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Abstracts
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GENERAL SURGERY

Estrogen and Progesterone Receptors: Incidence and Clinical Correlation in Songklanagarind Hospital

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Background: The measurement of estrogen receptor (ER) and progesterone receptor (PR) has now become a routine part of the evaluation of breast cancer in Songklanagarind Hospital. Estrogen nad progesterone receptor levels can identify those women who can benefit from hormone therapy. This study revealed the incidence and clinical correlation of hormonal receptor levels in Songklanagarind Hosptial's breast cancer patients. This basic demographic data may be of application in clinical decision making regarding hormonal treatment in the patients who do not have ER and PR status.

Objectives: To study incidence and clinical correlation of estrogen and progesterone receptors in breast cancer patients in Songklanagarind Hospital.

Materials and Methods: Retrospective review of 374 patients who underwent treatment of breast cancer in Songklanagarind Hospital between January, 1999 and December, 2002. The basic data of level of hormonal receptors, age, staging and number of lymph node involvement were collected from PSU breast cancer registration record forms. Clinical correlations were analyzed by student t' test and Fisher's exact test.

Results: The incidence of ER was 39.0 per cent in age group 0-40 yr, 50.7 per cent in age group 41-50 yr, 59.3 per cent in the age group over 50 yr. The incidence of PR was 46.3 per cent in age group 0-40 yr, 50.0 per cent in age group 41-50 yr 49.0 per cent in the age group over 50 yr. The overall combined status of receptors in all of the patients were ER^+ PR^+ 39.7 per cent, ER^+ PR^- 11.9 per cent ER^- PR^+ 9.2 per cent, ER^- PR^- 39.2 per cent. Only age was statistically significantly correlated with ER status ($p = 0.0121$).

Conclusion: In Songklanagarind Hospital the hormonal receptor status correlated with age but did not correlate with staging or number of infiltrated axillary nodes.

A New Concept of Wound Care: Wound Bed Preparation

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The failure of re-epithelialization and prolonged inflammation of chronic wounds are secondary to the impaired remodelling of the extracellular matrix (ECM) due to abnormalities of a number of proteinases enzymes, such as the imbalance of the proportion of metrix metalloproteinase (MMPs) and tissue inhibitors of metalloproteinances (TIMPs). The appropriate ratio of MMPs/TIMPs will play a role in controlling the normal wound healing responses. The important role of MMPs is to regulate cellular migration and ECM remodelling following injury.

The term of wound bed preparation is used to describe the removal of the barriers from the wound to get it healing. Mostly of chronic wounds require removal of dead tissue and bacterial before healing can proceed. Although antiseptics were used for many years to treat wounds but they did not have enough evidence-based data to support their continued use. Some antiseptics may remove bacteria from the wound effectively but some may

be injurious to the healing process at the same time. For the dead tissue, there are many methods to be employed to debride wounds: surgical, autolytic, enzymatic, mechanical including the use of sterile maggots. The wound bed preparation is not only simply removal of dead tissue and bacteria but also removal of all barriers or impediments to healing is required as a key component of this subject. In clinical practice, many clinicians use a single intervention for all patients at all stages of the healing process must be challenged. Some form of selection criteria must be used to ensure that optimal care is given to an individual patient.

Relliability of Pulse Oximetry in Titrating Supplement O_2 Therapy in Ventilator Dependent Patients

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Objective: To compare pulse oximetry saturation (SpO_2) with arterial blood gas saturation (SaO_2) obtained during clinical routine to determine the optimum lowest reliable value of SpO_2 in ventilator dependent patients before titrating FiO_2 for O_2 supplement therapy.

Design: Prospective clinical study

Setting: Surgical intensive care unit in Maharaj Nakorn Chiang Mai Hosptial.

Interventions: SpO_2 was recorded by the nurses and compared with SaO_2 obtained by blood gas analysis with a Agilent M. 1166A and monitor M. 1094B

Measurement and main results: In 50 patients with inclusion criteria, SaO_2 ranged from 90-99.6 per cent and SpO_2 ranged from 91-100 per cent. The bias was 0.222 per cent and the limits of agreement ranged from -0.272 to 0.716 per cent.

Conclusion: In the range of SaO_2 tested, regardless of the sensor used, SpO_2 over estimate SaO_2. Large limits of agreement was found. Based on this result concluded that a minimum threshold SpO_2 value of 94 per cent is more reliable to ensure SaO_2 e" 92 per cent.

Management of Appendiceal Abscess; Chiang Mai Experience

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Objective: To evaluate the outcome of patients treated for appendiceal abscess, either conservatively or surgically and to describe histopathology of interval appendectomy specimens.

Materals of Methods: Retrospective data from medical records of the patients diagnosed appendiceal abscess, between 01/1/2002 to 06/30/2003, at Maharaj Nakorn Chiang Mai Hospital were collected. Clinical feature, treatment modality, outcome, and pathology were reviewed.

Result: Data of 33 patients with the diagnosis of appendiceal abscess were collected, 17 male (51.5%) and 16 female (48.5%), mean age 40.4 years. Twenty six patients were treated conservatively (conservative group) and 7 patients were operated on admission (initial surgery group). Patients in covervative group present with clinical peritonitis. Twenty patients (76.92%) in conservatie group can be managed successfully by conservative means. Eight cases in this group go on schedule interval appendectomy and the remaining refused surgery (or lost to follow up). Recurrence occurred in one patient (5%). Six patients (23.08%) in conservative group need surgery, either appendectomy or only drain-age. Complication developed 7.7 per cent (i.e. wound infection) without mortality in conservative group. In initial surgery group, appendectomy can be done in all cases. Mortality in the initial surgery group occurred in one case (14.28 per cent) due to sepsis and 2 cases (28.29 per cent) had complication (i.e. wound infection, urinary bladder injury). Operative time in initial surgery group was longer than conservative group. Eighty per cent of delayed appendectomy specimens were abnormal (i.e. chronic inflammation, retained fecalith, perforted).

Conclusion: In our experience, conservative management is acceptable modality for appendical abscess patients. Attempt to performed appendectomy, when failure conservative treatment, seem no harm to the patient and did not change period of hospital stay. From this study, interval appendectomy is still necessary due to high percentage of abnormal histology found in the interval appendectomy specimens.

Hand Assisted Laparoscopic Hepaticodochojejunostomy

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Hand Assisted Laparoscopic Surgery is a technique manipulated by the hand in the peritoneal cavity while pneumoperitoneum is maintained. This technique allows the surgeon to work with his hand in the insufflated abdomen under vision during the laparoscopic maneuver. The hand can be used as in an open procedure for palpation of intra-abdominal organs or masses, anatomical

identification, retraction, blunt dissection, bleeding control, suture assisting, knot tying, and judging the depth perception. Some advocates of the technique state that it is easier to learn and perform. It may be shorten the learning period of many laparosocpic surgical interventions for more experienced surgeons. The laparoscopic procedures that may benefit from this technique are colectomy, splenectomy, gastrectomy, pancreatectomy, hepatectomy, nephrectomy, hysterectomy, and removal of other tumors. The conditions necessitated converting to open surgery such as: - severe bleeding, adhesion, organ injuries, common bile duct exploration, biliary by pass procedures, and prolong operative time are also suitable for this technique. The development of "The Hand Port System (Smith & Nephew's)" provided the sealing mechanism and preserved the pneumoperitoneum for working with the hand under the direct vision offered by the video-laparoscope. We invented "The Forearm Balloon" that consists of two transfer bags and a long surgical glove. It can work properly for the economical laparoscopic surgery. A case report of 68-year-old woman underwent Hand Assisted Laparoscopic hepaticodocho-jejunostomy for cholangiocarcinoma without any serious complications showed that patient tolerated the procedure well and returned home within two weeks.

Biliary Leakage After T-Tube Removal

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Introduction: It is common practice to drain the biliary tree by T-tube after choledochotomy for removal of common bile duct (CBD) stones. After T-tube removal, small amount of bile leakage from T-tube tract usually disappears within a few days. In a rare instance, biliary leakage may cause bile ascites or bile peritonitis, intraperitoneal collection or biloma and prolonged external biliary leakage or biliary fistula.

Patients and Methods: Three patients underwent open cholecystectomy and CBD exploration with T-tube drainage because of gallstones and CBD stones. Postoperative T-tube cholangiogram showed no residual stone or obstruction, then T-tube were removed on the 14th postoperative day.

Case 1 A 83-year-old man, bile leaked into Rt. subphrenic space and 300 ml. of bile colored fluid was obtained from percutaneus drainage which was performed at 4 days after T-tube removal. Leakage ceased in one week after drainage.

Case 2 A 55-year-old man, bile leaked into Rt. side of peritoneal cavity causing a large biloma. Percutaneus drainage was performed at 8 days after T-tube removal and 3,000 ml. of bile colored fluid was obtained. Following endoscopic retrograde cholangiogram (ERC) showing leakage from CBD, sphincterotomy with biliary stent was done. Leakage ceased in 7 weeks after endoscopic intervention.

Case 3 A 71 year old man had external biliary leakage immediately after T-tube removal with daily bile out put of about 300 ml. ERC performed 14 days later showed leakage from CBD. Sphincterotomy with biliary stent was done and leakage ceased in 3 weeks after endoscopic intervention.

Results: All three patients had no significant abdominal pain and no clinical evidence of biliary obstruction during the follow up period of 48, 36 and 30 months respectively.

Conclusion: Percutaneus drainage and endoscopic treatment are safe and effective method for treatment of this rare complication to avoid reoperation. Although the etiology of leakage is unclear, rupture of the T-tube tract and stenotic type of sphincter of Oddi dysfunction may be the important factors. Manometric study via T-tube and ampullary biopsy should be done in these patients.

Whipple's Operation Without Mortality in 35 Consecutive Patients: Thai Surgeon Experiences

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Aim: Pancreaticoduodenectomy (Whipple's operation) represents a considerable surgical challenge. the operative mortality rate after Whipple's operation is still less than 5 per cent. The recent studies show pancreatic anastomosis is the "Achilles heel" of the procedure. We present the results of Whipple's operation without mortality which were performed in Department of Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand.

Materials and Methods: From January 1991 to December 2002, thirty-five consecutive patients were enrolled in this study. The age ranged between 36 to 79 years. There were 16 male and 19 female patients. Construction of the pancreaticojejunostomy was performed by a dunking technique, the invagination of the pancreatic resected end into jejunum.

Results: There was no postoperative mortality from anastomotic leakage. Surgical wound infection occured in 7 patients, gastric atony in 2 patients, and pancreaticojejunosanastomosis leakage in one patients. All 35 patients

were discharged in an improved condition following surgery. Median follow-up are 2 years (range: 4 month-11 years). Until now 20 patients are still doing well.

Conclusion: We demonstrated that the dunking technique used for pancreaticojejunostomy anastomosis in Whipple's operation provided a good result without mortality rate.

Portal Vein Arterialization for Liver Transplantation with Extensive Portomesenteric Vein Thrombosis: a case report

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We report here a case of extensive thrombosis of portal venous system including mesenteric vein in a 70 year old man who suffered from end stae post hepatitic C cirrhosis and underwent orthotopic liver transplantation. There was no way to divert portal blood flow to the new liver because such an extensive thrombosis of portomesenteric venous system. There are some case reports of portocaval hemitransposition with some success but also with very high mortality. Then we decided to do arterialization of the portal vein of the liver allograft with his hepatic artery. And hepatic artery was anastomosed with the supraceliac aorta instead. He recovered slowly from the operation. Now it is one year after the transplantation and he is doing very well with perfect liver function test. It is quite a challenge to our belief that portal blood flow is essential for liver because of hepatotrophic factor.

Cystic Duct Stump Leakage After Laparoscopic Cholecystectomy: The Role of Endoscopic Management

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Background: Bile leakage from cystic duct stump is a rare complication after cholecystectomy. Since laparoscopic cholecystectomy is the standard treatment of gallstone disease, this complication occurs more frequently. At this time, endoscopic treatment of cystic duct stump leakage has been found to be highly successful and more appropriate method as compare to the surgical correction.

Methods: The clinical data of 15 patients (10 females and 6 males) with post laparoscopic cholecystectomy stump leakage from October 1995 to October 2002 were evaluated. The patients were managed by endoscopic retrograde cholagiopancreatography (E.R.C.P.) and nasobiliary drainge in 4 cases and normal plastic stent in 11 cases. Endoscopic sphincterotomy (E.S.T.) was performed before endoprosthesis in 9 cases. In case of retained stones, extractions were done by E.S.T. and basket or balloon.

Results: The patients with stump leakage were diagnosed from 5-30 days (average 9 days) postoperatively. E.R.C.P. with endoprosthesis was sucessful in 15 patients (93.8%), surgical correction was performed in the failure case. Retained bile duct stones were dectected in 5 cases and papillary stenosis in 2 cases. They were treated sucessfully by E.S.T. and stones extraction. Normal plastic stents were placed in 11 cases and nasobiliary drainage in 4 cases. Bile leakage was successful resolved in 14 cases (93.3%), one case was surgically opened due to bile peritonitis. The stents were removed in 3 weeks with no further complications.

Conclusions: Endoscopic management is the treatment of choice for postcholecystectomy stump leakage.

Morbidity and Mortality in 75 Cases of Hepatic Resection: A Personal Experience

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Background: Hepatic resection is one of the most difficult and bleeding operation in abdominal surgery. Morbidity and mortlaity also still high in some reports. Seventy-five cases of hepatic resection were performed by the author. The post-operative morbidity and mortality and their causes were analyzed.

Materials and Methods: From May 2001 to July 2003, 75 case sof hepatic resection in non-traumatic patients were performed. There were 54 males and 21 females, mean age was 54 years. The diagnosis was hepatocellular carcinoma (HCC, 32 cases), cholangiocracinoma (CCA, 32 cases), liver metastasis (3 cases), cystadenocarcinoma (4 cases) and other benign lesions (4 cases). Type of hepatic resection procedures were right hepatectomy (26 cases), left hepatectomy (15 cases), one or two segmentectomy (18 cases), caudate lobe resection (1 case), non-anatomical hepatic resection (10 cases) and right or left hepatectomy including hepatic duct confluence resection and biliary enteric anastomosis (5 cases).

Results: The average of greatest diameter of CCA and HCC was 9.1 cm (range 0.5-28 cm). Mean operative time was 5 hours. Average estimated blood loss and blood transfusion were 1,450 ml and 2.4 unit, respectively. Mean post-operative hospital stay was 12 days. There were 9 cases of morbidity (12%) which had bile leakage (3 cases of CCA, 1 case of HCC), intraabdominal abscess (2 cases of CCA), wound complication (2 cases of CCA) and gastric atony (1 case of ruptured HCC). There were 6 cases of post-

operative death (8%). The causes of death were hepatic failure (2 cases: one in non-cirrhotic CCA, one in severe cirrhotic HCC), variceal bleeding (1 case of ruptured HCC with severe cirrhosis), pulmonary embolism (2 cases of CCA) and coma (1 case; suspected brain metastasis in CCA).

Conclusion: In this series, hepatic resection in CCA had more complication rate than HCC. Among the morbidity cases, the complications could be treated or resolved spontaneously. In cases of mortality, hepatic failure and its complication were still common causes of death. However there were unusual and unexpected massive pulmonary embolism in two cases of cholangiocarcinoma.

Short Term Outcome of Laparoscopic Hernia Repair and Bassini's Repair of Inguinal Hernia

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Background: Inguinal hernia repair techniques have a long developmental history. The conventional Bassini's technique, being simple and safe, is the one used most commonly in our hospital. However, the technique produces tension of the repair and usually causes longstanding postoperative pain and discomfort. With the principle advantage of laparoscopic surgery and the tension-free mesh repair, this prospective randomized study was designed to compare the early results of the more commonly used Bassini's technique and Laparoscopic Transabdominal Preperitoneal Mesh Repair (TAPP).

Patients and Methods: One hundred patients with unilateral inguinal hernia were randomly assigned to have their hernia repair done by either technique. All patients were well informed about each technique and the study. Consent forms were obtained before the operation. All patients received basic regular analgesic tablets post-operatively in both groups. Data of operative time, days of hospital stay, days to return to normal activities, days to return to work, total numbers of additional Pethidine injection, total numbers of additional Acetaminophen, and pain scores at day 1, 3, 7, and 14, were collected and analyzed by Pearson Chi-Square test.

Results: Both groups had similar age, sex, and distribution of sides of hernia. The TAPP group showed shorter operative time (55 vs 63.1 minutes), shorter hospital stay (1.88 vs 3.88 days), however, neither was statistically significant. The patients in TAPP group can return to normal activities, and work earlier than those in Bassini's group significantly (p 0.005). The pain score were also significantly less in the TAPP group in all data at days 1, 3, 7 and 14 (p 0.005). Moreover, contralateral hernias were intraoperatively detected in 9 of 50 patients in the TAPP group.

Conclusion: Laparoscopic Hernia Repair (TAPP) has advantage over the conventional Bassini's repair regarding postoperative pain and discomfort, and give the patients earlier return to their normal activities and work. One other advantage of TAPP technique is that an asymptomatic, hidden hernia on the contralateral side can be detected and repaired under the same circumstance.

The Efficacy of Pre-Incisional Bupivacaine Infiltration on Postoperative Pain Relief after Appendectomy. A Prospective Double-Blind Randomized Trial

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Introduction: Pain is the most undersirable and threatening experience for every individuals especially patients undergoing an operation. This study aims to determine the efficacy of pre-incisional bupivacaine infiltration as a preemptive analgesia on postoperative pain relief after appendectomy.

Patients and Methods: A prospective randomized double-blinded study was conducted. One hundred and twenty-three patients, 12-45 years of age, with a pre-and-post-operative diagnosis of acute appendicitis was enrolled in the study. They were randomly set into two groups: the preemptive group of 62 patients (34 males, 28 females) and the control group of 61 patients (32 males, 29 females). In the preemptive group, 10 ml of 0.5% bupivacaine (Marcaine D) was infiltrated into the skin and subcutaneous tissue along the proposed wound line before the making of incision. Another 10 ml was infiltrated into the muscle layer after skin and subcutaneous tissue incision. The control group received no preemptive infiltration. Routine appendectomy was done. Pain score was assessed by the patients. It was recorded in the first 48 hours, at 2, 4, 6, 8 hours postoperatively and then every 4 hours.

Results: The average operative time, the wound length, and the total dose of intraoperative narcotics (fentanyl) were similar in both groups. Six patients (approximately 5%) of each group had non-inflamed appendix confirmed on pathological examination. The pain score during the first 6, 12, 24 and 48 hours including the score while sitting up were all significantly lower ($p < 0.001$) in the preemptive group. So were the total number

of morphine injections and the amount of morphine used per kilogram body weight both on day 1 and day 2 postoperatively. Time to first narcotics requirement was longer in the preemptive group. The length of hospital stay and wound complications were similar in both groups. The pain reduction could be due to interruption of inflammatory or pain mediator cascades normally occur during an operation.

Conclusion: This study revealed the effectiveness of pre-incisional bupivacaine infiltration in patients undergoing appendectomy. It is cost effective and worth applying especially in major surgery.

Prevalence of HER-2 Overexpression in Breast Cancer: Phramongkutklao Hospital

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Background: HER-2 overexpression is seen in 20-30 per cent of invasive female breast carcinomas. Besides being prognostically significant, HER-2 may also be predictive of response to therapy.

Objective: To study the prevalence of HER-2 overexpression, demographic data of the patients, risk factors, clinical staging, pathological data and pathological staging in Thai Female Breast cancer patients in Department of Surgery, Phramongkutklao hospital.

Materials and Methods: One hundred and nine female breast cancer patients underwent surgery and having pathological data with HER-2 pathological report in Department of Surgery, Phramongkutklao Hospital were collected data prospectively since 1 January 2000 – 31 December 2002. The data were analyzed in a descriptive study and HER-2 overexpression prevalence was reported.

Results: There were 43 patients (39%) with HER-2 overexpression. The mean age was 48 years. The mean age of first menarche and menopause were 13 years and 50 years respectively. Clinical stages were Stage I 40%, II 34%, III 19% and IV 7%. Most of the histological cell types were invasive ductal carcinoma. Histological grades were Grade I 9%, II 40% and III 44%. Most of the degrees of differentiation were moderate in 67 per cent. Pathological staging revealed stage I 16%, IIA 37%, IIB 16%, IIIA 5%, IIIB 12% and IV 14%.

Conclusion: HER-2 is overexpressed in approximately 39 per cent of Thai female breast carcinomas in Phramongkutklao Hospital. A significant correlation was found between HER-2 overexpression and high clinical staging, lymphovascular invasion, Ki-67, ER and PR status, advanced pathological staging. No significant correlation was found between HER-2 overexpression and risk factors of breast cancer, location of tumor, type sof operation, histological type, histological grade degree of differentiation, tumor size, lymph node status.

Study of Abdominal Wall hernia in Patients Treated at Maharaj Nakorn Chiangmai

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Background: Abdominal wall hernia is the most common condition requiring major surgery. The etiology of inguinal hernia can be congenital or acquired. The factors associated with the occurrence of the abdominal wall hernia have been studied worldwide. However, the operative results and recurrence rates are still varied. To prevent its occurrence and to effectively manage this illness is to know tus etiology. There was no systematic study in this field in Maharaj Nakorn Chiangmai Hospital about the associated factors.

Objective: To study the factors associated with the occurrence of the abdominal wall hernia.

Method: The patients with abdominal wall hernia treated at Maharaj Nakorn Chiangmai Hospital between January 1, 2000 and December 31, 2000 and/or their relatives were interviewed and their medical records were reviewed. There were 137 patients, 117 (85.4%) males and 20 (14.6%) females. Male and female ratio was 5.85:1. By using SPSS, we calculated for pearson Chi-square,Asymp. Sig. (2-sided) to explain the correlation between each parameters. The results were accepted as significant at $p < 0.05$.

Results: The most common hernia was indirect inguinal hernia. There were 2 peaks of ages that the indirect inguinal hermia predominates, before 15 years old and between 60-70 years old representing the congenital and acquired nature respectively. Of all the studied variables (age, sex, family history, smoking, alcohol drinking, and underlying diseases), the parameters that showed significant correlations with the occurrence of the abdominal wall hernia were ages, sex, the quantity of smoking (cigarettes/day), and previous abdominal operation. There might be a correlation between systemic disease that interfere with abdominal wall strength with the occurrence of the abdominal wall hernia. There was no significant correlation between family history and the occurrence of abdominal wall hernias as previously believed. The patients with indirect inguinal hernias were treated with herniotomy for the patients below 15 years old and the ileopubic tract

repair for the older patients. The most common material used is silk. Most patients were hospitalized for one day after the operation.

Conclusion: Abdominal wall hernias can be congenital or acquired. The best approach for the congenital one is early detection and correction in order to prevent the complications. The approaches for the acquired one are more complex. First, prevention in the no-hernia population by avoiding the precipitating factors such as smoking. Second, early detection and treatment for the population who already have hernias, and treatment of the complications. Lastly, prevention of the recurrence. We propose that increased public education about abdominal wall hernia should be encouraged.

Life Treatening Wound Infection of the Extremeties

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Aim: To remind that minor puncture or scratch wounds of the extremeties in compromised patients with low resistance, i.e. in diabets mellitus and post-transplanted patients on anti-immune drugs may cause life threatening wound infection. This is a rapidly progressing bacterial infection characterized by extensive necrosis of the subcutaneous tissue, tendon and fascia with severe toxicity. The author will confine the discussion only to acute necrotizing fascilitis, where necrosis not involving the muscles but only the fascial lining and tendons. It appears to be related to the binding of the mucopeptide fraction of the bacterial cell wall and collagen of tendon and fascia. The resultant of superantigens produce high level of cytokines causing toxic shock and massive soft tissues destruction.

Materials and Methods: The author encounters about two cases of acute necrotizing fascities each year, and recently two cases were referred for further treatment. One male patient on anti-immune drugs, sustained mosquito bite in the forearm. The other diabetic female scratched her leg. Both had severe thrombbing pain, high fever marked edema of the affected parts. Broad spectrum antibiotics, usually a combination of the parenteral high dose of penicillin and clindamycin were instituted, together with fluid replacement. Then under general anesthesia, the patients were operated upon, by incision and debridement of the necrotic tissue as extensively as required. Intraoperative collection of pus for cultures and gram stained smears were immediately carried out. Daily change of dresisng and irrigation of the wounds using oxoferin were done very carefully and all the remaining dead tissue excised throughly, and fascial spaces opened up to promote free drainage. Skin grafts were safely applied when the wounds were clean or granulation tissues had began to appear.

Results: The two cases reported had satisfactory results with minimal deformity.

Conclusion: Necrotizing faciitis is always serious and carries a high mortality rate of 38.5 per cent but the use of hyperbaric oxygen therapy may reduce this mortlity to 12.5 per cent. Drainage is essential when abscess formation has been found. All the dead tissue should be excised throughly including the fascia and tendons. It is notice that the muscles are always healthy. Hyperbaric oxygen therapy is controversial. Local application of oxoferin to the wound is helpful in these 2 cases. Care must be taken in antibiotic administration when patients are on cyclosporin A, because some antibiotics may decrease (e.g. rifampicin) or elevate (e.g. erythromycin) blood concentration of cyclosporin A.

Cyclin D1 (CCND1) and Epidermal Growth Factor Receptor (EGFR): Potential Molecular Therapeutic Targets in Esophageal Squamous cell Carcinoma (ESCC)

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Purpose: This study was conducted to assess the status of EGFR, HER-2, and CCND1 at the gene and protein levels in esophageal squamous cell carcinoma.

Experimental Design: Dual-color FISH assays were performed using DNA probes for EGFR/CEP 7, HER-2/CEP 17, and CCND1/CEP 11. Expression of the respective proteins was assessed in IHC assays. FISH and IHC results were correlated with patient and tumor characteristics.

Results: Of 55 ESCCs from Prince of Songkla University Hospital, 8 (15%) tumors showed gene amplification and 20 (36%) had gene overrepresentation (balanced gene and chromosome 7 polysomy) for EGFR. High-level protein expression was frequent (49%), positively correlated with gene copy numbers (Kappa = 0.4), and associated with well-differentiated histology ($p = 0.02$). For HER-2, gene amplification was detected in a single tumor (2%), gene overrepresentation in 17 (31%) tumors, and protein overexpression was rare (9%). CCND1 gene was amplified in 23 (42%) tumors and overrepresented in 8 (15%). CCND1 protein overexpression was common (58%) and prevailed in gene overrepresentation or amplification. Only one patient showed gene amplification for both EGFR and CCND1. Survival was not associated with EGFR

or CCND1 gene/protein status, whereas negative patients for HER-2 protein had a better survival than positive patients ($p = 0.04$).

Conclusion: Frequent overexpression and gene amplification of EGFR and CCND1 make these molecules and their pathways potential therapeutic tartets for ESCC. In addition, EGFR and CCND1 appeared to be independently altered suggesting alternative mechanisms for pathway activation. Therapeutic agents targeting these molecules are urged to be tested in clinical trials and comprehensive biological analyses should be included to properly interpret the outcome.

Surgical Management of Bile Duct Injury Following Cholecystectomy

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Objective: Bile duct injury (BDI) is serious complication of cholecystectomy. We analyzed the clinical presentation, diagnostic and therapeutic management and outcome of 13 patients presenting with iatogenic bile duct injuries following cholecystectomy.

Materials and Methods: Between 1992 and 2003 we treated 13 patients with bile duct injuries (BDIs) following cholecystectomy. Operative notes and charts of all patients were reviewed systematically. A follow-up examination of each patient was conducted with a median follow-up duration of 21 months (range 1-71).

Results: Ten patients presented with obstructive jaundice. One patient was referred to the hospital with biliary-cutaneous fistula. In two of patients, BDIs were identified at the time of operations. Twelve patients had major BDIs. They were treated with Roux-en-Y hepaticojejunostomy with at least 2 cm. in the diameter. One patient had minor BDI. The procedure (LC) was converted to laparotomy. At time of conversion, primary suture repair with T-tube drainage of the injuries bile duct was performed. There was no post operative mortality. Post operative complication was found in 5 patients (30.7%). In two patients (15.4%), post operative bleeding occurred. One patient (7.7%) presented with subhepatic collection and surgical site infection was found in two patients (15.4%). Until now, during a median follow-up period of 21 months, neither clinical nor biochemical evidence of cholangitis has been found in these patients.

Conclusion: Major BDIs are associated with high morbidity and prolonged hospitalization. Early detection and referral to an experienced center is crucial in the management of these patients.

Mononuclear Cell Function and Energetics in Early trauma Injury

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Background: Severe hypoperfusion state may lead patient into multi-organ failure and death. Its pathophysiology remains unclear. Mitochondrial dysfunction is thought to play a role.

Objective: To measure mononuclear cell ATP and its function (phagocytosis, protein synthesis) after early traumatic injury with and without hemorrhagic shock. We hypothesize that hypotension may lead to mitochondrial dysfunction and decreased ATP production.

Materials and Methods: Mononuclear cells were isolated within 24 hours of injury from trauma patients without ($n = 12$) or with ($n = 10$) hypotension (Group 1 & 2 respectively), and a group of normal control subjects ($n = 13$). Cells ATP were assayed using bioluminescence. Phagocytosis was quantified via flow cytometer after ingestion of fluorescent beads and phagocytic index (PI) was calculated (average number of particles ingested per monocyte). Protein synthesis was quantified using incorporation of 35-labeled methionine. Comparisons between groups were performed using one way analysis of variance (ANOVA) with adjustment for multiple comparison.

Results: All but one trauma patients suffered blunt injury. Nosocomial infections, length of stay (LOS), and mortality did not differ between Groups 1 and 2. ATP concentration in mononuclear cells as well as its measured functions (phagocytosis and protein synthesis) from the two groups of trauma patients do not differ from the control. There was a weak positive relationship between length of hypotension and ATP concentration.

Conclusion: Mononuclear cells ATP level and its measured funcions are not altered after early traumatic injury.

Identification and Characterization of a Novel Oncogene in Squamous cell Carcinoma of the Upper Aerodigestive Tract

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Aim: Amplification at 3q26-27 is a frequent and crucial event in squamous cell carcinoma (SCC) originating from the upper aerodigestive tract with its presence associated with tumor progression and a poorer clinical outcome. Gene driving selection for 3q amplification

remains ill-defined. We aimed to identify a candidate oncogene in this chromosomal region and to explore its role in invasion/metastasis process.

Methodology and Results: Using a positional cloning strategy, we identified the novel oncogene driving section for 3q26.3 amplification, namely Squamous Cell Related Oncogene or SCRO. Cell lines transformed with SCRO formed xenografts in nude mice and developed regional lymph node metastasis. SCRO transfection into NIH 3T3 cells significantly increased invasion through Matrigel in the in vitro Transwell assay. Substrate zymography of the conditioned medium identified increased gelatinolytic activity consistent with matrix metalloproteinase-2 (MMP2) in SCRO transfected cells. Quantitative real-time RT-PCR revealed elevated MMP2 mRNA expression in parallel with increased MMP2 activity, suggesting it is transcriptionally upregulated by SCRO. The introduction of tissue inhibitor of metalloproteinase-2 (TIMP2), but not TIMP1, blocked SCRO induced invasion in vitro. Anti-sense SCRO transfection in SCC lines demonstrated specific reduction of MMP2 mRNA levels. In addition, analysis of 89 primary carcinomas and matched normal controls derived from upper aerodigestive tract confirmed that SCRO overexpression was significantly associated with the development of regional metastasis ($P = 0.0403$, RR = 1,527). Finally, a significant correlation between SCRO and MMP2 ($P < 0.0001$; RR = 0.48), but not MMP1, MMP9, MT1-MMP, TIMP1 or TIMP 2, was observed in these primary tumors. These results suggest that the novel oncogene SCRO potentiates invasion via the selective upregulation of MMP2.

Conclusion: SCRO is a novel oncogene in squamous cell carcinomas of the upper aerodigestive tract. Experimental and clinical models demonstrated overexpression of SCRO correlated with increased invasion, MMP-2 expression, and poor outcome. SCRO represents a potential prognosticator and an excellent target for biological therapy in these cancers.

Management of Severe Bleeding from Facial Fracture

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Introduction: Persistent bleeding from facial fractures after nasal packing or direct pressure is not common. However, if it happens, the mortality rate is very high. The study of the treatment for this group of surviving patients may give the guideline how to manage these problem cases.

Methods: The severe bleeding cases from facial fractures who were in shock and still bled after nasal packing or wound compression at the emergency room were collected from January 1, 1993 to October 31, 2002. The surviving cases were reviewed for the treatment and complications from the facial fracture records.

Results: From 3,697 cases of facial fractures during the study period, there were 14 cases who were in shock and the bleeding did not stop by the primary management at the emergency room. Five patients died. The 9 surviving cases were 3 Le Fort fracture, 2 nasal fracture, 1 mandibular fracture and 3 multiple facial fractures. Repacking of nasal cavities was performed and could stop bleeding successfully in 3 cases. Three cases required operation and 3 cases had the angiography and embolization. One case still bled after operation and needed angiography and embolization. There were 3 cases of complications: one case of severe injury of the eye globe necessitated neucleation; one case of bind- ness; and one case of necrosis of nasal columella and soft palate.

Conclusions: Severe bleeding from facial fractures that cannot be controlled at the emergency room had the high mortality rate. The adequacy of nasal packing or wound compression should be evaluated first. Early operation could stop bleeding in nearly half of the cases. Angiography and embolization can be used alone or adjunct to the operation to control bleeding with good result. Mismanagement aiming to stop bleeding may cause morbidity.

Inverse Correlation Between Published Operative Risk and the Quality of Methods and Reporting in Surgical Case Series

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Aim: Recently there has been a great deal of concern about the quality of articles in the surgical literature. The objective of this study was to evaluate the quality of the design and reporting of clinical research in surgical papers about the risks of carotid endarterectomy (CEA).

Materials and Methods: We performed a systematic review and meta-analysis of reports of the operative risk of CEA. All English-language publications on the risk of stoke and death due to CEA were identified by electronic and manual searching. Twelve criteria were used to assess their quality, and were related to the reported operative risk.

Results: Two hundred and theirteen eligible publications were studied. Many flaws in research design and reporting were identified. For example, the definitions of stroke and stroke severity were reported in only 27.5 and 20.6 per cent of the papers respectively, and adequate

definitions of any risk factors were given in only 15.8 per cent of reports. Studies that were prospective and studies that had independent assessment of outcome reported higher risks of stroke and death. Several criteria for the quality of reporting were also independently associated with the reported operative risk of stroke and death, including specification of inclusion/exclusion criteria, reporting of baseline patient data, definitions of stroke and peri-operative period, definitions of any risk factors that were reported, and description of surgical techniques.

Conclusions: Low quality research and inadequate reporting of research are very common in the literature of CEA. This could be improved by attention to simple quality criteria. Among published reports of the operative risk of CEA, most of those papers that did not satisfy the quality criteria reported the lowest operative risks.

Hand-Made Loop Cutter Cautery for Debridgment

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Infected wounds with necrotic tissues such as infected diabetic foots, necrotizing fascitis are common problem to general surgeons. Loop electrocautery is one of the useful instruments for debridgement due to convenience, minimizing bleeding, less time cosuming and could remove various amounts of tissues in each cut as desired. At present, the loop cautery made from medical instrumental factory is still a good tool but indurable and costly. As the problem mentioned, this cautery was made using the guidewire of ureteric catheter and coiled to creat the loop shapes at the tip of cauterized part of disposible cautery.

This guidewire has smaller diameter, more durable and inexpensive. It can be bended into various shapes ect. circle, oval or griangle for using in various types of the infected wounds. It benefits compairs to the original loop cautery are that it can be used with the same electrocautery unit, easily made, sharp, more durable and cheap.

The Opinion of Ethical Management from Thai Surgeons

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Introduction: Ethical opinion is too different in many people. An objective of this study is to present the opinion of ethical management in some ethical issues from Thai surgeon.

Materials and Methods: Descriptive study of ethical management in Thai surgeon at Ambassador City Hotel during 24-27 July 2002. The data was analyzed from questionnaire.

Result, Discussion and Conclusion: The opinion of ethical management of 337 from 1,800 Thai surgeon recruited were: 99.8 per cent patient should be informed about risk before treatment, 88.4 per cent surgeon should talk to the patient and report about the complication, 80.1 per cent surgeon should notify previous doctor about complication, 95.4 per cent surgeon should be the one who tell the truth about the complication to the patient and relatives, 64.7 per cent hospital officer should be responsible to the patient for the complication, 91.8 per cent good Doctor-patient relationship should be established to reduce patient severe reaction upon the complication, 95.3 per cent the opinion given by second doctor should not blame the first one for the complication, 72.8 per cent surgeon should have been certified that they are expert in their related fields, 85.5 per cent surgeon should be the one who take responsibility for the complication, 65.3 per cent the opinion agree with reevaluated the complication related operative procedure of surgeon individually.

Sentinel Node Biopsy in Clinically N0 Oral Cancer: Siriraj Hospital Experience

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Background: A large portion of patients with oral cancer may have no cervical lymph node metastases detectable by examination or radiographic imaging study, yet they may still have patholgoical occult cervical lymph node metastases occurring in 20-50 per cent of oral cancer patients. The issue of managing the clinically negative neck (N0) that, nevertheless, remains controversial.

Aim: To evaluate the feasibility and predictive ability of the sentinel node biopsy (SNB) for patients with squamous cell carcinoma (SCC) of the oral cavity and clinically N0.

Materials and Methods: Prospective, efficacy study comparing the histopathologic status of the sentinel node with that of the remaining neck dissection specimen. Patients with primary untreated oral SCC accessible to injection and with clinically N0 necks were enrolled in the study. Radiolabel with technetium Tc 99m sulfur colloid or dextran was injected in quadrants around the primary site followed by immediate dynamic lymphospcintigraphy. Focal areas of radiotracer uptake were marked on the skin preoperatively. SNB was performed by the combined

means of a preoperative lymphoscintigraphy and intraoperative use of a gamma probe identified radioactive sentinel nodes and visualization of blue-stained lymphatics identified blue (SNs). Regional or complete neck dissection was performed after sentinel node biopsy in all patients and the histological findings were compared with those of SLN biopsy.

Results: Forty clinically N0 oral cancer patients underwent lymphoscintigraphy, SNB, and neck dissection. The SLN was identified in 95 per cent of the patients; in eight cases (20%) more than one SLNs were isolated. Forty SNs in 36 patients were negative at final pathology and correctly predicted the pathological status of the specimens from the neck dissections. Six SNs in four patients had micrometastases and were the only metastatic nodes identified. When the histology of the negative SLNs was compared with the pathological status of the neck dissection specimens, no false negative were found.

Conclusion: Our preliminary investigation shows that sentinel node localization and biopsy is technically feasible in oral cancer and is predictive of cervical metastasis. The sentinel nodel technique has the potential to decrease the number of neck dissections performed in clinically negative necks, thus reducing the associated morbidity for patients in this group.

Intestinal and Hepatic Metabolism After Induction of Moderate Hypothermia

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Purpose: Whole body moderate hypothermia (31-32°C) has been reported to be protective against ischaemia-reperfusion injury such as intestinal and hepatic ischaemia-reperfusion. However, its effect on intestinal and hepatic energy metabolism receives little attention. The aim of the study was to investigate intestinal and hepatic metabolism following induction of moderate hypothermia.

Materials and Methods: The animals (rats) were anaesthetized with halothane and oxygen. Moderate hypothermia was induced using cool blanket. The time for induction of hypothermia generally took 15 min. Rectal temperature was continuously monitored. Two groups of adult rats were studied, n=6 per group: A) normothermia (36.5-37.5 °C) and B) moderate hypothermia. After 120 min, the intestine and liver were quickly freeze-clamped and removed. Intestinal glucose, succinate, lactate, phosphocreatine and ATP as well as hepatic glucose, succinate, lactate and ATP were measured using 1H and 31P magnetic resonance spectroscopy of tissue extracts. Unpaired t-tests were used. Data are expressed as mean ± SEM in terms of micromole/g wet weight.

Results: All rats survived until the end of the experiment. There was no significantly undesirable effect of moderate hypothermia during the experiment. Induction of moderate hypothermia caused an increase in intesitnal glucose levels (group A vs. group B, 0.78 ± 0.03 vs. 1.29 ± 0.11, $p = 0.0012$) together with a decrease in hepatic lactae (0.82 ± 0.04 vs. 0.44 ± 0.06, $p < 0.001$) levels. There were no differences in intestinal succinate, lactate, phosphocreatine or ATP levels as well as hepatic glucose, succinate or ATP levels.

Conclusion: Small intestine and liver responded to the induction of moderate hypothermia differently. However, the levels of high-energy phosphates in both organs were not affected by hypothermia suggesting adequate phosphoenergetics for organs. We speculate that there might be a decrease in glucose oxidation during hypothermia and/or the consumption of other substrates, such as glutamine, in the intestine as well as a decrease in the rate of conversion of pyruvate to lactate within the liver.

Familial Juvenile Polyposis: A Family Survey and an APC Gene Mutation Screening

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Introduction: Familial juvenile polyposis (FJP) is an uncommon harmatomatous lesion that has been known to pose a malignancy risk. Although the mode of inheritance is well documented as an autosomal dominant, the related gene has not been clearly identified. The Adenomatous polyposis coli (APC) gene is one of the candidate genes, of which point mutations have been reported in FJP patients. The objectives of this study were to determine a pattern of inheritance in a kindred with FJP and to screen their bloods for a germline mutation of the APC gene.

Materials and Methods: Two cases of histologically proven FJP from the same family were trearted at our institute during the last five years. We conducted a family visit with them at Trang province, Southern Thailand. Members of the family were examined for symptoms that may indicate a polyps disease. Medical records of symptomatic family members who had experienced an endoscopy or radiological study were thoroughly reviewed. Blood samples from the two index cases and seven volunteer family members were collected for germline mutation study. One unrelated (in-law) member also gave her blood for a negative contol.

Four codons of the APC gene on the chromosome

5q21-22 (codons 1309, 1061, 623 and 302) were screened from mutation. The Mutation study used PCR bases electrophoresis with or without restriction enzymes, as described by Ando H (1993).

Results: A history was obtained from 40 members of 5 generations. The was no consanguinity in the family. Sixteen persons (12 males and 4 females) had chronic hematochezia compatible with the disease. The youngest symptomatic case first presented symptoms at nine years old. Only 5 cases, including our two index cases, had received modern medical treatment. Before our study began, two elderly members succumbed to colonic cancer. Of the rest, some took herbal medicine while the others declined any treatment.

The mode of inheritance was autosomal dominant. Unfortunately, we could not draw an exact percentage of penetrance because of inadequate data. APC gene mutation screenings were negative in all specimens.

Conclusion: We performed a clinical and genetic study in a family with FJP and confirmed its autosomal dominant pattern of inheritance,. Screening of the APC gene mutation yielded negative results.

Adult Intussuception of the Small Bowel Due to Peutz-Jeghers Syndrome: A Case Report

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Peutz-jeghers syndrome (PJS) is a rare, though well-described, hereditary polyposis syndrome associated with mucocutaneous pigmentation. We report the case of a 31-year-old woman with an intussuception of the small bowel due to PJS. Immediate laparotomy was performed, and approximately 30 cm of the small bowel had to be resected because of ischemic areas. The PJS is rare. Treatment is either surgery or a combination of surgery and endoscopy.

NEUROSURGERY

Outcome of Closed Head Injury in Maharaj Nakorn Chiangmai Hospital

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Objectives: The aim of this study was to determine outcomes of head injury patients that came to our hospital and correlated with other reports in Thailand.

Materials and Methods: Prospective data collection included all adult isolated closed head injury inpatients between January 2001 to April 2001. Patients were stratified by Glassgow Coma Scale score (GCS) at admission. Mortality, neurological deficit, complication, hospital stay and Glassgow Outcome Scale score (GOS) were examined. And GOS was follow-up three times in 6 months after discharge.

Results: Of 174 patients identified, 47 per cent had mild injury (GCS 13-15), 17 per cent had moderate injury (GCS 9-12), 36 per cent had severe injury (GCS 3-8). There were 49 patients (28%) had neurosurgical operations. Overall mortality was 19 per cent (3% in mild, 6% in moderate and 46% in severe injury). Nineteen patients had neurological deficits, 24 had complications and average hospital stay was 6 days. At discharge from hospital 63 per cent had GOS = 1, 9 per cent had GOS = 2, 7 per cent had GOS = 3 and 2 per cent had GOS = 4, Only 40 per cent visited first follow-up, 12 per cent at second, 3 per cent at third follow-up and had slightly improvement in GOS. Compared to other reports, most treatment results are not distinctly improved.

Conclusion: Outcome of head injury victims in our hospital were acceptable and comparable with other reports in Thailand.

Surgery of Intracranial Aneurysms: Experience of 100 Cases

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Objective: The purpose of this study was to evaluate the results of surgical treatment of 100 cases of Intracranial Aneurysms performed by the author.

Materials and Methods: The study was designed as a retrospective study involving 100 patients who underwent surgery for ruptured intracranial aneurysm from 1991-2002. Patient age, gender, location of aneurysm, and subarachnoid hemorrhage (SAH) clinical grading (Hunt and Hess grading) were studied and correlated with outcome following surgery.

Results: One hundred patients were included in the study (57 females and 43 males). Thirty six patients (36%) had aneurysm of the posterior communicating artery (PcoA), 33 patients (33%) had aneurysm of the anterior communicating artery (AcoA) and 17 patients (17%) had aneurysm of middle cerebral artery (MCA). Outcome as evaluated by Glasgow outcome scale was good recovery in 60 patients (60%), moderate disability in 11 patients (11%), severe disability in 7 patients (7%) and death in 22 patients (22%) respectively. Good recovery and moderate disability patients (71 patients or 71%) were clasified under the favorable outcome group whereas patients with severe disability and death (29 patients or 29%) were classified under the unfavorable outcome group. According to Hunt and Hess SAh grading the patients with SAh grade I-III had favorable outcome in 60 patients (92%) and unfavorable outcome in 5 patients (8%) whereas the patients with SAH grade IV-V had favorable outcome in 11 patients (31%) unfavorable outcome in 24 patients (69%).

Conclusion: This study had 100 cases with 71 cases in favorable outcome, 7 cases in severe disability and 22 death cases. Patients with SAH grade I-III had favorable outcome in 60 cases (92%) and death in 5 cases (8%). Factors that affected outcome were SAH clinical grading and age of the patients.

Analysis of Digital Videocamera Recording During Swimming as a Developing Method for Evaluation of Function Recovery Following Nerve Injury in Rat Hindlimb

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Objectives: 1. To develop a reliable method for evaluation of functional recovery following nerve injury and repair by digital videocamera recording of postures and movements of rat hindlimbs during swimming. 2. The sensitivity and specificity of the recording patterns following sciatic, posterior tibial and peroneal nerve injuries are analysed in phase I study.

Materials and Methods: Movement of the foot of each rat, survived from complete nerve laceration at proximal hindlimb, were recorded by a digital camera, while swimming in glass jar. There were thirty rat divided into 3 groups of 10 sciatic, 10 posterior tibial and 10 peroneal nerve injuries. The recordings were analysed in slowmotion mode and the patterns of deformities were classified to determine the correlation with the specific nerve injury.

Results: The recording process was uncomplicated but need computer – graphic specialist to edit the slow – motion mode. The sensitivity was 100 per cent while the specificity was 100 per cent for sciatic, 80 per cent for posterior tibial and 60 per cent for peroneal nerve injuries.

A Systematic Review of the Risks of Carotid Endarterectomy in Relation to the Clinical Indication and the Timing of Surgery

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Aim: Reliable data on the risks of carotid endarterectomy (CEA) in relation to the clinical indication and the timing of surgery are necessary to target treatment more effectively, to properly inform patients of the risks, to adjust the operative risks of individual surgeons or institutions for case-mix, and to understand the mechanisms of operative stroke.

Materials and Methods: We performed a systematic review of studies published from 1980-2000 inclusive that reported the risk of stroke and death due to CEA. Pooled estimates of the operative risk of stroke and death by the type of presenting ischaemic event and the time stince the last event were obtained by Mantel-Haenszel meta-analysis.

Results: Of 383 studies that reported operative risks, only 103 stratified these by the indication for surgery. Compared with CEA for asymptomatic stenosis, operative risks were higher for symptomatic stenosis overall (OR = 1.62, 95% CI = 1.45-1.81, $p<0.00001$, 59 studies). Operative risk was the same for stroke and cerebral TIA (OR = 1.16, 0.99-1.35, $p = 0.08$, 23 studies) and for carotid territory hemispheric events versus "non-hemispheric" symptoms (OR = 1.33, 0.94-1.89, $p = 0.15$, 14 studies), but higher risks were found for cerebral TIA than for ocular events only (OR = 2.31, 1.72-3.12, $p <0.0001$, 19 studies), and for CEA for re-stenosis than primary surgery (OR = 1.95, 1.21-3.15, $p = 0.018$, 6 studies). The risk of CEA for asymptomatic stenosis was non-significantly higher than that for ocular events only (OR = 1.33, 0.88-2.00, $p = 0.22$, 15 studies). Urgent surgery for evolving symptoms carried a much higher risk (19.2% 10.7-27.8) than surgery for stable-symptoms (OR = 3.9, 2.7-5.7, $p <0.001$, 13 studies), but there was no difference between early (<3-6 weeks) and late (>3-6 weeks) surgery in stable patients (OR = 1.13, 0.79-1.62, $p = 0.62$, 11 studies). For none of these observations was there any statistically significant heterogeneity between studies.

Conclusions: Categorisation of stenosis as "symptomatic" or "asymptomatic" is an oversimplification, and is of limited use in predicting operative risk or correcting for case mix. the risk of stroke and death due to CEA is highly

consistently dependent on the clinical indication and timing of surgery, and guidelines on surgical risk should be stratified accordingly.

Time Trends in the Published Risks of Stroke and Death Due to Carotid Endarterectomy for Symptomatic Stenosis: A Systematic Review

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Aim: Randomised trials published in the early 1990s demonstrated that carotid endarterectomy (CEA) is highly beneficial for patients with severe symptomatic stenosis, but were less conclusive for patients with moderate symptomatic disease. Surgery in the latter group is often justified on the premise that operative risks and complications have fallen over the last decade. To identify any changes in outcome of CEA, a review of all published literature reporting outcome for CEA in the last 7 years was undertaken.

Materials and Methods: We performed a systematic review and meta-analysis of reports of the operative risk of CEA. A systematic review was done of all studies published between 1994 and 2000 reporting the risks of stroke and death because of CEA. These data were combined with previously identified studies published between 1960 and 1994 to study trends of outcomes over the last 40 years.

Results: Forty-six studies were identified that reported stroke and death rates specifically for symptomatic patients. The overall operative mortality was 1.3 per cent (95% Confidence interval [CI] 1.1-1.4) and the risk of stroke and death was 4.6 per cent (95% CI 3.9-5.2). Over the last 15 years the risk of death and stroke and death, has remained constant for symptomatic patients. There has been an increase in the mean age of patients operated ($p < 0.01$). As noted previously, the peri-operative risk of combined stroke and death when reported by independent neurologists was the same as the of the major randomised trials but higher than studies reported by surgeons alone 6.0 per cent (95% CI 3.8-8.2) and 6.8 per cent (95% CI 6.3-7.0) vs 3.8 per cent (95% CI 3.1-4.6) respectively.

Conclusion: There has been no reduction in published risks of stroke and death for symptomatic patients for the last 15 years. There is still a difference in stroke and death rates reported by the operating surgeon and by independent neurologist assessors.

COLORECTAL SURGERY

Up Regulation of RCAS1 is Implicated in Immune Evasion of Colorectal Cancer

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Aims: The colorectal cancer is well established as an excellent model for the study of a sequence of genetic events associated with multistep carcinogenesis. The gradual accumulation of genetic alterations is necessary for the progression of bening polyps to carcinoma and eventually metastases. Each step of carcinogenesis produces many kinds of tumor antigens, which can be recognized and eliminated by the host immune system. To survive in the body, cancer cells must have ability to evade immune elimination. RCAS1 (Receptor-binding Cancer Antigen expressed on SiSo cells) is a tumor-associated antigen, implicated in immune evasion of tumor cells by acting as a ligand that binds to its receptor on the immune cells such as NK cells and T cell and subsequently induces apoptosis of these cells. The high expression of RCAS1 has been demonstrated by immunohistochemical staining in certain tumors such as cervix, breast, lung and stomach. However; the expression of RCAS1 in colorectal cancer has never been quantified. This study aims to invastigate the expression of RCAS1 in colorectal cancer and to clarity the stages of colorectal carcinogenesis, which express this antigen.

Materials and Methods: Fifty colorectal cancers and 12 adenomatous polyps specimens obtained from Rajavithi Hospital were included in this study. Detection of RCAS1 expression was carried out on 4 mm thick sections of formalin-fixed, paraffin embedded specimens by immunohistochemical-staining technique using monoclonal anti-RCAS1 antibody and the freshly isolated tissues were processed for detection of RCAS1 mRNA by RT-PCR. Tumor-infiltrating lymphocytes (TIL) in the specimens were detected in serial sections by immunohistochemical-staining technique and the apoptosis of these

cells were identified in situ by using Colorimetric TUNEL assay.

Result: The immunosignal for RCAS1 protein was highly intense in all specimens of the adenomatous polyps and colorectal cancers whereas it was weakly detected in the normal. The results of RT-PCR from tumor tissues were also correlated with the result of immunohistochemical staining. The apoptosis of TIL was identified in situ adjacent to the area of RCAS1 expressed tumor cells.

Conclusions: The results suggested that there was up regulation of RCAS1 in the early stage of colorectal carcinogenesis and persisted in all stages of cancer development. The expression of RCAS1 in the colorectal cancer might be implicated in evasion of immune surveillance by inducing apoptosis of TIL.

Endoanal Repair of Rectocele

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Rectocele is one of the surgical collectable difficulty defecation. Up to the present, the only clarified indication for surgery is symptomatic rectocele such as increase straining, pressure at perineal body, need of digital insertion against posterior vaginal wall during defecation and evacuation. Three operative approaches namely transvaginal repair, endoanal repair and transphincteric repair have been advocated. However, the results in each report varied.

Pupose: To study the results of endoanal repair rectocele in colorectal unit at King Chulalongkorn Memorial Hospital.

Method: During 1/1/1998 to 12/31/2002, 24 rectocele patients were endoanaly repaired. Twenty-one charts could be reviewed for symptoms, associated diseases, complication, and results at 2-4 months and only 14 of 21 patients were interviewed by phone for over 12 months results.

Results: All 21 patients complained with difficult defecation, 15 increase straining, 9 digital evacuations, 7 pressure at perineal body, 5-insert digit against posterior vaginal wall. Defecography showed the perineal descent in 5 patients and solitary in 2. For 2-4 months followed up, symptoms dramatically improved in 20/21 patients, 5/21 were free from symptoms. For over 12 months followed up, 5/14 had the same symptoms as the early post operative period, 5/14 got worse but better than preoperative period, and 4/14 patients were having symptoms returning as before operation.

Conclusion: For short-term result, after endoanal repair rectocele, 95 per cent dramatically improved but after one year followed up 56 per cent (9/14) were getting worse especially in pelvic floor descent syndrome and chronic constipation.

Role of Seton in Treatment of Horseshoe Fistula

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Objective: To compare the treatment of horseshoe fistula between Hanley's technique alone and Hanley with Seton technique.

Materials and Methods: Impatient records of horseshoe fistula in King Chulalongkorn Memorial Hosptial between 1993-2001 were retrospectively reviewed. The recurrent rate and complication were studied from the inpatient and OPD records. Interviewing the patients or relatives was also included in the study.

Results: There were 374 fistula in ano patients, 26 were horseshoe fistula between the age of 25 and 60 years old. Haley's technique was performed in 14 patients (12 males 2 females, mean age 40 years old). There were 4 recurrences (re-operated and healed 1 patient, lost follow up 3 patients), and 1 death from medical problem. Healing in the first operation was found in 9 patients (64%) with no complication. Twelve patients received Hanley with Seton Technique (10 males, 2 females, mean age 39 years old) had recurrence in 3 patients (re-operated and healed 2 patients, lost follow up 1 patient), and 1 partial incontinence (8%).

Conclusion: Seton technique is still a good treatment in horseshoe fistula because of high cure rate but may have increased incidence of incontinence.

Treatment of Anal Condylomata Acuminata in the Colorectal Unit of King Chulalongkorn Memorial Hospital

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Objective: Condylomata acuminata has been considered the most common anorectal infection affecting HIV-positive patients. The aim of this study was to determine the results of treatment of anal condylomata acuminata in the colorectal unit of King Chulalongkorn Memorial Hospital.

Subjects and Methods: Retrospective review of 52 patients who underwent treatment of anal condylomata acuminata between June 1998 and May 2003. All patients

received treatment by electrocoagulation. The results of treatment between HIV-postive and negative group were compared.

Results: The average age was 28 years. The male to female ratio was 3.3:1. The diagnosis of HIV was confirmed by ELISA positive in 26 patients, negative in 18 patients. Only 46% of HIV-positive patients recovered from anal condylomata acuminata by applying electrocoagulation, whereas 83 per cent HIV-negative patients recovered.

Conclusion: The electrocoagulation was a safe and effective operation in treatment of anal condylomata acuminata. HIV-positive patients had a poor prognosis and repeated electrocoagulation may be required, but complete recovery was ultimately achievable.

Management of Anal Stricture in King Chulalongkorn Memorial Hospital (KCMH): A 5 year-Experience

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Objective: To review the etiology, severity and surgical options in the patients with anal stricture (AS) and to evaluate the association between the surgical treatment, etiology and the severity of AS.

Materials and Methods: Inpatient records of AS between 1997 to 2002 were reviewed. The etiology was evaluated and the severity and the level of AS were classified on the basis of physical examination findings. treatment modality was also reviewed and evaluated.

Results: There were 24 patients (17 males, 7 females) between 24 and 77 years of age (mean age 47 years old). There were 7 patients with hemorrhoids (29.2%) who had AS from unknown chemical irritant application by non-medical personnel. Another 7 patients (29.2%) developed AS after hemorrhoidectomy. The other causes were post trauma, post perianal operation, post radiation and post-subtotal hysterectomy. Seven patients had severe AS. Moderate and mild degree AS were seen in 14 and 3 patients, respectively. Of the 7 with severe AS, 5 were hemorrhoid patients with unknown chemical irritant application and 2 post traumatic. These patients required more complicated surgical correction than patients with mild and moderate AS.

Conclusion: The common etiology of AS in Thailand differed from the western literatures in that the common cause was unknown chemical irritant application to hemorrhoids. The decision for appropriate surgical options depended on the etiology and the severity of AS.

PEDIATRIC SURGERY

Endoscopic Sclerotherapy: A Palliative Treatment for Bleeding Esophageal Varices in Childhood

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Aim: To review our experience as a tertiary pediatric surgical center in Southern Thailand in endoscopic sclerotherapy for esophageal varices

Materials and Methods: Retrospective review of consecutive pediatric cases with esophageal varices, undergoing endoscopic sclerotherapy from 1988-2002. Data were focused on an appraisal of this treatment as a surgical altermative in palliation of variceal bleeding.

Results: Endoscopic sclerotherapy (ES) has been used for controlling esophageal variceal hemorrhage in 28 consecutive pediatric patients at Sonklanagarind Hospital since 1988. The underlying causes were 16 (57%) portal vein thrombosis (PVT) and 12 (43 %) cirrhosis (CR) which consisted of 7 (25%) cirrhosis from biliary atresia (BA), and 5 (18%) cirrhosis from chronic hepatitis of unknown cause (CH). One hundred and forty nine sclerotherapeutic sessions were employed to control the bleeding varices at an interval of 1-6 months between each injection. All of the patients had sclerotherapy performed under general anaesthesia with 1 per cent aethoxy sclerol injected endoscopically via 3 mm./#22 needle at the amount required according to severity in each patient. The total volume injected in each session varied between 2-19 ml. Average number of injection sessions per patients for PVT, CH and BA were 5.5 (1-19), 9.2 (1-17) and 2.1 (2-18) respectively. Complications were bleeding post injection 4/149 (2.7%), fever 9/149 (2.4%) and dysphagia 2/149 (1.6%). There were 32 episodes of intercurrent bleeding after 149 injections (21.5%) but most of them (94%) were low grade and easily controlled. There was only one PVT patient with endoscopically uncontrollable variceal hemorrhage who had been successfully treated by mesocaval shunt operation. There was no stricture or perforation caused by this procedure. Although 39 per cent of the patients had been lost to follow up, 4 patients (2PVT, 2CH)

had been completely recovered without endoscopic evidence of esophageal varices after a median 4 years (range 4-8 years) of injections. Although there were 4 mortalities after a long-term follow up, none of them was related to ES. Three BA and one CH patients died of end stage hepatic failure during the course of treatment.

Conclusion: Endoscopic sclerotherapy is a safe and effective palliative procedure to control pediatric bleeding esophageal varices of all causes. It improves quality of life despite not prolonging survival of the cirrhotic patients. Although its role as a curative treatment for the patients with portal vein thrombosis remains in doubt, the procedure is less invasive as compared to the shunt operation.

An Appraisal of Invertograms and Distal Colostograms in the Management of Anorectal Malformations

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Objectives: To determine the accuracy of two main radiologic tools currently employed in the clinical management of anorectal malformations, the invertogram and the distal colostogram. The data will be useful as a basis for quality assurance as well as for future comparisons in case there are innovations to be considered.

Materials and Methods: Radiological metherials and clinical records of infants with anorectal malformations operated upon in Songklanagarind Hospital from 1995 to 2001 were retrieved. Each study was reviewed blindly by two radiologists and one pediatric surgeon. Using operative findings as the gold standard, the accuracy of an invertogram in diagnosing low anomalies and the accuracy of a distal colostogram in screening cases that needed a laparotomy and in detecting internal fistulas were determined. The quality of films was also categorized and poor quality studies were excluded form analysis. Cases of common cloaca were not included in the level of reading analysis.

Results: Radiologic materials from 59 patients were examined, consisted of 26 invertograms and 49 distal colostograms. Among 52 cases whose neonatal history could be traced 29 (55.8%) cases exhibited clinical evidence of anomalies level. Two invertograms and 5 colostograms were graded as poor quality and excluded from analysis. The overall sensitivity of invertograms in detecting low anomalies was 33.3 per cent whereas specification was 66.7 per cent. Analyzing only infants with a blind rectal pouch, the sensitivity and specificity to detect low anomalies were 33.3 per cent and 75.0 per cent, respectively.

The sensitivity of distal colostograms in detecting a fistula was 60.0 per cent in males and 62.5 per cent in females. Distal colostogram diagnosed 'high-type anomalies' in 7 cases and correctly detected 2 cases of vesical fistula who needed APSARP. No prostetic-urethral fistulas showed a radiological high level.

Conclusion: The study found poor diagnostic sensitivity of invertograms in detecting low type anomalies which deserved primary anoplasty. However, the data support the role of a distal colostogram in diagnosing high anomalies, despite its low sensitivity in detecting urethral fistulas.

Long-Term Nutritional Status of Pediatric Patients Undergoing an Ileal Resection in Infancy: A Preliminary Report

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Introduction: Although vitamin B12 deficiency and various sequelae of ileal resection in adult patients are well documented, there is limited data regarding the consequences in infancy. The objective of this study was to evaluate the vitamin B12 and nutritional status of infantile pediatric patients who underwent ileal resection.

Materials and Methods: Infants who underwent ileal resection at Songklanagarind Hospital between 1992-1997 were given a detailed clinical, anthropometric, hematologic and biochemical assessment. The results were compared with age-matched patients who underwent abdominal operations without intestinal resection.

Results: Fourteen patients were included in the study, 8 in the ileal resection group and 6 in the control group. The age at operation ranged from 1 day to 6 months while the follow-up period ranged from 32 to 165 months. The length of resected ileum ranged from 3 to 20 centimeters, with a median of 8.5 cm. All of the patients in both groups were in good health and normal dietary habit. Three cases in the resected group were regarded by their parents as having abnormal bowel movement (one each of constipation, loose stool and frequent bowel movement). None of the patients had vitamin B12 supplements in any form. The median length and weight of the patients in the ileal resection group were between the 25^{th}-50^{th} percentile and the 10^{th}-25^{th} percentile for Thai normograph, respectively. Both median length and weight in the control group were between the 25^{th}-50^{th} percentile. The hemoglobin levels of all patients were in the normal range. Serum vitamin B12 in the ileal resection group ranged between 394-1,629 picograms/millilitre, with a mean of

997.6 pg/ml., whereas those of the control group ranged between 759-1,496 pg/ml, mean 1,112.7 pg/ml. (p>0.1)

Conclusions: Although the small number of subjects in the study prohibits critical interpretation, vitamin B12 deficiency seems not to be a long-term sequlae after an ileal resection in infancy. Whether this is due to a limited resection or the result of an intestinal adaptation will require a more detailed studied.

Long-term Follow-up Circular Esophagomyotomy for Primary Repair of Long-Gap Esophageal Atresia

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Background/Purpose: A primary esophagoesophagostomy is the treatment of choice for repair of esophageal atresia. An end-to-end anastomosis of the esophagus can be accomplished in the wide-gap esophageal atresia by obtaining extra esophageal length through circular myotomy of the proximal esophageal pouch. Distal esophageal mobilization was successful in facilitating a primary anastomosis with good results reported by Lesion MS. Although classic teaching dictates that dissection of the distal esophagus should not be done because of disruption of its segmental blood supply.

Methods: Two infants born with type C proximal esophageal atresia and distal tracheoesophageal fistula underwent extrapleural approach thoracotomy shortly after birth. Both had a long gap preventing primary anastomosis. The distance between the free surgical margins of the esophagus were 3.0 and 4.0 cm. One patient with 3.0 cm gap was repaired by end-to-end anastomosis combined with one circular myotomy on the upper segment. Gastrostomy was performed for early feeding. The second patient with 4.0 cm gap need 2 circular myotomy combined with distal esophageal mobilization to facilitate primary anastomosis. Nasogastric tube was passed through anastomotic site for feeding without gastrostomy.

Results: The 3.0 cm gap patient weight 2,400 gm had minor esophageal anastomosis leakage detected on 7th day and spontaneously close on 14th day. There was clinical stricture detected at 4 month-old which responded well with 2 dilatation sessions. The esophagogram at 7 and 9 years of age demonstrated good motility of the esophagus without gastroesophageal reflux. The 4.0 cm gap patient weight 2300 gm had minor esophageal anastomosis leakage with spontaneous closure on 20th day. The esophagogram at 7 month old was normal without gastroesophageal reflux.

Conclusions: Circular myotomy and or distal esophageal mobilization to facilitate primary esopahgeal anastomoses in long gap esophageal atresia were effective and had good results, avoiding the need for prolong hospitalization or esophageal replacement.

Validation of A Clinical Scoring System in the Primary Care of Children with Suspected Acute Appendicitis

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Background: Acute appendicities is the most common cause of abdominal pain requiring surgery in children. The diagnosis of appendicitis is based on clinical findings in correlation with laboratory investigations. Currently, morbidity in children treated with appendicitis resulting from either delayed diagnosis or negative appendectomy remains high. A prospective analytic study of a clinical scoring system for the diagnosis of appendicitis in children was conducted.

Objective: To establish a scoring system for the diagnoses of acute appendicitis in children in orders to reduce the rate of negative appendectomies and delayed ones.

Patients and Methods: The charts of peditric patients admitted with acute abdominal pain at Pediatric Surgery Department of Siriraj Hospital during July 2000 - September 2001 were retrospectively reviewed. The information collected concerned the patients' medical history, signs, symptoms, physical examinations and laboratory investigations. The final diagnosis was based on histology. The clinical predictors were listed out and the significant variables selected. Using logistic regression, the parameters were weighed as coefficients, which were later formed into a score equation. The score was then prospectively applied to the study group in the following year from October 2001-September 2002. After the cut points of the results were calculated, the patients were grouped into 3 categories; Group I were patients who were to be advised and to return for re-examination within 24-48 hours, Group II were patients who needed active inpatient observation and Group III were patients who needed surgery. The score was assessed separately with respect to the decision of the attending physician. The out come was compared to the conventional management based on histologically confirmed diagnosis.

Results: The retrospective data collected listed out 19 clinical predictors with 14 significant variables. Using logistic regression, the 14 parameters were weighed as coefficients, which became the scores to each parameter. The score was applied to a consecutive series of 120 pediatric patients in the following year, aged 2-15 years old. There

were 63 boys and 57 girls. By using cross tabs, the cut points were calculated as follows; patients with scores of 1-18 should be advised and followed up within 24-48 hrs, 19-34 should be admitted for observation and 35-57 prepared for surgery. There were 71 operated cases with 5 lymphoid hyperplasia and 8-ruptured appendicitis. Of the 49 un-operated cases, 19 were to be sent home according to the score. With respect to the attending physician 12 were discharged home, 7 observed. There were 43 cases in-Group II for inpatient observation and 12 needed surgery with no delay in the diagnosis; the remaining 31 cases were later discharged. In the third group, 58 cases were sorted but 2 cases were observed, with respect to the surgeon, one was subsequently operated while the other had urinary tract infection and improved later. With the 56 cases operated in this group, one was a lymphoid hyperplasia with a score of 35. Of the 5 lymphoid hyperplasia cases, 2 had impacted fecal material and fecalith, which may be the cause of progressive pain making a future operation necessary. The accuracy of the score is 85.83 per cent with a positive predictive value of 96.55 per cent and negative predictive value of 75.81 per cent.

From this study group, the negative appendectomy rate is 4.17 per cent and the perforation rate is 6.67 per cent. Comparing to the previous year of 133 children with the conventional management, the negative appendectomy rate was 4.51 per cent and the perforation rate was 21.8 per cent.

Conclusion: A thorough physical examination is difficult to access on pediatric patients making history taking to be more emphasized. The scoring system is an accurate diagnostic tool, which proves the importance of history taking, physical examination in coordination with laboratory investigations and close observation. Altogether these parameters can reduce the rate of misdiagnosis and delayed diagnosis of pediatric appendicitis.

VASCULAR SURGERY

The Incidence of Infection in Arteriovenous Fistula and Arteriovenous Graft Fistulae in Maharaj Chiangmai Hospital

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Background: Arteriovenous fistulae (AVF) and arteriovenous graft fistulae (AVGF) have been used in hemodialysis for end staged renal disease patients. AVF is recommended as the best permanent vascular access for hemodialysis and AVGF is the secondary method in vascular access. Both techniques have same complications and the most hazardous complication is the infection that affect both failure function of vascular access and life theatherning condition. We therefore aim to assess the risk of infection in hospital in order to improve our service.

Method: The information about vascular access infection has been collected prospectively during January 2001-June 2003. We collected both AVF and AVGF data since operation up to the end of study (June 2003). We diagnosed the infection clinically i.e. fever, redness and swelling on both fistulae or graft. The risk and risk factors for the infection of AVF and AVGF were analysed.

Result: The data of 406 patients was collected. Male was 226 and female was 180. There was AVF in 261 patients, AVGF in 145 patients. The overall rate of vascular access infection in 2001 and 2002 were 14.84 and 15.07 per cent respectively. In 2001, the incidence of infection in AVF and AVGF were 8.33 and 27.27 per cent respectively, in the other hand in 2002 the figures were 10.76 and 23.18 per cent.

Conclusion: The overall rate of infection in our centre was around 15 per cent, which was quite high. Our team have to find out the way to reduce the infection rate.

Femerofemoral Bypass; Treatment Option for Complete Occlusion of Common Iliac Artery in Kidney Transplant Patient

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Police General Hospital has performed 72 kidney transplants; 59 cadaveric and 13 living related kidney transplants. One year graft survival was 94.7 per cent. Five year graft survivla was 75 per cent. One year patient survival was 94 per cent.

We present a case of end-stae renal disease patient who received cadaveric kidney transplant on February 3, 2003. Cold ischemic time was 32 hours. He had anuria for

eight days during postoperative period. Duplex ultrasound of transplant kidney showed possible evidence of renal artery stenosis. MRA showed almost total occlusion of proximal part of right common iliac artery and normal renal artery of transplant kidney. His blood pressure was 180/90 on the left thigh and 105/70 on the right thigh. Transplant kidney biopsy showed degeneration, necrosis and regeneration. Femoro-femoral bypass was performed by using 8 mm PTFE (vascugraft). After operation, blood pressure was 140/90 on the left thigh and 140/85 on the right thigh. He had good urine output. His discharge creatinine was 1.5 mg/dl.

End-stage renal disease patients on the waiting-list for kidney transplant should look for associated peripheral arterial disease especially aorto-iliac disease. Complete physical examination and ankle-brachial index may be helpful. Femoro-femoral bypass is an option for treatment of occlusion of iliac artery.

Pythiosis Arteritis, An Unsual Cause of Chronic Arterial Occlusion

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Pythiosis arteritis is very rare cause of chronic arterial occlusion. Less than 50 patients were reported in the literature. We describe two thalassemic patients who developed symptoms of chronic arterial insufficiency of lower limb. Both had previous history of foot trauma and the wound healed with difficulty. Angiography revealed occlusion at superficial femoral and popliteal artery respectively. Preoperative diagnosis was confirmed by immunodiffusion test for pythium. After the amputation was done, silver stain of histological section from occluded arterial tissue showed fungal infection. In summary, high index of suspicion is required in hemoglobinopathic patients presented with chronic arterial occlusion.

ORTHOPEDIC SURGERY

Prognostic Factors after Proximal Tibial Valgus Osteotomy in Infantile Tibia Vara

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Objectives: 1. To find prognsotic factors affecting the outcomes after proximal tibial valgus osteotomy in infantile tibia vara 2. To study the significance of affected knee arthrography during surgery.

Materials and Methods: Between 1994-2003, two boys and eleven girls with infantile tibia vara were surgically treated after parents informed consent by domed shape proximal tibial vagus osteotomy because of low compliance of bracing. There were 19 legs including the bilateral involvement in 6 cases (1 boy and 5 girls). After surgery and removal of the cast, the children were followed closely and divided into two groups. Group A: No deformity after one surgery, and Group B: With recurrence of the varus deformity that required another corrective osteotomies. The prognostic variables were studied and compared between both groups in age, sex, side, weight in percentile, Langenskiold stage of diseases, tibiofemoral angle (TFA), metaphyseal diaphyseal angle (MDA) and the medial physeal slope (MPS). The arthrographic study included measurement of articulodiaphyseal angle (ADA), articulomedial physeal angle (AMPA) and the ratio of medical epiphyseal thickness/lateral epiphyseal thickness (RMLT).

Results: There were 10 legs in Group A and 9 legs in Group B (average 2.4 operations). All cases showed healing in good alignment of the legs without major complication. No statistical significant difference between two groups ($P>0.05$) in proportion of sex, side, weight percentile, MDA, TFA, AMPA and RMLT. There were prognostic factors which gave better results with statistical significant difference between two groups ($P<0.05$) in proportion of (1) age group less than 3 years old, (2) Langenskiold stage of diseases less than three, (3) MPS angle less than 60 degree, (4) ADA varus less than 18 dedree preoperative and valgus more than 13 degree postoperative. The arthrographic study showed delay in maturity of medial epiphysis from obesity of the children and helped during surgery in achieving better results from corrective osteotomy.

Conclusion: The prognostic factors and the usefulness of arthrography were identified. The better results could occur in children who met these prognostic factors. Because of high failure rate in brace treatment in Thai children and poor outcomes from delayed surgery. The authors suggest that surgery should be performed immediately in Thai children who have infantile tibia vara and have one of these indications (1) age is more than 2 year old at the time of diagnosis, (2) Langenskiold stage 2 or more at the time of diagnosis, (3) age is 3 years old in children who received the brace treatment for some period of time before but the deformity persists.

Levels of Forearm Tourniquet and Resting Position of Digits

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Objective: To determine levels of tourniquet cuff application on forearm without curling of digits.

Background: This day, minor surgery on the hand and wrist is usually perform under local anesthesia with appling tourniquet on forearm. The position of the tourniquet is set to apply at distal 1/3 of the forearm where the soft tissue is fewer than other position. The advantage of the this position is that it was tolerated longer and was considered to be less painful shown in literature. But the surgeons found that this position of forearm tourniquet made them difficult to operate on the palm and finger because of curling of finger due to compression of flexer tendon.

Materials and Methods: We randomized 29 healthy male in age 20-27 years old and divided in to 3 groups, First tourniquet application at proximal 1/3 of foream, Second application at middle 1/3 of forearm and the Third group at distal 1/3 of forearm. The tourniquet applied pressure 100 mmHg above systolic blood pressure. The subjects were asked for level of pain and plotted in visual analogue scale. We measured the distance between the tip of the finger that was nearest to the palmar surface and the distal palmar crease to evaluate an operative field on the palm.

Results: The subjects tolerated pain from the tourniquet on 3 positions of the cuff equally well. There were digital close by palmar surface of hand when appling tourniquet cuff at distal 1/3 and middle 1/3 forearm. But at proximal 1/3 forearm, there was very little digital curling and provided clear field for operation of fingers palmar surface of hand and wrist.

Conclusion: We recommend that the level forearm tourniquet for the operation of the hand and wrist without curling of digits interfere operative field is at the proximal one third.

Comparison of Two Range-of-Motion Exercise Protocols After Primary Total Knee Replacement

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Objective: To compare two postoperative range-of-motion exercise protocols for knee replacement patients in terms of surgical outcomes and patient satisfaction.

Background: Postoperative pain is one of the most fearsome issues for the patient who underwent total knee replacement (TKR). Ideal postoperative range-of-motion (ROM) exercise protocol should maximize knee motion but not at the expense of pain.

Materials and Methods: Thirty-three patients (42 knees) that underwent primary TKR by a single surgeon from August 2002 to April 2003 were studied. Every knee was implanted with the same posterior stabilized knee design. After surgery, 22 knees (Group I) were randomly selected to receive ROM exercise protocol which allowed the patients to start flexing their knees on 3rd postoperative day as much as they could tolerate (no passive force by a doctor). However, on 7th postoperative day the passive force to 90° flexion was done in every knee that could not achieve that goal. The other 20 knees (Group II), received the protocol in which the passive force to 90° flexion was initially performed by a doctor on 3rd postoperative day. Both groups had the same type of anesthesia and postoperative pain control. Patients in both groups were evaluated for (1) surgical outcomes using ROM and Knee Society knee scores, and (2) the satisfaction using SF-12 questionnaires and additional questions. Evaluations were done twice at 1- month and 3-month after surgery.

Results: At 1-month after surgery, the average ROM and knee scores in Group I were 129.09° flexion and 90.81, respectively. In Group II, the average ROM and knee scores were 126.5° flexion and 90.30, respectively ($p > 0.05$). No significant difference was found between both groups at 3-month followup either. Our results also showed no significant difference in preoperative ROM and knee scores between both groups neither did the patient satisfaction at 1-month and 3-month followup.

Conclusion: We concluded that performing early passive force to 90° flexion on 3rd postoperative day yielded neither better outcomes nor satisfaction. In vulnerable patients, therefore, the surgeon could opt to wait until 7th postoperative day before performing passive ROM up to 90° flexion without compromising the surgical outcomes.

How Much Plantar Flexion of Ankle Can be Immobilized with Least Skin Problems?

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Objective: To determine degrees of plantar flexion of angle joint which does not create excessive crease and depth of skin coverage over tendoachillis tendon.

Background: Immobilization of ankle in plantar flexion is necessary for postoperative surgery of ankle such as repaired tendoachillis tendon. Over plantar flexion of

ankle causes several complications of skin coverage over tendoachillis tendon including delayed wound healing, wound dehiscence, skin necrosis and infection, excessive crease and depth of the skin caused by high degrees of ankle plantar flexion.

Materials and Methods: Forty-four volunteers, age ranging 15-47 years old, 7 females and 37 males were studies. Body weight, hight, circumference of ankle and skin fat thickness were recorded. The volunteer was placed in prone position on a table and allowed both ankles outside the table. Longitudinal axis of foot and leg were determined by fifth metatarsal shalf and and fibular shalf respectively. Full plantar flexion of right ankle was done and the angle measured whereas left ankle was allowed free. Then, degrees of plantar flexion was decreased until skin coverage over tendoachillis tendon appeared similarly to skin crease of the left ankle and degrees of plantar flexion (appropriate angle) measured. Plantar flexion of left ankle was measured by the same manner.

Results: An average appropriate plantar flexion of right ankle was 128 degrees (SD 8) and of left angle was 122 degrees (SD 6). Degrees of appropriate plantar flexion angle was directly related to full plantar flexion. Sex, body weight, height, circumference of ankle and skin fat thickness were not related to appropriate and full plantar flexion of both sides of ankles except skin fat thickness at right angle was inversely related to degrees of full and appropriate plantar flexion.

Conclusion: When ankle is immobilized in plantar flexion, we recommend that the appropriate angle is 122-128 degrees in order to minimize problems of skin coverage over tendoachillis tendon.

PLASTIC AND RECONSTRUCTION SURGERY

Poly-(Acrylic Acid) Chitin Hydrogel Significantly Enhances Wound Healing in Murine Model of Partial Skin Thickness Burns

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The interpolymer complexation of chitin and poly-(acrylic acid) or PAA is developed to obtain interpenetrating networks of chitosan and PAA, contributing to novel polymer materials with swelling properties. To get rid of excess oozing content from burned area and to reduce the inflammatory process, PAA is an ideal material to treat burns. Thirty-six male Sprague-Dawley rats were enrolled to elucidate the effect of PAA hydrogel on would healing in murine model of partial skin thickness burns. They were anesthetized by intraperitoneal injection of pentobarbital (60 mg/kg). Partial thickness burns of 1 x 1 cm back skin was produced by boiled water (100°C) for 5 seconds. Rats were divided into 2 groups (18 rats/each), rats in Group (1) were treated with Cutnova hydrogel (CU), designed as control, rats in Group (2) were treated with PAA. The test materials diameter 1 × 1 cm were topically applied on the burns skin. Each group was divided into 3 subgroups (6 rats each), which had sequentially dressing changed every other day and sacrificed at postoperative Day 5, 10 and 15. To determine the actual effect of PAA on wound healing, blinded histological examination was designed. At time scheduled, full thickness of burned skin was removed, blinded labeled and histologically graded of wound healing. The results revealed that the rats with PAA-treated skin had significantly better histological grading of wound healing at Day 10 and 15 than the control group ($p = 0.011$ and 0.007, respectively). The conclusion includes that pAA is able to definitely enhance the process of wound healing, compared to CU-treated rats.

Acknowledgement: We would like to thank National Metal and Materials Technology Center for (partial) financial support and the courtesy of wound dressings tested in this study.

Amelioration by Arginine and Glutamine Supplementation of Intestinal and Pulmonary Capillary Hyperpermeability in a Rat Model of Superior Mesenteric Artery (SMA) Ischemia/Reperfusion

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Nitric oixide (NO) has been implicated as a protective mediator of multiple organ dysfunction induced by ischemia/reperfusion (I/R) injury. To abrogate I/R-induced gut barrier dysfunction, arginine (substrate for NO synthesis) combined with glutamine (fuel for intestine) was supplemented in order to prevent subsequent gut derived multiple organ dysfunction. Twenty-one male rats were divided into three groups: sham, control and experimental groups. In sham group, laparotomy was performed and SMA was encircled without treatment. In

the remaining groups, the SMA was occluded with an atraumatic clip for 60 min. and followed by 60 min. of reperfusion. Lactated Ringers' solution was infused in control group, and Argimate® (water-soluble compound of arginine and glutamine) was infused in experimental group. Intestinal permeability was measured by everted gut sac technique at five intervals, as baseline (BL), ischemia for 30 min (I30) and 60 min (I60), and reperfusion for 30 min (R30) and 60 min (R60). At the end of experiment, pulmonary capillary permeability was assessed by white blood cell count (WBC) in broncho-alveolar lavage (BAL) fluid.

Results were analyzed by student t-test. The study showed that intestinal permeability, WBC in BAL fluid and alveolar permealility in both control group and experimental group were significantly higher than in sham group ($p < 0.05$). At R60, the intestinal permeability of experimental group was significantly lower than control group ($p < 0.05$). WBC in BAL fluid of experimental group was significantly lower than control group ($p < 0.05$).

Conclusion: Arginine and glutamine supplement, given prior to injury, can ameliorate gut barrier dysfunction induced by mesenteric ischemia and reperfusion in rats.

Early Inhibition of Neutrophilic Emigration by Carboxymethyl-Chitosan Hydrogel for the Treatment of Partial Skin Thickness Burns in Rats

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The carboxymethylation procedure is developed to impart ampheric properties to chitosan for the preparation of N, O-carboxylmethyl chitosan. This water-soluble modified biopolymers can be considered a polysaccharide with biochemical similarities with other extracellular glycoprotein carbohydrates and therefore it might play similar morphogenetic functions. The effect of carboxymethyl chitosan hydrogel (CM) on the suppression of neutrophilic emigration and on wound healing were evaluated in murine model of partial thickness burns. Thirty-six male Sprague-Dawley rats were anesthetized by intraperitoneal injection of pentobarbital (60 mg/kg). Partial thickness burns of 1×1 cm back skin was produced by boiled water (100°C) for 5 seconds. Rats were divided into 2 groups (18 rats each). Rats in Group (1) were treated with Cutinoval hydrogel (CU), designed as control, Group (2) were treated with CM. The test materials diameter 1 x 1 cm were topically applied on the burns skin. Each group was divided into 3 subgroups (6 rats/each), which had sequentially dressing changed every other day and sacrificed at postoperative Day 5, 10 and 15. When time scheduled, full thickness of the burned skin was removed, blinded labeled and histologically graded of neutrophilic infiltration and wound healing. The results revealed that neutrophilic emigration at Day 5 was significantly reduced in CM-treated burns, compared to control ($p < 0.05$). Better histological grading of wound healing at Day 10 and 15 was observed in CM-treated rats, but not significant between the groups ($p = 0.073$ and 0.138, respectively). The results of this experiment indicated that CM can reduce inflammatory process by inhibition of early neutrophilic emigration to the burned area, but not definitely enhances would healing, compared to CU-treated rats.

Acknowledgement: We would like to thank National Metal and Materials Technology Center for (partial) financial support and the courtesy of wound dressings tested in this study.

CARDIOTHORACIC SURGERY

Minimally Radial Artery Harvesting by Using 3 Small Incisions and Harmonic Scalpel

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Radial artery has been widely used for arterial conduit in CABG. Techniques in harvesting radial artery are ranging from one large incision to endoscopic harvesting. We propose our techniques by using simple instrument with 3 small 2 cms. incisions without aid of endoscope. The incisions were made at wrist level, mid forearm and just below the elbow fold. Under direct vision radial artery can be exposed and isolated. All small branches were electrically cauterized and bigger branched clipped. With the aid of harmonic scalpel made this technique simpler and faster. The length of radial artery can reach the left side target (OM, distal LCx) and PL branches. If shorter length of radial artery is needed (only to the OM branches), the third

proximal incision was only a small stab wound (0.5 cm) just to ligate the proximal stump.

The Ross's Operation for Infective Endocarditis: Early Results

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Surgical treatment of infective endocarditis is a challenge for cardiac surgeons due to its risk of serious complication. Recently, the Ross's operation has been introduced as another surgical alternative for management of this group of patients. Between June 1997 and April 2002, 28 patients were treated for aortic valve endocarditis by the Ross's operation at Chest Disease Institute. One patient was lost to follow-up and excluded. Of the remaing 27 patients, there were 23 males and 4 females. Average age was 34.8 years. preoperative NYHA class was 6 in class II, 19 in class III and 2 in class IV. Preoperative echocardiography showed 19 patients had +4 AR and 8 patients had +3 AR. Associated operation included Mitral valve (5), Tricuspid valve (1), Right ventricular out flow tract reconstruction was done with homograft (1) and autologous pericardium (26). The average aortic clamp time was 198.7 minutes. There were 3 hospital mortalities. The causes were sudden death (1), low cardiac output (1) and myocardial infarction (1). There were no recurrent infection of the aortic valve. Post operatively, both the function status and degree of AR of the survived patients improved substantially. We concluded from our early experience that the Ross's operation could be used as another surgical alternative for aortic valve infective endocarditis.

Technique of Using St. Jude Proximal Aortic Connector without Aortic Manipulation in OPCAB

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Between July 2002 and July 2003, 113 radial artery and 49 saphenous vein grafts (SVG) were used to bypass (1 to 5 sequential anastomoses) to Diagonal OM1, OM2, OM3, distal circumflex and PL or PDA without aortic manipulation.

The SVG and radial artery were harvested via a three 2cms. incisionin standard fashion using harmonic scalpel or electric cautery. The radial artery was entirely skeletonized down to the adventitia and soked with papaverine or mierinone solution using the vessel transfer sheath passed through the radial artery or saphenous veins. It was brought over the hook of connector with a fine-tip forceps, and then pierced through the connector hooks. Advancing the radial artery or saphenous vein inside the release tube gently, and attention not too tight in the release tube. Making hold at the ascending arota. The connector with saphenous vein or radial artery was inserted to the hole and pressed the button. Pulling the handle of the connector out and leave the saphenous vein or radial artery to anastomose to aorta. Bleeding from site branches of radial artery were clipped.

Worldwide, more than 20,000 of the St. Jude proximal aortic connector system have been used with saphenous conduit. At Bangkok Heart Institute, we used aortic connector along with no cross clamping of the aorta in order to minimize embolization. So far, we found no post-operative stroke or neurological deficit.

LAM Disease Treated by a Single Lung Transplantation: First Case in Thailand

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Introduction: Lymphangioleiomyomatosis (LAM) is a rare disease of unknown origin, first described in 1937. The pulmonary complications are due to a hamartomatous proliferation of smooth muscle cells preferentially along the bronchovascular structures. The disease is usually progressive and patients die of respiratory failure. Treatment remains largely ineffective.

Case Report: A 39-year-old female presented with recurrent pneumothorax. She had developed two episodes of pneumothorax on left lung and two on right lung since 1993. All of them were treated with either surgical resection of cyst or only ICD. In 1999, she developed the fifth episode of pneumothorax on right lung and came to Chest Disease Institute. She was treated with surgical resection of multiple cysts. LAM was diagnosed by characteristic HRCT scan finding and positive both estrogen receptor and progesterone receptor in HMB45 staining. Since 2000, She had developed progressive dyspnea on exertion and need continuous oxygen support. On November 8, 2002 she underwent uncomplicated left single lung transplantation at Chest Disease Institute. Her condition gradually improved without the need of oxygen support.

Conclusion: We report a first case of LAM treated

with single lung transplantation in Thailand and the patient was gradually improved. However, long-term follow-up has to be done.

Beating Heart Mitral Valve Surgery

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Background: Cardiac arrested mitral valve surgery has been the standard treatment for decades, but myocardial dysfunction due to reperfusion injuries remains problematic, despite advance myocardial protection techniques. Avoiding ischemic event during surgery should be more beneficial in recovery. This study is carried out to demonstrate the feasibility of beating heart valvular surgery with or without aortic occlusion.

Materials and Methods: From March to July 2003, 18 patients underwent mitral valve surgery without cardiac arrest. Aortic occlusion was not employed if only mitral and tricuspid valve were done but in case of aortic valve surgery aorta was occluded while continuously perfused with blood through the coronary sinus. There were 8 males and 10 females, age 29-53 years. Median stemotomy was employed in 14 cases, right anterior thoracotomy in 4 cases. Eight patients had severe MS, 6 severe MR and 4 MS with MR. The operative procedure included 8 mitral valve replacements, 10 mitral valve repairs, 5 aortic valve replacements, I aortic valve repair, and 4 tricuspid valve repairs.

Results: There was no mortality or stroke, but one patient with prosthetic valve endocarditis developed paravalvular leakage. All patients had improvement in functional class. Average CPB time 110 min., ventilatory support 9 hrs, ICU stay 36 hrs, total drainage 422 ml.

Conclusion: Valvular surgery on a beating heart with or without aortic occlusion intended to avoid reperfusion injury is feasible and is reproducible. But the technique has to be refined to tackle more delicate valve repair while preserving the myocardial function. The obvious benefit over the conventional technique requires further studies.

The Use of Cell Saver in Off-Pump CABG

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Many previous studies have shown that OPCAB has low intra-operative blood lost. However, some patients still required blood transfusion during hospitalization. Cell saver is allowed to recycle red blood cell and may reduce blood loss intra-operatively. This retrospective study is to review whether cell saver can be used to minimize transfusion.

Methods: One hundred and twenty-five consecutive patients underwent OPCAB were reviewed. Univariate analysis was carried out to see whether the following parametes have any role in transfusion: age (≥70 vs. <70 yrs), gender (male vs. female), preoperative aticoagulant (yes vs. no), LVEF (≥40 vs <40), renal function (creatinine ≥2 vs. <2), preoperative hematocrit (≥30 vs. <30), intra-operative estimate blood loss (≥400 vs. <400), hematocrit in CCU (≥30 vs. <30), 24 hours chest drain (≥400 vs. <400).

Results: In our study, 37 per cent of patients received blood transfusion during hospitalization. The transfusion was 1.17 ± 1.40 units. The re-infusion of the washed red cell ranged from 130-1400 ml, mean 513.51 ± 313.63 ml. Univariate analysis revealed red cell transfusion was related to: a) cell saver used, b) intra-operative estimated blood loss and c) hematocrit in CCU. Multivariate analysis, red cell transfusion was only related to cell saver used (P = 0.009, OR = 0.226). Preoperative antiplatelet used was a predictor of platelets transfusions. (P = 0.036, OR = 3.534).

Conclusion: In OPCAB, cell saver is useful to minimize blood transfusion. The used of cell saver dose not lower incidence of platelets transfusion. Antiplatelet should be discontinued to avoid platelets transfusion.

SF36 Study up to 2 Years Following All Arterial OPCABG

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Objective: To study health status of patients after less invasive CABG with off-pump, all arterial (no leg/small chest incision) approaches, using a short form 36 (SF 36) questionnaire.

Methods: One hundred and seventeen patients operated upon at least 2 years ago were questioned with eight dimensions of overall health: Role emotional (RE), mental health (MH), physical functioning (PF), role physical functioning (RP), bodily pain (BP), general health (GH), energy/fatigue (EF), social functioning (SF), The comparison of the health status was carried out in each of the following groups ≤60 yrs vs. >60 yrs; male vs. female; and ≤3 graft/pt vs. >3 at 6, 12 and 24 months.

Results: At three months, the health status scale score were scattering and unreliable. At six months, the score were somewhat low with no difference between two age groups (74 ± 24 vs. 76 ± 28, p >0.005), among sex

difference (77.2 ± 25 vs. 71.1 ± 33, p >0.005), and in number of grafts (82.0 ± 20 vs. 73.5 ± 28.9, p >0.005); except for the younger age group having better PF (90.0 ± 3.5 vs. 63.6 ± 30.5, p <0.005). At one year, overall score improved in favoring younger male (age: 91 ± 13 vs. 77.6 ± 24.4; and sex 84.5 ± 20.2 vs. 75.1 ± 27.7). With the PF (90.4 ± 8.7 vs. 61.7 ± 24.9 , p <0.005), RP (90.9 ± 30.1 vs. 60.7 ± 46.8, p <0.005) and RE (100 vs. 82.1 ± 39, p <0.005) were better in younger age group. The PF (75.6 ± 21.7 vs. 56.2 ± 30, p <0.005) and BP (88.9 ± 22.0 vs. 68.2 ± 28, p <0.005) also better in patients received more than 3 graft/pt. At two years, health status became very stable with no statistical difference in any of those 8 dimensions in each group of age, sex and number of grafts.

Conclusion: Health status is better in younger male receiving more than 3 grafts per patient at one year. Health status of the entire group became very stable and similar at 2 years.