albumin considered promote better recovery outcome.

Keywords : *sepsis-associated acute kidney injury, renal recovery, acute kidney injury, sepsis*

R:S Ratio at Left and Right-Sided Precordial Lead on Electrocardiography may be a More Sensitive Predictive Indicators for Right Ventricular Hypertrophy Than Current Recommended Criteria Sonographically Confirmed Cases

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Background : Right ventricular hypertrophy (RVH) is one of the most common presentations of cardiovascular and pulmonary disease, which may be under-detected by bedside physical examination or electrocardiography (EKG) alone. Current proposed EKG criteria demonstrate low sensitivity in detecting the cases. This pilot study aimed to compare new diagnostic RVH criteria with conventional criteria in sonographically confirmed cases.

Objective : This study aimed to compare the diagnostic sensitivity of electrocardiographic criteria between conventional and study criteria for right ventricular hypertrophy.

Methods : This research was designed as cross-sectional diagnostics. The patients in Bhumibol Adulyadej hospital, who had RVH, based on American society of echocardiography recommendation criteria 2015 for chamber quantification were included. 38 enrolled patients were validated by both conventional (Myers et al and Sokolow - Lyon criteria for right ventricular hypertrophy) and study electrocardiography criteria. The sensitivity of RVH of both conventional and study criteria was collected and analyzed.

Result : EKGs, 16 EKGs (42.1 %) could be detected by Sokolow and Lyon's RVH criterion ($R V_1 + S V_6 \geq 10.5$), 14 EKGs (36.8 %) could be detected by Myers et al's RVH criteria ($R/S V_1 \geq 1$) and 25 EKGs (65.7 %) could be detected by study criteria which demonstrated higher sensitivity. The study criteria were enumerated as 13 EKGs (34.2 %) in $R V_1 + R V_2 / S V_1 + S V_2 \geq 1$, 18 EKGs (47.4 %) in $R/S V_1 \geq R/S V_3$, and 10 EKGs (100 %) in $R/S V_3R$ or $V_4R \geq 1$. Finally, the sensitivity of $R/S V_1 \geq R/S V_3$ and $R/S V_3R$ or $V_4R \geq 1$ in derivatives of study criteria still had higher sensitivity than Sokolow and Lyon's RVH criterion and Myers et al RVH criteria.

Conclusion : In this pilot study for sensitivity's detection of right ventricular hypertrophy EKGs in sonographically confirmed cases, which was demonstrated $R/S V_1 \geq R/S V_3$ and $R/S V_3R$ or $V_4R \geq 1$ in study criteria, having higher sensitivity than conventional Sokolow and Lyon and Myers et al criteria for right ventricular hypertrophy, needs more including population for calculation of specificity to improve overall accuracy and efficacy.

A Comparison Study between the Republic of Korea and Thailand Nursing Officers in Patient Safety Knowledge, Attitude, and Skills

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Purpose : The purpose of this study was to compare patient safety knowledge, attitude, and skills between the Republic of Korea and Thailand nursing officers.

Methods : Data were collected from 104 Korean nursing officers and 106 Thai nursing officers using structured questionnaires, patient safety knowledge, attitude and skills.

Results : The proportion of men in Korean nursing officers were higher than that of Thai nursing officers, and Thai nursing officers had longer work experience than Koreans. The ROK nursing officer's patient safety knowledge score was significantly higher than Thai's ($t=5.38$, $p<.001$). However, there was no difference between them in patient safety attitude and skills scores. Both countries had no difference in patient safety knowledge, attitude, and skills according to general characteristics.

Conclusion : Nursing officers of the two countries had similar levels of patient safety knowledge, attitudes, and skills. However, in order to understand the gaps in patient safety culture, policy, and education programs between them, the two parties need to exchange information and benchmark with each other to strengthen their nurses' competence in patient care.

**A Study of the Satisfaction of Professional Nurses and Nurse Aids working at
Emerging Infectious Diseases Unit (EID) Bhumibol Adulyadej Hospital,
Directorate of Medical Services, RTAF.**

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Purpose : The purpose was to study the Satisfaction of Professional Nurses and Nurse Aids working at Emerging Infectious Diseases Unit (EID).

Method : Samples of the study were 36, which were 30 professional nurses and 6 nurse aids. Data were collected from 1-7 July 2021. Research instruments were questionnaires composed of 2 parts: characteristics and a satisfaction scale. Reliability of the questionnaires was calculated by Cronbach's alpha coefficient was 0.789.

Result : The majority of professional nurses working at EID came from critical wards (53.33 %), and semi-critical wards (40 %). The average working experiences were 4.53 years. Competency of nursing care was found 33.3 % at the level of Advance beginner and Expert. The reason for moving to work at the ICU EID was voluntary 43.3 %, the rest was involuntary 56.7 %. The overall satisfaction level of professional nurses was at moderate level ($\bar{x}=6.73$, S.D.=1.23). The voluntary professional nurses' satisfaction were at the moderate level ($\bar{x}=7.38$, S.D.=1.26), whereas involuntary nurses' satisfaction were at moderate level ($\bar{x}=6.24$, S.D.=.97). The research finding revealed Nurse aids who came from critical wards 50 % and semi-critical wards 50 % the average working experiences were 8.67 years. The reason for moving to work at the ICU EID was voluntary 83.3 % and involuntary 16.7 %. Overall Nurse aids' satisfaction were at high levels ($\bar{x}=7.67$, S.D.=2.25). The voluntary nurse aids' satisfaction were at high level ($\bar{x}=7.60$, S.D.=2.51) whereas involuntary nurse aids' satisfaction were at high levels ($\bar{x}=8.0$).

Conclusion : Nurse aids' satisfaction was higher than professional nurses. Because, almost of nursing care were provided by professional nurses. EID wards was first open on April 30, 64. To understand professional nurses and nurse aids' satisfaction more, time of the study should be extended from 3 months to 6-12 months.

Health Literacy and Health Behavior 3E 2S of People in Baan Aur-arhorn Community Bangkhen (Klong thanon)

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Abstract

The purposes of this research were to study the health literacy and health behavior 3E2S and to study relationship between sex, age, educational level and health literacy and health behaviors of the people in Baan Aur-arhorn community Bangkhen (Klong thanon). Data collected in March 2018. The samples were 102 people in Baan Aur-arhorn Bangkhen community (Klong thanon) Bangkok, selected by purposive sampling method. The tool used for data collection was an evaluation form of the working age group's health literacy and health behavior based on Health Education Division, Department of Health Service Support, the Ministry of Public Health. Questionnaires on health literacy and health behavior 3E2S with the reliability of 0.87, and 0.70, respectively. Data were analyzed by descriptive statistics and Chi-Square test, Spearman test and Pearson test.

The results showed that the health literacy of the samples was at a fair level which was 45.90 average, moreover, the health behavior 3E2S was at a good level which was 22.28 average. The individual factors such as gender ($V=0.62$), ages ($r=-0.36$), education (Spearman's rho =0.66) and the health literacy ($r=0.67$) were relatively to the health behavior 3E2S which was significantly different at .001. These results could be used for further information of people's health behavior and health literacy promotion at Baan Aur-arhorn community Bangkhen (Klong thanon).

Keywords : *health literacy, health behavior 3E2S, people in the community*

The Relations Between Knowledge and Behaviour of Rational Antibiotic Use of Air Force Student Nurses, Academic Year 2020

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Abstract

This descriptive research aimed to study the relationships between knowledge and behaviours of rational antibiotic use of Air Force Student Nurses. Samples were 148 Air Force Student Nurses. Research instruments were knowledge of rational antibiotic use tests and behaviours of rational antibiotic use questionnaires. Content valid index of knowledge of rational antibiotic use test was .90, and behaviours of rational antibiotic use questionnaire was .95. Reliabilities of knowledge tests and questionnaires were calculated by KR-20 was .82 and Cronbach's alpha coefficient was .88, respectively. Data were analysed by frequency, percentage, mean, standard deviation and Pearson Product Moment Correlation Coefficient.

Research results revealed the average score of knowledge of rational antibiotic use was medium level (M=14.47, SD=2.18) and the average score of behaviours of rational antibiotic use was high level (M=4.23, SD=.37). A significant medium positive correlation between knowledge and behaviours regarding rational antibiotics use ($r=.319$, $p=.000$).

Suggestions, enhancing and developing of knowledge related to rational antibiotic use should be done consecutively. To promoted knowledge about rational antibiotic use, teaching and learning in practicum should be conducted.

Keywords : *knowledge, behaviour, rational antibiotic use*