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Poster Award

6 YEARS OUTCOMES AFTER BARIATRIC SURGERY IN VACHIRA PHUKET HOSPITAL

Thakoon Poonthananiwatkul
Department of Surgery, Vachira Phuket Hospital, Phuket, Thailand

Background: Laparoscopic sleeve gastrectomy (LSG) and Laparoscopic Roux-en-Y gastric bypass (RYGB) are the standard bariatric procedure due to their significant weight loss, remission of comorbidities. But there are not many studies showing its long term efficacy and safety in Thai patients.

Objectives: To give results of LSG and RYGB in terms of weight loss, Type 2 diabetes mellitus (T2DM) remission and possible complications from a single center in Phuket, Thailand.

Methods: This is a retrospective study of 819 morbid obese patients who underwent LSG and RYGB by a single surgeon from January 2015 to December 2020. Outcomes in terms of weight loss in kg, % of total weight loss (%TWL), % excess weight loss (%EWL), % resolution of T2DM and % complication and mortality rate are studied.

Results: LSG : The %TWL overall were 33.29 (SD = 6.55) n = 794), 32.95 (SD = 4.57) (n = 399), 29.93 (SD = 7.43) (n = 199), 26.32 (SD = 19.02) (n = 81), 25.52 (SD = 13.98) (n = 19), 22.13 (SD = 15.91) (n = 8) and %EWL were 76.97 (SD = 27.54), 72.89 (SD = 21.33), 66.44 (SD = 23.02), 58.17 (SD = 32.81), 50.23 (SD = 26.42), 39.2 (SD = 24.35) at 1, 2, 3, 4, 5 and 6 years, respectively. RYGB: The %TWL overall were 30.11 (SD = 4.75) (n = 25), 29.21 (SD = 3.68) (n = 18), 20.33 (SD = 11.2) (n = 9), 18.40 (SD = 8.1) (n = 4) and %EWL was 70.62 (SD = 16.61), 67.27 (SD = 16.61), 59.12 (SD = 30.24), 46 (SD = 40) at 1, 2, 3 and 4 years respectively. T2DM remission rate was 72.9% at one year. There were 3 stapler line leakage after LSG (0.37%). There was no stapler line bleeding, no port site herniation. There was no RYGB related compliation such as anastomosis leakage, internal hernia, and there was no complication related mortality. The re-admission rate in 1 month was 0.9% due to acute pancreatitis, dehydration and portomesenteric thrombosis.

Conclusions: Bariatric surgery is a safe and effective weight loss procedure with good 6 years results for Thai patients.

Keywords: Morbid obesity, Bariatric surgery

A RANDOMIZED CONTROLLED TRIAL COMPARISON OF ENOXAPARIN 40 MG VERSUS 60 MG DOSAGE FOR VENOUS THROMBOEMBOLISM PROPHYLAXIS IN BARIATRIC SURGERY

Pattarose Sawangsri, Kritsada Kongsawat, Aisawan Asumpinawong, Naranon Boonyuen, Sarunnuch Panyavorakhunchai, Sathienrapong Chantawibul, Krit Kitisin, Suppa-ut Pungpapong, Chadin Tharavej, Patpong Navicharern, Suthep Udomsawaengsup
Department of Surgery, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: Venous thromboembolism (VTE) is a common postoperative complication that may lead to serious problems. Morbidly obese is an independent risk factor for VTE with an increased risk greater than normal population. Proper dosing regimen of enoxaparin for VTE prophylaxis in morbidly obese is not clearly defined in available guidelines.

Objectives: To compare the achievement of anti-factor Xa target level after the administration of enoxaparin 40 mg or 60 mg for VTE prophylaxis in patients were planned for bariatric procedure in order to determine the best dose.

Methods: A randomized controlled trial carried out on morbidly obese patients scheduled for bariatric procedure in King Chulalongkorn Memorial Hospital between April 2019 and March 2020. All recruited patients randomly received 40 mg or 60 mg of enoxaparin subcutaneously 12 hours before the scheduled operative time. Blood specimens for peak 4-hour anti-factor Xa level were collected after the administration. The target range of anti-factor Xa level was defined between 0.2-0.5 IU/ml.

Results: 56 patients underwent bariatric procedure during our study period. 28 patients received 40 mg of enoxaparin while 28 patients received 60 mg randomly. The percentage of target level achievement in both groups were 53.57% and 78.57% respectively (p-value = 0.048). The mean anti-factor Xa levels were 0.19 IU/ml and 0.28 IU/ml respectively ($p < 0.001$). Subgroup analysis focused on the patients that BMI over 50 kg/m^2 (n = 16) shown no statistically significant in achievement of target level in both groups 28.57% and 55.55% respectively (p-value = 0.28). Mean estimated blood loss were 28.03 ml and 24.64 ml respectively ($p = 0.46$). No patient obtained levels exceeding 0.5 IU/ml of anti-factor Xa and no occurrence of VTE in both groups.

Conclusions: For VTE prophylaxis in bariatric surgery, enoxaparin dosage at 60 mg subcutaneously is more achieved the desired target level of anti-factor Xa comparing to 40 mg without any unwanted complications in overall morbid obesity patients. The higher dose of enoxaparin was possibly considered in BMI over 50 kg/m^2 patients.

Keywords: Venous thromboembolism, Prophylaxis, Bariatric surgery, Morbid obesity, Enoxaparin

FIVE-YEAR FOLLOW-UP OF LOWER EXTREMITY LYMPHEDEMA TREATMENT FOR TOTAL OMENTAL LYMPH NODE FLAP TRANSFER WITH FLOW-THROUGH CONFIGURATION AND COMPARTMENT EFFECT

Nattanit poungjantaradej, Nutcha Yodrabum

Division of Plastic Surgery, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Lymphedemas are caused by the accumulation of protein-rich fluid in the interstitial space, resulting from lymphatic system obstruction. In recent years, omentum flap transfer has gained popularity as a treatment for lymphedema due to its immunogenic and lymphangiogenic properties, which aid in reducing infection rate and volume. Using a flowthrough procedure after an omental flap transfer can help reduce complications at the recipient site. We present a long-term follow-up case of primary lymphedema treated with omental flap transfer with flowthrough figuration, demonstrating a gradual decrease in volume, infection rate, and chronic wound coverage.

Keywords: Omental flap, Lymph node transfer, Lymphedema

THE EFFECT OF ROUX-EN-Y GASTRIC BYPASS SURGERY IN MORBIDLY OBESE PATIENTS ON PHARMACOKINETIC OF LANSOPRAZOLE; THE PILOT STUDY

Naranon Boonyuen[1], Sarunnuch Panyavorakhunchai[1], Pattarose Sawangsri[1], Aisawan Asumpinawong[1], Wasu Wisanuyothin[2], Pittawat Somvanapanich[2], Warittha Lertwatthiphong[2], Pajaree Chariyavilaskul[2], Suthep Udomsawaengsup[1]

[1] Department of Surgery, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

[2] Department of Pharmacology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background: Roux-en-Y gastric bypass (RYGB) is a common procedure in bariatric surgery. It combines 2 mechanisms; restriction and malabsorption. Marginal ulcer is one of the most common complications. The incidence is 1-16%, and the complication can be reduced by oral proton-pump inhibitor (PPI). Since the alimentary tract, which is the absorptive site of the drug, is bypassed, there's a study shown the lower absorption of omeprazole after the surgery. However, the pharmacokinetic data of other orally administered PPI drugs, such as lansoprazole, following RYGB is limited and inconclusive.

Objectives: To study the pharmacokinetic of lansoprazole in postoperative RYGB patients.

Methods: In these repeated measures of drug level at time point, ansoprazole serum concentrations were measured before and after RYGB in 33 morbidly obese subjects. The data of the first 5 patients was obtained to create and evaluate and became a pilot study.

The time to maximum concentration (T_{max}), maximum concentration (C_{max}), and area under the serum concentration versus time curve (AUC) or drug exposure in 8 hours were calculated by noncompartmental model to determine possible differences in drug absorption after the procedure.

Results: The first 5 patients's data were used. Preoperatively, all patients had symptoms of dyspepsia. During postoperative period, the data shown 30% reduction of lansoprazole drug exposure (AUC), prolonged time to maximum concentration (T_{max}), and decreased maximum concentration (C_{max})

Conclusions: The results of this pilot study shown that the standard dose of lansoprazole (60 mg/ day) after LRYGB may be insufficient to achieve the therapeutic level. Increasing dose for the patients who underwent RYGB may be considered to achieve therapeutic level and effect.

Keywords: Lansoprazole, Roux-en-Y gastric bypass, Pharmacokinetic, Bariatric surgery, Marginal ulcer

THE PRECISION OF DIFFERENT TYPES OF PLATES FABRICATED WITH A COMPUTER-AIDED DESIGN AND MANUFACTURING SYSTEM IN MANDIBULAR RECONSTRUCTION WITH FIBULAR FREE FLAPS

Jirapat Tianrungroj[3], Nutcha Yodrabum[1], Krit Rudeejaroonrung[2], Natthaphat Viriya[2], Irin Chaikangwan[1], Natthapong Kongkunnavat[1], Mathee Ongsiriporn[3], Parkpoom Piyaman[3], Chedtha Puncreobutr[4,5], Chanya Sinmaroeng[6], Min Yongsuvimol[7]

[1] Division of Plastic Surgery, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand

[2] Biomechanics Research Center, Meticuly Co., Ltd., Chulalongkorn University, Bangkok, Thailand

[3] Department of Anatomy, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand

[4] Advanced Materials Analysis Research Unit, Department of Metallurgical Engineering, Faculty of Engineering, Chulalongkorn University, Bangkok, Thailand

[5] Biomedical Engineering Research Center, Chulalongkorn University, Bangkok, Thailand

[6] Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand

[7] Damnoen Saduak Hospital, Ratchaburi, Thailand

Background: Computer-assisted surgery (CAS) has been introduced to mandible reconstruction with fibular free flap in cutting guide placement. When CAS is cooperated with different plate fixations, the results show various degrees of errors by which this study aimed to evaluate.

Objectives: The three objectives of this study were to (1) compare the errors in the mandibular condyle and the fibular model among different types of fixations, (2) compare the error associated with the defect extent and type of fixation, and (3) evaluate the underlying causes of the errors.

Methods: Mock surgeries were conducted in 3D-printed mandibles with either 2 types of defects; limited or extensive, reconstructed from 2 ameloblastoma patients. Three types of fixations; miniplate, manually bending reconstruction plate and patient-specific plates are tested, each of which was performed 3 times in each type of defects, adding up to 18 surgeries. One with the least errors was selected and applied with patients whose 3D-printed mandibles derived. Finally, *in vivo* errors were compared with the mock.

Results: In limited defect, average errors show no statistical significance among all types. In extensive defect, patient-specific plate had a significantly lower average condylar error than manually bending reconstruction plate and miniplate (8.09 ± 2.52 mm vs. 25.49 ± 2.72 and 23.13 ± 13.54 mm, respectively). When patient-specific plate was applied in vivo, the errors were not significantly different from the mock.

Conclusions: Patient-specific plates cooperated with CAS shows the least errors. Nevertheless, manually bent reconstruction plates and miniplates could be applied in limited defects with caution.

Keywords: Computer-assisted surgery, Mandibular reconstruction, Fibular free flap

Pisith Viseshakul Award

COMPARISON BETWEEN RISC II AND TRISS IN PREDICTING 30-DAY MORTALITY IN MAJOR TRAUMA PATIENTS ADMITTED AT A UNIVERSITY HOSPITAL IN NORTHEASTERN THAILAND

Ploytip Jansiriyotin[1], Panu Teeratakulpisarn[1], Phati Angkasith[1], Parichart Tanmit[1], Supatcha Prasertcharoensuk[1], Narongchai Wongkonkitsin[1], Suppachai Lawanaskol[2], Chaiyut Thanapaisal[1]

[1] Department of Surgery, Faculty of Medicine, Srinagarind Hospital, Khon Kaen University, Khon Kaen, Thailand

[2] Chaiprakarn Hospital, Chiang Mai, Thailand

Backgrounds: The trauma and Injury Severity Score (TRISS) has been used worldwide for predicting the probability of survival (PS) with some limitations. Revised Injury Severity Classification, version II (RISC II) score was proposed to complete those limitations by adding more clinical and laboratory values.

Objectives: To compare 30-day mortality prediction models using TRISS and RISC II at a university hospital in northeastern Thailand

Materials and Methods: We retrospectively collected data on patients with ISS > 11 admitted to the trauma unit, Srinagarind Hospital, a university hospital in northeastern Thailand from 2019 to 2021. PS using TRISS and RISC II models were compared using the receiver operating characteristic (ROC) curve, and the area under the ROC curve (AUROC) was reported. The primary outcome was 30-day mortality.

Results: A total of 627 patients were finally included. The 30-day mortality was 15.5%. The median age was 39 years and 73.2% were male. The most common mechanism of injury was blunt (97.1%). Most of the parameters were significantly different between the two groups. The AUROC of RISC II and TRISS were 0.953 and 0.934. Subgroup analyses showed that RISC II and TRISS performed worse for head injury defined by head AIS 3 – 6. RISC II performed statistically better for SBP < 90 mmHg and worse for ISS > 20.

Conclusions: RISC II was superior to TRISS in predicting 30-day mortality of major trauma patients in a university hospital in Thailand.

Keywords: Trauma, RISCII, TRISS, Score, Survival

EFFECT OF TIME TO THE OPERATION ON IN-HOSPITAL MORTALITY OF TRAUMA

Tanyamon Kittidumkerng[1], Osaree Akaraborworn[2], Burapat Sangthong[2]

[1] Department of Surgery, Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkhla, Thailand

[2] Division of Trauma and Critical Care, Department of Surgery, Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkhla, Thailand

Background: According to previous studies, the time to the operation matters in an aspect of trauma patients. The earlier operation understandingly reduces the mortalities. The author found the greatest opportunity for improvement of the trauma patients' care.

Objectives: The study aimed to examine the effect of time to the operation on in-hospital mortality of trauma patients with an abdominal injury who underwent immediate laparotomy. Moreover, the effect of time to operation on 24-hour mortality, hospital length of stay, and ICU-free days of trauma were also in consideration.

Methods: The retrospective single-center study included trauma patients aged at least 15 years old with an abdominal injury who underwent immediate laparotomy in Songklanagarind Hospital between January 1st, 2015 and December 31st, 2018. The factors of time and duration from injury to the operation along with potential confounders were assessed from hospital medical records and recorded. Univariable and multivariable analyses were applied.

Results: A total of 65 abdominal injured patients with a median age of 32 years old were included. The median time to operation was 165 minutes with a maximum of 480 minutes and a minimum of 55 minutes. The most common cause of death was exsanguination. The time to the operation did not have statistically significant effect on in-hospital mortality, 24-hour mortality, hospital length of stay, and ICU-free days. Three factors were associated with in-hospital mortality by multivariable analysis; ISS (Adjusted OR 1.09) patients with shock (Adjusted OR 12.73), and patients with GCS score < 15 (Adjusted OR 15.43).

Conclusions: This study showed no statistically significant effect of time to the operation on in-hospital mortality and 24-hour mortality of trauma patients with an abdominal injury who underwent immediate laparotomy.

The higher ISS, presence of signs of shock, and lower GCS score of the patients could be prognostic factors which associated with higher in-hospital mortality.

Keywords: Time to operation, Mortality, Abdominal injury

PREDICTION OF MORTALITY IN SEVERELY INJURED PATIENTS

Osaree Akaraborworn, Burapat Sangthong, Komet Thongkhao

Division of Trauma and Critical Care, Department of Surgery, Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkhla, Thailand

Background: Trauma is the most common cause of death in Thailand. Patients who met the trauma team activation criteria (TTAC) are likely to have higher mortality rates than less severe patients.

Objective: This research aimed to identify the mortality rate and predictors for the mortality of patients who met TTAC.

Materials and Methods: This is a retrospective cohort study that collected patients who met TTAC within 1 hour after arriving at the emergency department. The parameters comprised physiological performances, mechanism of injury, and initial laboratory results. The potential parameters from a univariable analysis were selected for a multivariable analysis. The probability of death was calculated.

Results: Eight hundred and sixty-seven patients were eligible for the cohort. The 28-day mortality rate was 14.7%. The multivariable analysis showed that age ≥ 60 years (OR 8.2, 95% CI 4.0-16.9, $p < 0.001$), GCS ≤ 8 (OR 6.2, 95% CI 3.3-11.7, $p < 0.001$), Base excess (BE) ≤ –10 mEq/L (OR 8.5, 95% CI 4.5-16.1, $p < 0.001$). The AuROC of this prediction model was 0.82. The probability of death if the patients presented with these three parameters was 0.91.

Conclusions: Elderly, severe head injury and high BE were significant predictors of death in trauma patients who met TTAC.

Keywords: Trauma, Mortality, Trauma team activation

THE COMPUTED TOMOGRAPHY-ASSESSED SARCOPENIA AND OUTCOMES FOR CHEST TRAUMA PATIENTS

Siwat Tunporn[1], Osaree Akaraborworn[2], Teeravut Tubtawee[3]

[1]Division of Surgery, Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkhla, Thailand

[2] Division of Trauma and Critical Care, Department of Surgery, Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkhla, Thailand

[3] Division of Radiology, Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkhla, Thailand

Background: Trauma is the leading cause of death in Thailand. Chest trauma, one of the most common traumas, can range of various clinical outcomes from thoracic wall contusion to ribs fracture, pneumothorax, or hemothorax. Sarcopenia has been advocated as a way of estimating the nutritional status of the patient. One popular way is a skeleton muscle volume at the L3 vertebral level, evaluated by a CT scan. However, no studies have assessed the skeleton muscle volume at the T12 vertebral level to predict various clinical outcomes of post-traumatic events.

Objectives: To evaluate the outcome, Length of hospital stay, pain score 24 hours and another diagnosis, in chest trauma patients compare between sarcopenic and non-sarcopenic patients.

Methods: We retrospectively reviewed chest trauma patients who were admitted to Prince of Songkla University Hospital between February 2020 and August 2021. We analyzed 63 patients who had chest trauma and CT of the chest before admission. We assessed the amount of skeletal muscle present according to CT for diagnosis of sarcopenia and its relevance to length of hospital stay, pain score 24 hours after admission, and another diagnosis.

Results: A total of 330 chest trauma patients were enrolled in this study. The CT chest was done for 138 chest trauma patients and 63 patients were isolated chest trauma patients. Thirty (47.62%) patients were defined as sarcopenia. The sarcopenic patients were significant had ribs fracture (100% vs 72.7%; $p = 0.002$), pneumothorax (46.7% vs 15.2%; $p = 0.014$) and atelectasis (36.7% vs 3%; $p = 0.002$) more than non-sarcopenic patients. The length of hospital stay for sarcopenic patients was significantly longer than non-sarcopenic patients (10.5 vs 5 days; $p < 0.001$) and pain score 24 hours after admission was also significantly higher than non-sarcopenic patients (6.3 vs 3.4; $p < 0.001$).

Conclusions: Sarcopenia is a risk factor for ribs fracture, pneumothorax, atelectasis post chest trauma event and predicts prolonged hospital stay and higher pain score post-admission.

Keywords: Chest trauma, Muscle atrophy, Sarcopenia

Free Paper Presentation (General Surgery)

A UTILIZATION OF MEMORIAL SLOAN KETTERING CANCER CENTER NOMOGRAM TO SUBSTITUTE FROZEN SENTINEL LYMPH NODE BIOPSY IN THAI EARLY BREAST CANCER PATIENTS

Krit Suwannasak, Sorawat Janwanitchsthaporn
Department of Surgery, Surat Thani Hospital, Surat Thani, Thailand

Background: As Frozen sentinel lymph node dissecti posted to be the gold standard procedure for treating patients with breast cancer. In many areas of Thailand, availability of pathologists is still insufficient. By optimizing predictive factors of sentinel lymph node metastasis in MSKCC nomogram model to dictate axillary management could be helpful under such circumstances.

Objectives: To evaluate and compare risk factors for sentinel lymph node metastasis in Thai early breast cancer patients to those in MSKCC nomogram model and also validate cut off point of nomogram in Thai patients.

Methods: Retrospective analysis of 263 early breast cancer patients in Surat Thani Hospital since 2018 to 2022 which are examined and calculated in MSKCC nomogram then evaluated in area under the receiver-operators characteristic curve. Predictive factors for sentinel lymph node metastasis are also evaluated.

Results: Three significant predictive factors for sentinel lymph node metastasis are Tumor size, lymphovascular invasion, multifocality ($p < 0.05$). After calculation of area under the curve of ROC curve of probability of sentinel lymph node metastasis, value is 0.56 which mean the test is not good diagnostic test of sentinel lymph node metastasis.

Conclusions: In our study, risk factors for sentinel lymph node metastasis are not fully similar to those in MSKCC nomogram (only tumor size, LVI, multifocality) which could be due to axillary lymph node status understaging before surgery and nature of patients who mostly presented with palpable breast mass rather than abnormal annual breast cancer screening program which disease status at presentation might be earlier stage. Area under the ROC curve of probability of sentinel lymph node metastasis from MSKCC posted to be not useful in our patient group and cannot be use as predictors for axillary management as proposed.

AN EFFECT OF THE COVID-19 PANDEMIC: SIGNIFICANTLY MORE COMPLICATED APPENDICITIS?

Atitaya Phantaeng, Piyaporn Prasartritha
Department of Surgery, Police General Hospital, Pathumwan, Bangkok, Thailand

Background: Little do people realize that COVID-19 pandemic has affected the number of patients visiting hospitals with acute abdomen. Since appendicitis is one of the most common urgent surgical conditions; hence, this study main objective was to establish whether there was an increased prevalence of complicated appendicitis during the 2021 COVID-19 pandemic compared with a 2019 unknown COVID-19 time.

Objectives: Compared the prevalence of complicated appendicitis during the 2021 COVID-19 pandemic with a 2019 unknown COVID-19 time.

Methods: This retrospective observational study was conducted in Police General Hospital to compare the number of patients diagnosed with complicated appendicitis (severity of appendicitis 3,4,5,6 as gangrenous, ruptured, phlegmon and abscess respectively) before and during COVID-19 pandemic (1st January to 31st June in 2019 and 2021). Secondary outcomes included post-operative complications, length of hospitalization, operative time and estimate blood loss.

Results: The total of 110 patients were included in this study. During the pandemic (group 1), the total of patients with complicated appendicitis was reported 24 cases, compared with the previous period (group 2) showed 14 cases (43.6% versus 25.5%, OR 2.27 (95% CI 1.01-5.08), *P*-value 0.045); however, patients with severity of appendicitis 3-6 were not statistically significant different between each subgroup during these two periods. Comparing the two groups, significant differences were witnessed both duration from onset of symptoms to the hospital and from arriving the hospital to an operation room (median (IQR) = 628 (440-787) versus 213 (87-320) min with *P*-value < 0.001 and 2,048 (1,725-3,570) versus 1,593 (733-2,955) min with *P*-value 0.001 respectively). Operating time was also noted different outcomes with *p*-value 0.003 as mean duration in group 1 was 72.75 (± 37.18 SD) minutes but 54.55 (± 23.15 SD) minutes in group 2.

Conclusions: The COVID-19 pandemic resulted in an overall increased prevalence of complicated appendicitis compared with the previous period. Those patients reported more delayed from the time that symptoms occurred to hospital and to operating room. They also had an increase length of operating duration and stay. Therefore, COVID-19 had an obvious negative impact to people to developed more serious outcome of appendicitis.

Keywords: Uncomplicated appendicitis, Complicated appendicitis, COVID-19 infection

BUNION CALLOUS ULCER IN NEUROPATHIC DIABETIC FOOT PATIENT: A CASE REPORT

Taweesak Srikummoon

Department of Surgery, Theptarin Hospital, Bangkok, Thailand

Neuropathic callous ulcer is a common problem in diabetic foot that leads to more complicated problem, e.g., infection, sepsis, limb loss and death as well. Healing the ulcer and prevention of recurrent ulcer are the gold standard to protect limb loss and decrease complication. There are many surgical techniques for bunion callous ulcer treatment. The first metatarsal head ostectomy is one of choice.

Keywords: Neuropathy, Diabetic foot, Callous, Bunion, Ulcer

CORRELATION BETWEEN CHANGING OF SERUM ALBUMIN LEVEL AND CYTOKINES LEVEL IN CRITICALLY ILL TRAUMA PATIENTS

Korakot Suvanges[1], Pornprom Muangman[1], Jatuporn Sirikun[1], Kusuma Chinaroonchai[1], Phornnop Naiyanetr[2]

[1] Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

[2] Department of Immunology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: Severely injured trauma patients have high mortality rate. High cytokines level associated with morbidity and mortality in critically ill patients; however, its measurement is limited. Albumin is a protein which its production is decreased in the setting of high cytokines. We would like to study correlation between these two markers whether albumin can be used as prognostic marker instead of cytokine.

Objectives: To study correlation between changing of serum albumin level and cytokines level in critically ill trauma patients.

Methods: Trauma patients aged at least 18 years old admitted to ICU trauma at Siriraj Hospital were enrolled. After consent was informed, blood sampling was sent for level of albumin, IL-6, IL-8, and TNF-α at the time of patient's visit then at 24, 48 and 120 hours after the first sample. Data was recorded and analyzed for correlation between albumin and cytokines level at each interval respectively.

Results: A total of 20 patients were enrolled. Among these patients, there were 14 male (70%) and 7 female (30%) with average age of 36 years old. 80% are related to traffic accidents and 70% are neurosurgical condition (severe traumatic brain injury) in majority. The strongest correlation result was obtained between serum albumin and serum IL-8 at patient's first arrival at trauma bay of Siriraj Hospital (correlation -0.769, *p*-value < 0.001). The result also indicated that serum albumin mostly correlated to serum IL-6 level instead at 24, 48, and 120 hours after arrival (correlation -0.678, -0.231, -0.636, *p*-value 0.001, 0.341, 0.003 respectively). After analyzing correlation with TRISS probability of survival, correlation between albumin and IL-8 at arrival are 0.128 and -0.382 (*p*-value 0.625 and 0.096). No mortality while admission was observed from this study.

Conclusions: Serum albumin was correlated with serum cytokines level, especially IL-8 if measured at patient's initially visit. However, we could not demonstrate the correlation between albumin and early mortality and further studies are required prior to clinical application.

Keywords: Albumin, Interleukin, Critical, Trauma

EARLY FEEDING VERSUS CONVENTIONAL POSTOPERATIVE CARE IN ACUTE PEPTIC ULCER PERFORATION

Thanaphon Sa-ngiamphorn, Amornchai Kritnikornkul, Chatchai Kosonsasitorn, Sudathip Nimkingratana, Narin Kaewma, Chotirot Angkurawaranon

Department of Surgery, Nakornping Hospital, Chiangmai, Thailand

Background: Enhanced recovery after surgery (ERAS) pathways have been accepted as safe and feasible in patients undergoing surgery for acute peptic ulcer perforation. However, the adaptation of early feeding versus

conventional enteral feeding after surgery for peptic ulcer perforation has yet to be established.

Objectives: This study aims to evaluate the safety and benefit of early enteral feeding (within 24 hours after surgery) versus conventional feeding (more than 48 hours after surgery).

Methods: A non-randomized control trial was conducted in a single-center, tertiary care hospital from August 2020 - August 2021. Inclusion criteria were age 18-65 years, ASA class 1-2, perforation < 24 hours, perforation size < 1 cm, and mild to moderate abdominal contamination. Exclusion criteria were pregnancy, septicemia, immunocompromised host, multiple site perforations, and steroid usage. The primary outcome was the length of hospitalization. The secondary outcomes were the 30-day postoperative morbidity and mortality.

Results: A total number of 26 patients were included, 17 in the early feeding group (EF), and 9 in the conventional feeding group (CF). The patients' demographic data were comparable in both groups. The length of hospital stay was significantly less in the EF group 3.39 ± 0.76 days vs CF group 6.04 ± 1.56 days, with the mean difference of -2.04 (95% CI -3.00, -1.08, $p < 0.001$). The time to removal of nasogastric tube and urinary catheter was earlier in the EF group 0.76 ± 0.35 days and 1.24 ± 0.68 days vs CF group 3.25 ± 0.96 days and 3.34 ± 2.17 days consecutively ($p < 0.001$). The mean time to first clear liquid diet was 0.75 ± 0.32 days in the EF group and 3.37 ± 0.96 days in the CF group ($p < 0.001$). The 30-day post operative morbidity were minor and comparable in both groups such as post operative nausea and vomiting and surgical site infection. One patient required re-insertion of nasogastric tube in the early feeding group for gastric decompression. No severe morbidity requiring surgical intervention and no mortality observed.

Conclusion: Early feeding is a safe and feasible approach in a selected group of patients undergoing surgery for peptic ulcer perforation. It reduces the length of hospital stay significantly with good operative outcomes.

Keywords: Peptic ulcer perforation, Early feeding, Enhanced recovery after surgery (ERAS), Gastric ulcer perforation, Duodenal ulcer perforation

ENDOVASCULAR REPAIR OF RUPTURED ABDOMINAL AORTIC ANEURYSM IN OCTOGENARIANS, IS IT DIFFERENT?

Sirichai Oranapalai[1], Apinan Uthaipaisanwong[1], Kritaya Kritayakirana[1], Natawat Narueponjirakul[1], Punthita Aimsupanimitr[1], Wasin Laohavinij[2]

[1] Department of Surgery, King Chulalongkorn Memorial Hospital, Bangkok, Thailand

[2] Department of Preventive and Social Medicine, King Chulalongkorn Memorial Hospital, Bangkok, Thailand

Background: Endovascular aneurysm repair (EVAR) had been used to treat abdominal aortic aneurysm (AAA) widely. There are multiple evidences regarding to the benefits of EVAR in ruptured AAA over open repair with less perioperative mortality. However, EVAR perioperative outcomes in octogenarians (aged 80 and older) presented with ruptured AAA still limited.

Objectives: This study aimed to compare in hospital mortality rate between elderly who received EVAR and open surgery for ruptured AAA treatment. Furthermore, in hospital mortality rate between octogenarians and non-octogenarians who received EVAR were compared.

Methods: We conducted a retrospective chart review of patients aged 60 years and older who were diagnosed with ruptured infrarenal abdominal aortic aneurysm between January 2016 to December 2021 at a tertiary hospital in Thailand. Baseline demographic data, clinical presentation, and laboratory results at the emergency room were collected. Fisher's exact test and unpaired t test were used for categorial and continuous data comparison, respectively.

Results: A total of 46 elderly patients presented with ruptured AAA were identified for chart review. 29 patients (63%) received EVAR and 17 patients (37%) received open surgery as their first treatment module. Baseline characteristic including gender, mean age, clinical presentation, laboratory results at the emergency room, and mean hardman index were not statistically different. Patients who received open repair were presented with ECG signs of ischemia higher than those who received EVAR (47.1 vs 10.3%, $p = 0.01$). In hospital mortality rate between open repair and EVAR was not statistically different (47.1 vs 34.5%, $p = 0.53$). Other complications such as recurrent bleeding, abdominal compartment syndrome, and ischemic colitis were not statistically different between each group. When compared between octogenarians and non-octogenarians who received EVAR, in hospital mortality rate and complications were not statistically different between both age groups.

Conclusions: Our study could not prove that endovascular aneurysm repair is a better choice of therapy

to treat ruptured abdominal aortic aneurysm in elderly. Furthermore, there is no significant different in mortality rate and complications during admission between octogenarians and non- octogenarians who received EVAR.

INCIDENCE AND PREDICTIVE FACTORS OF POST-HEPATECTOMY LIVER FAILURE, SIRIRAJ EXPERIENCE

Sirawit Boonwiwattanakan, Prawej Mahawithitwong, Yongyut Sirivatanauksorn, Somchai Limsrichamrern, Prawat Kositamongkol, Chutwichai Tovikkai, Wethit Dumronggittigule, Pholasith Sangserestid, Charnwit Assawasirisin, Pongpol Nimitpunya

Hepato-Pancreato-Biliary and Transplant Surgery Unit, Division of General Surgery, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: Hepatectomy is the standard treatment for either malignant or benign liver tumors. Inadequate future liver remnant will lead to post-hepatectomy liver failure (PHLF) that increase morbidity and mortality to the patients, however, the other cause may not well-defined.

Objectives: The aim of this study is to identify incidence and predictive factors of post-hepatectomy liver failure in Siriraj Hospital.

Methods: The medical records of the patients who underwent hepatectomy in Siriraj Hospital between 2018 and 2020 were retrospectively reviewed. The diagnosis and severity of post-hepatectomy liver failure were categorized according to the International Study Group of Liver Surgery criteria.

Results: A total of 419 hepatectomy patients were included. PHLF was developed in 70 patients (16.7%), including grade A 15 (3.6%), grade B 41 (9.8%) and grade C 14 (3.3%). The factors affect PHLF were statistically significant found in male gender ($p = 0.039$), preoperative diabetes mellitus ($p = 0.002$), previous treatment with TACE ($p = 0.004$) and blood components (PRC, FFP, Platelet) transfusion ($p < 0.011$). Patients in PHLF group have higher mortality than those in non-PHLF group (10.0% vs 1.1%, $p = 0.01$).

Conclusions: PHLF remains a serious complication in patients undergoing hepatectomy that increase mortality. We found that male gender, diabetes mellitus, previous treatment with TACE and blood components transfusion during surgery were associated with post-hepatectomy liver failure. Consideration with these factors may improve outcome of the surgery.

Keywords: Hepatectomy, Liver resection, Liver failure, Liver insufficiency, PHLF

IS 30-DAY CUT-OFF DIAGNOSIS-TO-SURGERY INTERVAL TIME ASSOCIATED WITH BETTER SURVIVAL FOR PATIENTS WITH NON-METASTATIC COLORECTAL CANCER?

Kittipat Visansirikul, Thikhamporn Tawantanakorn, Varut Lohsiriwat, Vitoon Chinswangwatanakul, Atthaphorn Trakarnsanga

Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: The correlation between diagnosis-to-surgery interval time and survival for colorectal cancer is debatable. Some, but not all, studies indicated worse survival with longer time from diagnosis to surgery. Majority of the studies and guidelines recommended all non-metastatic colorectal cancer patients should be operated on within 30 days after diagnosis was made, including Ministry of Public Health of Thailand recommendation.

Objectives: The objection of this study was to determine the association between diagnosis-to-surgery interval time and survival of stage I-III colorectal cancer patients.

Methods: Stage I-III colorectal patients, who underwent elective resection at Siriraj Hospital, Thailand between January 2010 and December 2020 were retrospectively analyzed. The 5-year overall survival (OS) and 3-year disease free survival (DFS) were primary outcomes. The statistical analysis included Kaplan Meier method and Cox regression analysis.

Results: Total of 979 patients, median age 65 years (range 75), 526 male (53.7%), stage I = 18.4%, stage II = 38.6%, stage III = 43.0%. Median diagnosis-to-surgery interval time was 30 days (IQR = 19-47). 5-year overall survival and 3-year disease free survival were 97.3% and 86.3%, respectively. The independent risk factors of decreased 3-year DFS were lymph node metastasis (HR 3.492; 95% CI 2.418-5.043), present of perineural invasion (HR 2.597; 95% CI 1.845-3.656), and present of lymphovascular invasion (HR 2.144; 95% CI 1.504-3.055). The 30-day cut-off interval time was not associated with 5-year OS and 3-year DFS (97.2% vs 96.7%, $p = 0.537$ and 86.9% vs 85.9%, $p = 0.15$, respectively).

Lymph node metastasis was a dependent risk factor for 3-year DFS in both groups (HR 2.411; 95% CI 1.450-4.008 and HR 5.137; 95% CI 3.001-8.795, respectively).

Conclusions: Prolonged interval time of diagnosis-to-surgery was not associated with poor outcome of 5-year OS and 3-year DFS. However, patients with lymph node metastasis, surgery within 30 days was associated with better 3-year DFS.

Keywords: Colorectal cancer, Diagnosis-to-treatment interval time, 5-year overall survival, 3-year disease free survival, Delay surgery

LIVER TRANSPLANTATION IN HIGH ACUITY RECIPIENT: A SINGLE CENTER ANALYSIS OF OUTCOMES AND FACTOR PREDICTING FUTILE LIVER TRANSPLANTATION

Teeraphat Srimanoroth, Wethit Dumronggittigule, Prawat Kositamongkol, Yongyut Sirivatanauksorn, Somchai Limsrichamrern, Prawej Mahawithitwong, Chutwichai Tovikkai, Pholasith Sangserestid, Charnwit Assawasirisin

Hepato-Pancreato-Biliary and Transplant Surgery Unit, Division of General Surgery, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University

Background: Although the survival benefit of liver transplantation (LT) is clearly evident in end-stage liver disease (ESLD) patients, the futility rate among high acuity recipients is high. To predict patients are unlikely to be a futile LT would be medically and economically advantage to select appropriate candidate for LT.

Objectives: The study aims to identify factors predicting futile LT in high acuity recipients, and to evaluate survival outcomes of this recipient in Siriraj Hospital.

Methods: A retrospective analysis included high acuity patients who underwent primary LT including acute liver failure (ALF), acute on chronic liver failure (ACLF), and chronic liver failure (CLF) with model for ESLD score (MELD) ≥ 28. The Kaplan-Meier survival analysis were done each group. The multivariate analysis (binary logistic regression) was performed to predict factor associated with futile LT in-hospital mortality, 90-day mortality or post-operative totally dependent status.

Results: Of total 343 LT, 81 high acuity recipients (ALF 14.8%, ACLF 49.4%, and CLF 35.8%) were enrolled. There were 20 futile LT (24.7%). The univariate analysis revealed variables with a trend towards futility including pretransplant vasopressor use ($p = 0.001$), pretransplant abnormal chest film ($p = 0.106$), pretransplant sepsis ($p = 0.135$) and pretransplant renal replacement therapy ($p = 0.160$). However, only pretransplant vasopressor use was an independent factor predicting futile LT ($p = 0.012$) in multivariable analysis. The 5-year overall survival rate of recipient with ALF, ACLF and CLF were 83.3%, 62.8%, and 61.1%, respectively.

Conclusions: Pretransplant vasopressor need was associated with futile LT. The survival outcomes of patients with ALF were excellent. Appropriate patient selection is the key to achieve best outcomes for high acuity recipients.

Keywords: Liver transplantation, Futile, High acuity, Outcome, Survival

LONG-TERM OUTCOMES OF ENDOVASCULAR REPAIR AMONG TRAUMATIC THORACIC AORTIC INJURY

Voramon Teranasthiarphan, Dhanakhom Premprapa

Department of Surgery, Faculty of Medicine, Prince of Songkhla University, Hat Yai, Songkhla, Thailand

Background: Treatment of blunt thoracic aortic injuries (BTAIs) has shifted from the open surgical approach to the use of thoracic endovascular aortic repair (TEVAR), of which early outcomes appear promising but controversy regarding long-term outcome remain.

Objectives: The primary outcome of this study was the long-term outcome of TEVAR treatment in traumatic aortic injury patients focusing about late survival and documented late graft-related complications as well as post-procedure systemic complications. As for the secondary outcome we look for all the possible factors which affect the outcome of TEVAR repair.

Methods: Retrospectively, All trauma patients with BTAIs presented at Songklanagarind Hospital between 1 November 2006 to 31 December 2018 were included in the study. Patients who transferred from an outside hospital without imaging were excluded. Radiographic and clinical outcomes were determined in both early and long-term outcome.

Results: Sixty-four BTAIs patients met the inclusion criteria. Of these, all patient received TEVAR which two died in hospital due to aorta-unrelated causes. Median ISS score was 27.5, Most of them were polytrauma patients 62.5% and the most associated injury were thoracic

injury (78.1%). Stent graft implantation was successful in all 64 patients without convert to open approach (100%). At median radiographic follow-up of 24 months, found stenosis in 2 patients, thrombosis in 2 patients and 1 endoleak (Ia) event which successfully repaired. No open reintervention was found. Of 12/62 patients, excluding death in hospital, lost to follow up.

Due to very small number of events on database, the analyses of associated factors couldn't be performed. Long-term survival probability equal to 96.9% (95% CI 92.7-100) at less than 12 months and equal to 94.2% (95% CI 87.8-100) after 12 months. Survival probability against re-intervention after 9 days equal to 98.2% (95% CI 94.8 – 100) In which, median survival time of mortality and reintervention couldn't be calculate due to too small number of events occurred.

Conclusions: This study shows good long(er)-term radiographic outcomes of BTAI patient who received TEVAR, and low reintervention rate after necessary complete LSCA coverage.

Keywords: Thoracic endovascular repair, Blunt thoracic aortic injury, Long term outcome

OUTCOMES OF PANCREATECTOMY USING ENHANCED RECOVERY AFTER SURGERY (ERAS) PROTOCOL COMPARED WITH TRADITIONAL CARE

Phongravee Veeraphong, Chutwichai Tovikkai, Prawej Mahawithitwong, Yongyut Sirivatanauksorn, Somchai Limsrichamrern, Prawat Kositamongkol, Wethit Dumronggittigule, Pholasith Sangserestid, Charnwit Assawasirisin

Hepatopanreatobiliary and Transplant Surgery Unit, Division of General Surgery, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University

Background: Enhanced recovery after surgery (ERAS) program has been implemented in various surgeries and shows that it can reduce length of stay, complications and cost. However, ERAS in pancreatic surgery is still in the early stage. ERAS in pancreatic surgery has been implemented in Siriraj Hospital since 2020, and this study aims to evaluate outcomes of ERAS pancreatectomy program compared with previous traditional care.

Methods: Between January 2020 and December 2020, 70 patients underwent pancreatectomy with ERAS program (ERAS group). These patients were compared with 70 patients of historical cohort treating with traditional program, between January 2019 and December 2019 (Pre-ERAS group) in terms of post-operative hospital stay (POHS), bowel movement, morbidity, mortality and cost. Subgroup analyses of those underwent pancreaticoduodenectomy (PD) and distal pancreatectomy (DP) were also performed.

Result: Demographic data between ERAS and pre-ERAS was not statistically different except slightly more robotic surgery in ERAS group (21.4% vs. 12.9%, $p = 0.08$) and longer operative time (376 vs. 334 min, $p = 0.03$). Median POHS in ERAS group was slightly shorter than Pre-ERAS group (8 vs. 9 days; $p = 0.599$), and they passed stool slightly earlier in ERAS group (2 vs. 3; $p = 0.228$), but these did not reach the statistical significance. There was no significant difference of morbidity, mortality, specific complications (POPF, PPH, DGE, chylous leakage), re-admission and re-operation rates between the two groups. The total cost was significantly higher in ERAS group (225,945 vs 156,593; $p = 0.01$), and this may be due to higher proportion of robotic surgery in ERAS group. Subgroup analysis of PD (55 patients in ERAS, 50 patients in Pre-ERAS) showed that median POHS was also slightly shorter in ERAS groups (9 vs. 10 days, $p = 0.382$), but not reaching the statistical significant. Subgroup analysis of DP (12 patients in ERAS, 18 patients in Pre-ERAS) showed that median POHS was not different between the two groups (5 vs. 5 days, $p = 0.88$).

Conclusions: ERAS program is safe and may reduce length of post-operative hospital stay, and shorten first bowel movement in pancreatectomy patients.

RECURRENT RATE OF FISTULA IN ANO CLASSIFIED BY TYPE OF SURGERY

Wisun Sae-Lee, Krisada Paonariang, Weeraput Chadbunchachai

Department of Surgery, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand

Background: Post-operative recurrent Fistula In Ano (FIA) occurs at highly variable rates ranging from 3-50%. Despite the increased morbidity, risks associated with multiple operations, and patients' quality of life, the factors that contribute to recurrent FIA remain inconclusive.

Objectives: This study aimed to evaluate the recurrent rate of FIA after surgery and associated factors.

Patients and Methods: Our retrospective cohort study included 143 patients with anal fistula who underwent surgery from January 2015 to December 2019 in Srinagarind Hospital, Khon Kaen, Thailand. Three deceased patients after surgery follow up were excluded from the cohort. Association factors to recurrent FIA were analyzed by univariate and multivariate logistic regression models.

Results: Of 140 patients, the majority of our patient cohort is male 116 (82.8%) with mean age 45.5 ± 14.4 years, ranging from 18 to 78 years. About half of them had previous anal surgery 75 (53.6%). Based on the types of anal fistula in the cohort, 97 (69.3%) patients had simple types including low-transphincteric type 48 (34.3%) and intersphincteric type 49 (35.0%). Whereas, 26 (18.6%) patients had a complex type, high-transphincteric. Fistulotomy was the most common operation performed on these patients 56 (40%), followed by ligation of sphincteric tract (LIFT) 39 (27.9%) and staged seton fistulotomy 30 (21.4%). Overall recurrent FIA was 44 (31.4%). The significant factor associated with recurrent FIA were previous anal surgeries with adjusted OR 4.45 (1.71-11.58, *p*-value = 0.002), Seton with adjusted OR 9.07 (2.71-30.37, *p*-value < 0.001 and LIFT with adjusted OR 9.03 (2.89-28.18, *p*-value < 0.001). There was no significant difference between simple and complex fistula with regards to recurrent FIA.

Conclusions: In this study, we found that the overall rate of recurrent FIA was high (31%). The history of previous anal surgeries significantly contributes to the rate of recurrent FIA. In addition, patients who received Seton and LIFT procedures tend to develop a higher rate of recurrent FIA.

Keywords: Anal fistula, Fistula in ano, Recurrent rate, Fistula recurrence, Anal fistula surgery

RELATIONSHIP BETWEEN NUTRITIONAL STATUS AND CLINICAL OUTCOMES OF GENERAL SURGERY INPATIENT UNIT IN RAJAVITHI HOSPITAL

Manisa Panichnantho, Somboon Subwongchaloen
Department of Surgery, Rajavithi Hospital, Bangkok, Thailand

Background: Malnutrition is prevalent in the hospital and it effects the patient and the treatment in many various way such as delay healing of treatment, prolong length of stay in the hospital. Nowadays Nutritional status assessment can be evaluated with various method such as the Nutrition Alert Form (NAF).

Objectives: To evaluate relationship between nutritional status of the patient and patient's factor with length of hospital stay, infection and mortality in hospital.

Methods: Retrospective study was performed on patient who admitted in general surgery inpatient unit in Rajavithi Hospital from 1 December 2019 to 1 September 2020. The information was collected from medical records including age, sex, underlying disease, NAF score, length of hospital stays, infection, mortality.

Results: A total of 300 patients were enrolled. 50.3% were male, the mean age was 59.63 + 14.97 years and NAF group A, B, C were 19.3%, 30% and 50.7% respectively. On Univariate analysis found that Factors associate with death were NAF ($p = 0.021$), Food EN ($p = 0.002$), Food PN ($p = 0.017$) and infection ($P < 0.001$). Factors associate with Length of Stay in Hospital were NAF ($p = 0.001$), Food EN ($p < 0.001$), Food PN ($p < 0.001$) and Infection ($p < 0.001$). Factors associate with infection were Food EN ($p < 0.001$) and Food PN ($p < 0.001$). On Multivariate analysis found that infection associate with death (OR = 4.23; 95% CI: 1.60-11.16; $p < 0.001$), factors associated with Infection were Food EN (OR = 2.67; 95% CI: 1.10-6.46; $p = 0.029$) and Length of Stay (OR = 1.02; 95% CI: 1.01-1.04; $p < 0.001$) and factors associated with Length of Stay in Hospital were infection ($p < 0.001$), Food EN ($p < 0.001$) and Food PN ($p = 0.032$).

Conclusions: In this study, NAF associated with death, length of stay in hospital.

Keywords: Nutritional status, Impact of nutrition, Hospitalized patient, Nutritional outcome, Nutritional alert form

RISK FACTORS OF SUBOPTIMAL BOWEL PREPARATION IN ELECTIVE COLONOSCOPY IN BANMI HOSPITAL, LOPBURI PROVINCE

Punthiti Pleehachinda
Department of Surgery, Banmi Hospital, Lopburi, Thailand

Background: Colonoscopy is gold standard diagnosis modality for colorectal cancer. Optimal bowel preparation is the most important factor of successful and good quality colonoscopy. There are many previous studies about the risk factors of suboptimal quality bowel preparation but most of them did not used Sodium phosphate for bowel preparation.

Objectives: To identify risk factors that are associated with suboptimal quality of bowel preparation in a patient who used sodium phosphate for bowel preparation in elective colonoscopy.

Methods: Retrospective cross-sectional study. We review patients were used Sodium phosphate solution for preparation bowel in elective colonoscopy from January 2020 to February 2022. We have 121 patients with suboptimal bowel preparation in case group. And 251 patients with optimal bowel preparation in control group in ratio was 1:2.

Results: In univariate analysis, when compare demographic data between suboptimal bowel preparation group and optimal bowel preparation group. There were significant difference in male (47.11% vs 35.46% p = 0.04), mean age (67.23 years, SD 11.67 vs 59.86 years, SD 11.04 $p < 0.0001$), education below secondary school (85% vs 75% $p = 0.05$), diabetes (30.58% vs 15.54% p = 0.001), smoking (9.92% vs 3.19% $p = 0.03$), constipation or bowel habit change symptoms (44.63% vs 18% $p <$ 0.001), history of suboptimal bowel preparation (7.44% vs 1.2% p = 0.003) and ASA more than 3 (19.83% vs 5.98% $p < 0.001$). There was no significant difference in mean BMI, neurological illness, Tricyclic anti-depressant used, inpatient, after 1PM colonoscopy, previous abdominal surgery.

In multiple logistic regression analysis we found that age 70-79 years (aOR = 2.82, 95% CI 1.29-6.13, p = 0.009), age more than 80 years (aOR = 7.06, 95% CI 2.53-19.65, $p < 0.001$), Diabetes (aOR = 3.28, 95% CI 1.66-6.49, p = 0.001), active smoking (aOR = 4.83, 95% CI 1.57-14.86, $p < 0.006$), constipation or bowel habit change symptoms (aOR = 5.35, 95% CI 2.94-9.72, $p =< 0.0001$), history of suboptimal bowel preparation (aOR =7.48, 95% CI 1.26-44.23, p = 0.02) and ASA more than 3 (aOR = 2.97, 95% CI 1.23-7.20, $p = 0.02$) is statistically significant risk factor for suboptimal bowel preparation.

Conclusions: Age more than 70 years, diabetes, active smoking, constipation or bowel habit change symptoms, history of suboptimal bowel preparation and ASA more than 3 is statistically significant risk factors for suboptimal bowel.

Keywords: Suboptimal bowel preparation, Risk factor, Colonoscopy, Inadequate bowel preparation

SARCOPENIA DURING CONCURRENT CHEMO-RADIOTHERAPY INPATIENTS WITH LOCALLY ADVANCED ESOPHAGEAL SQUAMOUS CELL CARCINOMA

Thiranai Vongcharoenpol[1], Somkiat Sunpaweravong[1], Wongsakorn Chaochankit[1], Sririporn Leelakiatpaiboon[2], Natee Ina[2]

[1] Department of Surgery, Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkhla, Thailand

[2] Department of Radiology, Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkla, Thailand

Background: Esophageal cancer is one of the most common gastrointestinal diseases and can easily spread to different parts of the body, which is the cause of low survival rates. Sarcopenia is a condition that indicates a loss of muscle mass and function and is a factor that indicates a poor prognosis in various types of malignancies. However, the effect of concurrent chemoradiotherapy (CCRT) on sarcopenia in patients with locally advanced esophageal squamous cell carcinoma (ESCC) remains unclear.

Objectives: To clarify the impact of CCRT on sarcopenia and the relation between sarcopenia, CCRT-related toxicity, and survival in locally advanced ESCC patients.

Methods: This was a retrospective study in which clinical data were collected from 217 patients with locally advanced ESCC at Songklanagarind Hospital between January 1, 2010 and December 31, 2019. Data were obtained from the database and hospital information system of Songklanagarind Hospital. Sarcopenia was assessed by skeletal muscle index (SMI) at the 3rd lumbar vertebra (L3), which includes the psoas, paraspinal, and abdominal wall muscles, in cross-sectional CT scans before and after CCRT, and patients were classified into sarcopenic and non-sarcopenic groups. Sarcopenia was defined as SMI < 43 cm^2/m^2 for body mass index (BMI) < 25 kg/m^2 and < 53 cm^2/m^2 for BMI ≥ 25 kg/m^2 in men and < 41 cm^2/m^2 in women.

Results: A total of 217 patients with locally advanced ESCC were included in the study. 181 patients (83.4%) in the sarcopenia group and 36 patients (16.6%) in non-sarcopenia group were presented before CCRT,

and 17 patients (47.2%) in non-sarcopenia group developed sarcopenia after their CCRT. The skeletal muscle index was significantly decreased after CCRT in both the sarcopenia and non-sarcopenia groups by 4.1% (p = 0.043) and 12.5% (p = 0.002), respectively. Patients with or without sarcopenia showed no significant association with overall survival or CCRT-related toxicity. The median OS was about 1 year and the most common CCRT-related toxicity was neutropenia.

Conclusions: Most of the ESSC patients had sarcopenia and short survival. CCRT also induced sarcopenia. Therefore, assessing sarcopenia before treatment and starting an intervention to prevent or treat sarcopenia may improve outcomes.

Keywords: Esophageal squamous cell carcinoma, Sarcopenia, Skeletal muscle index, Chemoradiotherapy, Survival

SHORT COURSE ANTIMICROBIAL THERAPY IN COMPLICATED INTRA-ABDOMINAL INFECTIONS

Tanapol Daroj, Punyawat Taweegan

Department of Surgery Khon Kaen Hospital, Khon Kaen, Thailand

Background: Intra-abdominal infections (IAIs) include a wide severity of organ infections, ranging from uncomplicated to complicated intraabdominal infection. Mortality rate is 2% to 7.7% among patients with complicated IAIs and is increase to 32% to 50% in critically ill patients. However, the optimal duration of antimicrobial therapy is controversy.

Objectives: The purpose of this study is to compare the short course antimicrobial and standard course antimicrobial in complicated intra-abdominal infection patient.

Methods: In this single blinded randomized control trial, non-inferiority trial, the patient with complicated intra-abdominal infection who underwent adequate source control were randomized into 2 groups. The short course group, patient were received antimicrobial for 3 days. The standard course group, patient were received antimicrobial at least 5 days or until afebrile for 24 hours. The primary end point was composite event in whom a surgical site infection, recurrent intra-abdominal infection or death within 30 days. The secondary outcome were length of hospital stay, surgical site infection, recurrent intra-abdominal infection cost and extra abdominal infection within 30 days.

Results: One hundred and twelfth patient were randomly assigned to groups. Baseline and operative characteristic data were clinically similar both groups except age [40 (26.5, 53.2) in short course group and 46.5 (31.7, 59) in standard course groups (P < 0.0282)] and gender [male; 58 in short course groups and 74 in standard course group (P < 0.0298)]. Overall 30 days composite event were 5.36 percent. The composite event were clinically and statistically similar in two groups; the short course (6 of 112 patient, 5.4%) versus standard course (6 of 112 patient, 5.4%), respectively (P > 0.999). Surgical site infection was the most leading of infectious postoperative complication. Neither death nor extra-abdominal infection were found.

Conclusions: In patient with complicated intra-abdominal infection, in this study found no significantly difference in composite event in surgical site infection or recurrent intra-abdominal infection or death after adequate source control.

Keywords: Intra-abdominal infection, Complicated intra-abdominal infection, Short course antimicrobial

SKELETAL OUTCOME OF PARATHYROIDECTOMY IN PATIENTS WITH RENAL HYPERPARATHYROIDISM

Suvichak Dhanasobhon, Wilairat Prasert

Department of Surgery, Faculty of Medicine, Thammasat University, Pathumthani, Thailand

Background: Renal hyperparathyroidism, which is secondary hyperparathyroidism and tertiary hyperparathyroidism, is common amongst end stage renal disease patients. These patients usually had reduced bone mineral density (BMD). Subsequently, they developed osteoporosis and osteoporotic fracture. Although total parathyroidectomy with forearm auto-transplantation (PTX) is effective in reducing parathyroid hormone (PTH), the effect on their BMD changes requires further evaluation.

Objectives: To demonstrate BMD changes at 6 months after total parathyroidectomy with forearm autotransplantation in patients with renal hyperparathyroidism with preoperative osteopenia and osteoporosis.

Methods: The 6-month postoperative dual energy X-ray absorptiometry (DEXA) scan at Lumbar and femoral neck of 15 renal hyperparathyroidism patients with osteopenia or osteoporosis who underwent successful PTX in Thammasat university hospital were measured.

Preoperative and 6-month postoperative parathyroid hormones were taken to demonstrate the indication for PTX and the successful PTX, respectively. 5 of them were osteopenia and 10 of them were osteoporosis using preoperative BMD using T-score criteria for patients over 50 years old and Z-score criteria for patients under 50 years old. 5% changes in BMD were classified as significant improvement, 0-5% changes were classified as moderate improvement, and below 0% were classified as declining BMD. Paired T-test analysis was used for the hypothesis that 6-month postoperative BMD are not improved more than 5% of preoperative mean BMD at lumbar spine and femoral neck at $P = 0.05$.

Results: After PTX, BMD of all patients are improved. 1 of them was osteoporosis, 8 of them were osteopenia, and 6 of them were normal BMD. 12 of the patients had significant improvement and 3 of them had moderate improvement, none was declining BMD. Paired T-test analysis suggested that BMD improved significantly in both lumbar spine ($P = 0.0001$) and femoral neck ($P = 0.0029$).

Conclusions: Renal hyperparathyroidism patients with preoperative osteopenia and osteoporosis who underwent successful PTX are significantly improved their 6-month postoperative lumbar and femoral neck BMD.

Keywords: Renal hyperparathyroidism, Bone mass density, Osteoporosis, Osteopenia, Total parathyroidectomy with forearm auto-transplantation

THE DIAGNOSTIC ACCURACY OF MESS SCORE IN PATIENT WHO UNDERWENT LOWER EXTREMITY INJURY WITH ASSOCIATED ARTERY INJURY

Wattanai Paekoh[1], Panu Teeratakulpisarn[2], Phati Angkasith[2], Parichat Tanmit[2], Narongchai Wongkonkitsin[3], Supatcha Prasertcharoensuk[3], Chaiyut Thanapaisal[2]

[1] Department of Surgery, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand

[2] Trauma Unit, Department of Surgery, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand

[3] Vascular Unit, Department of Surgery, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand

Background: 10-20% of lower extremity injury with associated artery injury are found to undergo amputation. The Mangled Extremity Severity Score (MESS) has been adopted as the amputation predictor with a MESS score of ≥ 7 reportedly being accurate in predicting the need for amputation. However, the accuracy and the cutoff point remain controversial. This study aims to determine the most appropriate cutoff point of a MESS score for amputation prediction.

Objectives: To determine the most appropriate cutoff point of a MESS score in terms of sensitivity, specificity, and diagnostic accuracy for amputation prediction.

Methods: We retrospectively reviewed patients with lower extremity injury with associated artery injury at our institution between January 2012 and December 2021. Data collection included demographic data, mechanism of injuries, ischemic time, MESS, pathology of vascular injury, and method of vascular repair. The outcome of treatment was divided into 3 groups: primary amputation, secondary amputation, and limb salvage. The mean of the MESS score related to each group and the diagnostic accuracy of each cutoff point for amputation were also analyzed.

Results: There were 35 patients aged 17–59 years (mean 33 years) with lower extremity injury with associated artery injury in this study. Blunt and penetrating injuries were found in 31 and 4 patients, 89 and 11% respectively. The overall amputation rate in this study was 54%, with 16 successful-limb-salvage patients and 19 lower-limb-amputation patients (10 from primary amputations and 9 from secondary amputations). The mean MESS scores of primary amputation, secondary amputation, and limb salvage were 9.8, 8, and 6.6. From multivariate analysis, the most appropriate cutoff point is ≥ 9 with sensitivity, specificity, and accuracy of 78.9%, 81.2% and 80.0% respectively for the overall amputation.

Conclusions: The MESS score is one of the amputation predictors. The cutoff point at 9 can be considered the most appropriate cutoff point for limb amputation. However, not all patients with successful limb salvage had the MESS score < 9. A decision on amputation should be made individually based on clinical evaluation.

Keywords: Amputation, Lower extremity injury, MESS score, Vascular

THE MID-TERM MORPHOLOGICAL CHANGES OF COMMON ILIAC ARTERIES IN AORTOILIAC ANEURYSM AFTER TREATMENT WITH ENDOVASCULAR AORTIC REPAIR AND BELL-BOTTOM TECHNIQUE

Nuttawut Srisornkompol, Suteekhanit Hahtapornsawan, Chanean Raungsetakit, Khamin Chinsakchai, Chumpol Wongwanit, Kiattisak Hongku, Nuttawut Puangpunngam, Tossapol Prapassaro, Supaporn Tunpornpituk, Orawan Supapueng

Division of Vascular Surgery, Department of Surgery, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: Endovascular aortic repair (EVAR) with the bell-bottom technique is a choice of treatment in patient with aortoiliac aneurysm that can preserve internal iliac artery that can reduce complications; buttock claudication, bowel ischemia and erectile dysfunction. The technique is quick, safe and provide a good short-term result.

Objectives: To evaluation the morphological change of common iliac artery after EVAR and bell bottom technique by computed tomography angiography (CTA) between perioperative period and last time follow-up.

Methods: The retrospective reviews of clinical data and CTA finding of the common iliac artery diameter and iliac limb graft migration in 47 patients (mean age 74 ± 7.06; 41 men) who underwent EVAR with the bell-bottom technique were performed individually by 2 investigators.

Results: During median follow-up of 25.40 months (11.93, 46.29 months), the median dilatation of the right common iliac artery were 4.125 mm (1.325, 8.063 mm) and 3.425 mm (1.338, 5.013 mm) on the left side. The median of the upward migration the right and left iliac limb graft were 2.475 mm (0.313, 5.288 mm) and 1.750 mm (0.350, 6.175 mm) respectively. The dilatation rate of common iliac artery increased significantly within 31 months postoperatively then turned to stable condition. The morphological changes caused reintervention in 6 patients and 1 patient had ruptured abdominal aortic aneurysm. The significant related factors of common iliac artery dilatation are preoperative common iliac artery size and upward migration iliac limb graft.

Conclusions: In mid-term follow-up, the dilatation common iliac artery was about 3.5 mm causing 12% of reintervention rate. However, the common iliac artery dilated significantly just within the 31-month follow-up then no further significant dilatation. The preoperative common iliac artery size and the upward migration of iliac limb graft are significant related with common iliac artery dilatation.

Keywords: Endovascular aortic repair (EVAR) with the bell-bottom technique, Common iliac artery aneurysm, Aortoiliac aneurysm

THE POTENCY, OUTCOME, AND COMPLICATION OF LAPAROSCOPIC SURGERY FOR SALVAGE MALFUNCTION PERITONEAL DIALYSIS

Suparerk Pongampai, Phaiwit Sriphatphiriyakun

Department of Surgery, Suratthani Hospital, Thailand

Background: CAPD (continuous ambulatory peritoneal dialysis) is a prevalent mode of renal replacement therapy for ESRD (End-stage renal disease) patients. Catheter malfunction can result from its luminal occlusion due to omental or small bowel wrapping, malposition, and migration of the catheter. Our study found that laparoscopy offers an alternative approach for revision catheters for patients.

Objectives: Using laparoscopic revision surgery to determine the cause of the malfunctioning catheter and fixed. To study the advantages of laparoscopic revised PD catheter (Peritoneal dialysis catheter) in Surat Thani Hospital, which the Potential of the PD catheter based on the duration of the PD Catheter and postoperative complications.

Methods: We retrospectively and prospectively from the patients admitted to Suratthani Hospital with diagnosed ESRD who have dialysis with PD catheter and has a malfunction of the catheter between Jan 2017 and Dec 2020 which have been repaired by laparoscopic technique. The variables studied were demographic details of the patients, etiology, and causes of catheter malfunction, maneuvers undertaken for salvage, operative time, length of stay, and post-operative complications.

Results: The study population comprised 37 patients that have Mean age of 60 years old's. The average

operative time was 62.02 mins, length of stay was 10.8 days. The number of patients who have immediate post-operative complication was 6 patients, Success rate was 83.7%, our result showed the catheter survival rates of laparoscopic revision has to mean efficiency of 454.676 days and median efficiency of 313 days. 6-month survival was 23 patients (62.1%) and 1-year survival was 17 patients (45.94%) and 2-year survival was 9 patients (24.32%).

Conclusions: In conclusion, laparoscopic salvage has advantaged to identify the causes of malfunctioning and allowed us to fix the problem at the same time. Laparoscopic revised PD catheters are easily performed and avoid catheter replacement.

THE RATE OF PATHOLOGICAL COMPLETE RESPONSE [pCR] IN NON-METASTATIC BREAST CANCER PATIENTS AFTER RECEIVED NEOADJUVANT CHEMOTHERAPY, CLINICOPATHOLOGICAL FACTORS ASSOCIATED WITH pCR AND SURVIVAL OUTCOME

Khorkwan Wongtheppabut, Suphawat Laohawiriyakamol, Piyanun Wangkulangkul

Department of General Surgery, Faculty of Medicine, Prince of Songkla University, Hat Yai, Songkhla, Thailand

Background: There are a high number of patients suffering awfully from morbidity and mortality in breast cancer. Neoadjuvant chemotherapy (NAC) has been used in order to increase R0 resection and ensure a good quality of life for patients.

Objectives: To investigate the rate of pathological complete response (pCR), after received NAC in non-metastatic breast cancer as well as the clinicopathological factors that are associated with an increasing pCR rate, overall survival (OS) and disease-free survival (DFS).

Methods: A retrospective study. Data recording was searched from women who had received NAC and who underwent surgery; from January 2014 - January 2019. The pCR was calculated with no residual invasive cancer in the breast and axillary nodes, with presence or absence of in situ cancer (ypT0N0/ypTisN0) criteria. Overall survival and disease-free survival were recorded until January 2021.

Results: From 168 identified patients, 28 patients (16.6%) achieved pCR. The pCR rate was significantly lower in clinical T-staged 3 and 4 tumors than others (95% CI, 0.06-0.93, $p = 0.04$, 95% CI, 0.04-0.58, $p = 0.005$, respectively) in presence of lymphovascular invasion (LVI) (95% CI, 0.01-0.35; $p < 0.003$); whereas, they were higher in ERneg/HER2pos and ERpos/HER2pos (95% CI, 1.44-20.47, $p = 0.013$, 95% CI, 1.97-22.42, $p = 0.002$, respectively). The 5-year OS in the pCR group was higher than in the non pCR group (100% vs 61.1%; HR, $p = 0.0017$); corresponding with 5-year DFS in the pCR group being higher than in the non pCR group (100% vs 44.56%; HR, $p < 0.001$).

Conclusions: The pCR in patients who underwent neoadjuvant chemotherapy was 16.6%. The pathological factors that affected decreases in pCR were; clinical T-staged 3,4 and presence of LVI; whereas, the factor that increased pCR were HER2 positivity. Achieved pCR was a surrogate endpoint of a better survival outcome.

Keywords: pCR, Neoadjuvant chemotherapy, Breast cancer, Survival

USEFULNESS AND OUTCOME OF WHOLE-BODY COMPUTED TOMOGRAPHY (PAN-SCAN) IN TRAUMA PATIENTS: A PROSPECTIVE STUDY

Sitthichart Harntaweesup[1], Chonlada Krutsri[2], Preeda Sumritpradit[2], Pongsasit Singhatas[2], Tharin Thampongsa[2], Pinporn Jenjitranant[3], Sirote Wongwaisayawan[3], Nitima Saksobhavivat[3], Rathachai Kaewlai[4]

[1] Department of Surgery, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

[2] Trauma, Acute Care Surgery and Surgical Critical Care Unit, Department of Surgery, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

[3] Emergency Radiology Unit, Department of Diagnostic and Therapeutic Radiology, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

[4] Division of Diagnostic Radiology, Department of Radiology, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: Severe trauma can cause multi-organ injuries, and the mortality rate may increase if significant organ injuries are missed. This study was performed to determine whether whole-body computed tomography scan (pan-scan) can detect significant injury and leads to proper management, including alteration the priority of management.

Methods: This prospective study was conducted from January 2019 to March 2021 and involved trauma patients level 1, level 2, and dangerous mechanism of trauma. Additionally, the data of trauma patients who had selective computed tomography scan were retrospectively reviewed to compared the clinical benefits.

Results: Twenty-two patients were enrolled in the prospective study. The pan-scan detected significant organ injury in 86% of the patients. Prioritization of organ injury management changed after performance of the pan-scan in 64% (major change in 64.29% and minor change in 35.71%). Skull base fracture, small bowel injury, retroperitoneal injury, kidney and bladder injury, and occult pneumothorax were the majority of injuries which was not consider before underwent pan-scan ($p < 0.05$). The door-to-scan time tended to be shorter in the pan-scan group than in the selective scan group without a significant difference [mean (SD), 59.5 (34) and 72.0 (86) min, respectively; $p = 0.13$]. Pan-scan contribute 100% confidence for trauma surgeon in diagnosis of specific organ injuries in severe injured patients.

Conclusions: The pan-scan facilitates timely detection of significant unexpected organ injuries such as the skull base, occult pneumothorax, small bowel, and retroperitoneum. It also helps to prioritize management and increases the diagnostic confidence of trauma surgeons, leading to better outcomes without delay.

Keywords: Multi-organ injury, Multiple trauma, Pan-scan, Trauma, Whole-body computed tomography scan

Free Paper Presentation (Pediatric Surgery)

ACUTE PANCREATITIS IN CHILDHOOD: A COMPARATIVE INTERNATIONAL STUDY AND A TALE OF TWO CITIES

Ampaipan Boonthai[1], Adeline Salim[2], Pornthep Tanpowpong[3], Paul Losty[4]

[1] Division of Pediatric Surgery, Department of Surgery, Faculty of Medicine, Ramathibodi Hospital, Mahidol University Bangkok, Thailand

[2] Department of Pediatric Surgery, Alder Hey Children's Hospital NHS Foundation Trust, Liverpool, UK

[3] Division of Gastroenterology, Department of Surgery, Faculty of Medicine, Ramathobodi Hospital, Mahidol University Bangkok, Thailand

[4] Institute of Life Course and Medical Sciences, University of Liverpool, Liverpool, UK

Background: There are perceptible difference(s) considered in the incidence and aetiology of acute pancreatitis in pediatric patients from disparate geographic nations.

Objectives: To compare pertinent factor(s) contributing to the etiology, management and clinical outcome(s) of paediatric patients acquiring acute pancreatitis at two major pediatric surgery centers in Liverpool UK and Bangkok Thailand.

Methods: All patients (< 18 years) with an index diagnosis of AP (ICD 10 coding) during 2006-2016 were studied.

Results: 121 patients included n = 79 (65.3%) Thailand vs n = 42 (34.7%) UK center with no difference in age(s) at primary diagnosis at 10.4 ± 4.5 and 11.7 ± 6 yrs ($P = 0.12$). Major etiology contributing to AP at the Thailand center were medications (39.2%) followed by choledochal cyst (8.9%). In the UK surgical center - gall stones (21.4%), and medications (16.7%) were leading factors ($P < 0.01$). Pancreatitis was confirmed and evidenced by imaging in 67.9 % (Thai) and 62.9% (UK) patients ($P = 0.47$). Ultrasonography was deployed more frequently in the UK vs Thai center (74.3% vs 49.1%; $P < 0.01$). Most patients at both centers had mild grade pancreatitis (95% Thai vs 90.5% UK; $P = 0.28$) while 12.7% of Thai and 19% of UK patients progressed to develop pancreatitis related complication ($P = 0.37$). Overall mortality rate (%) was higher in the Thai vs UK center (27.8% vs 9.5%; $P = 0.02$).

Conclusions: Ethnicity impacts the etiology of acute pediatric pancreatitis in the UK and Thailand. Timely diagnosis and health care pathways may be driven by local patient related factor(s). The higher mortality (%) in Thailand vs UK in the comparative 'tale of two cities' study was directly linked to underlying index medical condition(s) in patients rather than the severity of pancreatitis per se.

Keywords: Acute pancreatitis, Pediatric, Diagnosis, Mortality, Severity score

ASSOCIATION OF PELD SCORE WITH PERIOPERATIVE AND POSTOPERATIVE OUTCOMES IN PEDIATRIC LIVER TRANSPLANTATION

Pitthawat Julnipithawong[1], Pornthep Tanpowpong[2], Chawintee Puttanapitak[1,3]

[1] Department of Surgery, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

[2] Department of Pediatrics, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

[3] Chakri Nareubodindra Medical Institute, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Samut Prakarn, Thailand

Background: Pediatric End-stage Liver Disease (PELD) score is the widespread score for evaluation the severity of chronic liver failure in children. The higher PELD score represents the inferior pre-liver transplantation status. Therefore, the higher PELD score may affect to the perioperative and postoperative outcomes after liver transplantation.

Objectives: To determining the association of PELD score and perioperative and postoperative results.

Methods: The medical record review was performed among patients under 12 years with end-stage liver disease who underwent liver transplantation at Ramathibodi Hospital between August 1990 and December 2021. The PELD score on transplantation date, perioperative outcomes and postoperative outcomes within 30 days after transplantation were collected. ROC curve analysis was performed to identify PELD score that determine the perioperative and postoperative outcomes. Chi-square and Fisher Exact test were calculated.

Results: We reviewed 170 patients with mean age of 15.8 months (IQR 13, 30). The most common etiology was biliary atresia (80.6%). Mean PELD score is 17.6 (SD 7.4) and the cut off PELD score that affected the outcomes is 18 (AUC 0.85). Patients with PELD score > 18 have the significantly higher risks of operative blood loss (2,600 ml vs 1,250 ml, $P = 0.000$), mean intraoperative red cell, fresh frozen plasma, and platelet transfusion [1,175 ml vs 700 ml, 523 ml vs 243 ml, 186 ml vs 50 ml respectively (all $P < 0.000$)], ICU stay (11 days vs 7 days, $P = 0.014$), intubated period (6.5 days vs 3.9 days, $P = 0.0014$), days of positive pressure ventilation (9 days vs 6 days, $P = 0.001$), cytomegalovirus reactivation (30.9% vs 16.3%, $P = 0.024$) and intra-abdominal infection (60.7% vs 45.4%, $P = 0.045$).

Conclusions: PELD score > 18 at transplant in children with end-stage liver disease is associated with increased health care utilization and infection. Considering liver transplantation in children with less severe liver disease may provide the better perioperative and post-operative outcomes. Cost-effectiveness analysis may determine the potential benefit of early transplantation.

Keywords: PELD score, Liver transplantation, Pediatric, Outcome

CLINICAL CHARACTERISTICS OF PATIENTS WITH MECKEL'S DIVERTICULUM

Peerawit Songsiri[1,2], Sirima Liukitithara[2], Anan Sriniworn[2], Nimmita Srisan[1], Katawaetee Decharun[1], Prapapan Rajatapiti[1], Somboon Reukvibunsi[1], Bunthoon Nonthasoot[1], Supparerk Prichayudh[1], Chadin Tharavej[1], Sopark Manasnayakorn[1], Paisarn Vejchapipat[1]

[1] Department of Surgery, Faculty of Medicine, Chulalongkorn University & King Chulalongkorn Memorial Hospital, Bangkok, Thailand

[2] Department of Surgery, Hat Yai Hospital, Songkla, Thailand

Background: Meckel's diverticulum (MD) is the most common congenital anomaly of gastrointestinal tract with the prevalence of 0.3-3%. Patients with MD may present with various manifestations including GI bleeding, gut obstruction, diverticulitis, or umbilical problems. However, MD can be incidentally found during the operations.

Objectives: The objectives were to describe and to compare clinical features of patients with MD in terms of demographic data, clinical presentation, investigations, treatment, histopathologic results, and post-operative complications between pediatric and adult patients. This study would concentrate more on pediatric patients.

Methods: Patients with MD were retrospectively reviewed from 2 tertiary-care hospitals; the first hospital (2002-2021) and the other hospital (2015-2021). These included patients with symptomatic MD and patients whose MD incidentally found during the operations. Demographic data, clinical presentation, investigation, treatment, histopathologic results, and postoperative complications were reviewed.

Results: Total of 123 cases with MD were studied. There were 93 males (75%), 67 pediatric patients (54%, age < 15 years), and 78 patients with symptomatic MD (63%). For children with symptomatic MD (46 cases),

GI bleeding was the most common presentation (54%), followed by obstruction (28%), umbilical problems (11%) and diverticulitis (7%). For adults with symptomatic MD (32 cases), diverticulitis was the most common presentation (47%) followed by obstruction (31%), GI bleeding (19%) and umbilical problems (3%). For children with bleeding MD (25 cases), Meckel scan was an important investigation to confirm the diagnosis with positive predictive value of 91%. For incidentally found MD, 80% were resected. Interestingly, ectopic gastric tissue was found in 19% of the resected MD specimens. Moreover, there was no significant difference in postoperative complications between patients with symptomatic MD and patients with incidentally found MD.

Conclusions: Meckel's diverticulum presents a variety of clinical presentations. The most common symptom was GI bleeding in children and diverticulitis in adults. Meckel scan is an important tool to investigate bleeding MD. Since ectopic gastric tissue was found in 19% of asymptomatic MD, therefore, our findings seem to support the concept of resection of MD incidentally found during the operations.

Keywords: Meckel's diverticulum, Clinical presentation, Diagnosis, Thailand

FACTORS ASSOCIATED WITH THE FALSE-NEGATIVE RESULTS OF CONTRAST ENEMA FOR DIAGNOSIS OF HIRSCHSPRUNG'S DISEASE

Wimalin Kanjanakul, Ravit Ruangtrakool

Division of Pediatric Surgery, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: Contrast enema is the most frequently used test to diagnose Hirschsprung's disease. Reported factors associated with the false-negative results of contrast enema were the age of the first contrast enema, location of the transitional zone, days of PR, and days of NSS irrigated before contrast enema.

Objectives: This study aims to report the false-negative results and these identified associated factors. How to diminish the false-negative results was considered.

Methods: Patients with Hirschsprung's disease treated with abdominal assisted TERPT or TERPT between November 2006 and January 2021 at Siriraj hospital were studied. Patients who did not receive definitive surgery or performed colostomy without contrast examination or with anorectal malformation were excluded.

Results: Thirty of 190 patients with contrast enema had false-negative results (17.4%). The sensitivity of contrast enema was 82.6%. To study the associated factors, we divided patients into two groups: the positive contrast enema group and the false-negative group. The age of the first contrast enema between the two groups was similar (27.5 days vs. 23.1 days, respectively). Most transitional zones were found at the rectosigmoid junction (46%), rectum (15.1%), and sigmoid (14.5%). The other zones were defined as a long transitional zone (24.4%). Whether it was a short or long transitional zone, it showed no statistically significant difference between the two groups. (66.3% vs 80% in a short T-zone, *P*-value = 0.2 and 22.5% vs 20% in a long T-zone, *P*-value = 0.95).

The too-short interval of PR and NSS irrigation before contrast enema made more false-negative rates of contrast enema. PR within two days before contrast enema increased the false-negative results from 39.4 to 56.0% (*P*-value = 0.2) and NSS irrigation within one day before contrast enema increased the false-negative results from 48.8 to 66.7% (*P*-value = 0.22).

Conclusions: Although all associated factors showed no statistically significant association with the false-negative results of contrast enema, too short interval of PR and NSS irrigation before contrast enema could affect the false-negative rate clinically.

Keywords: Hirschsprung's disease, Contrast enema, Transitional zone, Per rectal examination, NSS irrigation

FACTORS ASSOCIATED WITH UNFAVORABLE OUTCOME IN PEDIATRIC HEPATOBLASTOMA

Piriyaporn Pongchaikul [1], Pongpak Pongphitcha[2], Chawintee Puttanapitak[1,3]

[1] Pediatric Surgery Division, Department of Surgery, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

[2] Department of Pediatric, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

[3] Chakri Nareubodindra Medical Institute, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Samut Prakan, Thailand

Background: Hepatoblastoma is the most common malignant liver tumor and the third common intra-abdominal solid tumor in children. Currently, there are various strategies for hepatoblastoma treatment, including the chemotherapy, liver resection and liver transplantation, which result in an excellent outcome.

Objectives: The aims of this study are to investigate the treatment outcome of hepatoblastoma in Ramathibodi Hospital which is the largest center of pediatric liver transplantation center in Thailand, and to identify the association of determining factors that affect the treatment outcome of hepatoblastoma.

Methods: Twenty-two patients who diagnosed with hepatoblastoma between January 2014 and September 2020 were recruited. Three patients were excluded due to incomplete medical record. A total number of 19 patients were included in this study. Retrospective and prospective chart review was designed in single center. The demographic data, pre-treatment data, treatment strategies, post-operative outcome, 1-year-survival rate and 5-year-survival rate were collected and analyzed. The survival rate is calculated using Cox's regression analysis.

Results: Of 19 patients, 9 patients were male (47.4%). The mean age at diagnosis was 27 months (interquartile range 9.5, 33.5). There was no immediate post-operative mortality, whereas the immediate post-operative complication rate was 36.8% (7/19): bile duct injury (4), intestinal obstruction (2) and hemoperitoneum (1). The 1-year-survival rate was 95.2%. The 5-year-survival rate was 85.7%. The overall death was 4 patients (21%), including from recurrent tumor (1), sepsis (1), upper gastrointestinal bleeding (1), and palliative care (1). There was no factor that is significantly associated with post-operative complication. However, length of stay after the surgery was significantly associated with survival rate (both 1- and 5-year survival rate).

Conclusions: The overall treatment outcome of pediatric hepatoblastoma is excellent in immediate post-operation, 1-and 5-year survival rate. There was no factor indicating post-operative outcome, and the length of stay after surgery affected the survival rate.

Keywords: Children, Hepatoblastoma, Liver resection, Liver transplantation, Survival rate

OPTIMAL SALINE IRRIGATION FOR PREOPERATIVE BOWEL PREPARATION REDUCING POST-OPERATIVE INFECTION IN HIRSCHSPRUNG'S DISEASE

Sasabong Tiyaamornwong, Ravit Ruangtrakool

Division of Pediatric Surgery, Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

Background: Transanal endorectal pull-through is a gold standard treatment for Hirschsprung's disease. An adequate preoperative bowel preparation is one of important factors. Basically, in Siriraj Hospital, bowel preparation was performed using rectal NSS irrigation about 30-50 ml/kg twice a day at least three consecutive days. However, there was no scientific evidence of optimal amount of NSS.

Objectives: The objectives of our study were how long and how much of appropriate volume of NSS irrigation related to surgical complications following the operation.

Methods: The children with Hirschsprung's disease were performed Transanal endorectal pull-through, with or without laparotomy, between 2006 to 2020 at Siriraj Hospital. Patients' characteristics were analyzed by general statistics and ROC was applied to demonstrate optimal NSS value.

Results: All 131 Hirschsprung's patients, whether had complications or not, had similar demographic characteristics between two groups. The 99 (75.6%) patients were performed transanal endorectal pull-through, while 32 (24.4%) patients underwent abdominal assisted pull-through. Complications occurred in 23 patients including 22 anastomosis strictures (16.8%), 3 anastomotic leakages (2.3%), and 2 intra-abdominal collections (1.5%). The average amount of NSS irrigation using for patients with post-operative complications was 38 ml/kg/day, whereas for ones without complication was 39.46 ml/kg/day (p = 0.945). The median duration for rectal NSS irrigation in patients of both groups was the same (seven days).

The minimal amount of rectal NSS irrigation in Hirschsprung's disease without complication in this study was 16.19 ml/kg. There was no statistically significant correlation between postoperative anatomotic leakage complications and amount of rectal NSS irrigation (p-value = 0.622). Despite increasing NSS volume, the risk of hyponatremia was unaffected (p-value = 0.573). There amount of rectal NSS irrigation *w*as no statistically significant correlate with the overall complications (p-value = 0.634).

Conclusion: In summary, there was no statistically significant correlation between postoperative complications and amount of rectal NSS irrigation. However, in this study had few complication rates of recruited cases, further study should be conducted in a larger population.

Keywords: Hirschsprung's disease, Complication, Bowel preparation