

ORAL PRESENTATIONS 4B

GENERAL SURGERY

O101 ANTIBIOTICS VERSUS APPENDICECTOMY FOR THE TREATMENT OF UNCOMPLICATED ACUTE APPENDICITIS: AN UPDATED META-ANALYSIS OF RANDOMISED CONTROLLED TRIALS

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Introduction: Uncomplicated acute appendicitis has been managed traditionally by early appendicectomy due to the perceived risk of developing complicated appendicitis. There has recently been increasing interest in the potential for treatment using antibiotic therapy.

Method: A systematic literature search was conducted for randomised controlled trials comparing antibiotic therapy versus appendicectomy in adult patients presenting with uncomplicated acute appendicitis. The primary outcome measure was complications. Secondary outcome measures were treatment efficacy, hospital length of stay, readmission rate and incidence of complicated appendicitis.

Result: Five randomised controlled trials met the criteria for inclusion, with a total of 1430 patients (727 undergoing antibiotic therapy and 703 undergoing appendicectomy). There was a 38% risk reduction in overall complication rates in the cohort treated with antibiotics compared with those undergoing appendicectomy (RR 0.62, 95% CI 0.49 to 0.78, $p < 0.0001$). There was no significant difference in hospital length of stay (mean difference 0.04 days, 95% CI 0.00 to 0.09, $p = 0.08$). In the cohort treated with antibiotics without crossover, 123 of 587 patients initially successfully treated with antibiotics (20.9%) were readmitted with symptoms of recurrent appendicitis. The incidence of complicated appendicitis was not increased when patients who underwent appendicectomy after failed antibiotic treatment (10.8%) were compared to those who underwent primary appendicectomy (17.9%).

Conclusion: Increasing evidence supports the primary treatment of acute uncomplicated appendicitis with antibiotic therapy, in terms of complications, hospital length of stay and risk of complicated appendicitis. Appropriate antibiotics should be prescribed as soon as a diagnosis of acute appendicitis is made or considered.

Take-home message:

This meta-analysis has demonstrated antibiotic therapy is associated with a significant reduction in the risk of complications versus appendicectomy, with no difference in hospital length of stay or subsequent risk of developing complicated appendicitis. This study further reinforces the building body of evidence which supports the use of antibiotics therapy for the management of uncomplicated acute appendicitis.

O102 PRE-NELA VS. NELA – HAS ANYTHING CHANGED, OR IS IT JUST AN AUDIT EXERCISE?

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Introduction: Following evidence suggestive of high mortality and morbidity following emergency laparotomies, the National Emergency Laparotomy Audit (NELA) was set up in 2014, highlighting key standards in emergency service provision. We aim to audit our local experience by comparing adherence to recommendations prior to, and following, the launch of NELA.

Method: 99 cases were analysed over six months: 44 before the launch of NELA (pre-NELA), and 55 after. Patients were selected as per NELA guidelines, and statistical analysis was performed using SPSS.

Result: Patient demographics were comparable between the two groups: in terms of age, gender and ASA grades ($p = 0.339-1.000$). Similar proportions of patients had a pre-operative CT ($p = 0.621$) and a known serum lactate ($p = 0.225$). There was a significant rise in consultant-led decision to operate (75.0% pre-NELA vs. 100% NELA; $p < 0.001$). Pre-operative P-POSSUM scores were similar ($p = 0.233$). Intra-operatively, there was no difference in consultant presence in theatre - surgeon (75.0% vs. 83.6%; $p = 0.321$), or anaesthetist (100.0% vs. 90.9%; $p = 0.064$). Post-operatively, there was improvement in admission to critical care units (9.1% vs. 27.3%; $p = 0.038$), and fewer cases of unexpected escalation to higher level of care (10.0% vs. 0%; $p = 0.036$). Post-operative complications also saw improvement (52.3 vs. 76.4%; $p = 0.018$). Survival rates in both groups were comparable (97.7% vs. 92.7%; $p = 0.378$).

Conclusion: Following NELA, this study demonstrated greater degree of documented consultant involvement in decision to operate. More high-risk patients were identified pre-operatively and admitted post-operatively to critical care units, which could account for the reduction in those with unexpected escalation of care.

Take-home message:

Promoting awareness is a powerful intervention and is one of the fundamental key steps in improving service provision.

O103 BODY COMPOSITION AND ITS EFFECT ON THE BADLY INJURED

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Introduction: Trauma is a leading cause of mortality and life-long morbidity. In the East Midlands, the Major Trauma System has reduced the chances of death from major injury by 30% over the past two years. Much of this improvement has been in the prevention of early deaths. Body composition analysis has been validated as a predictor of outcome in malignancy and skeletal muscle changes (myosteatosis and sarcopenia) have been linked to cancer survival.

Method: Using cross-sectional CT analysis, body composition analysis of 40 serial badly injured patients presenting to a single level one major trauma centre was undertaken.

Result: Mean age was 50.45 years (SD 23.15); mean ISS was 10.68 (SD 9.19). Patients stayed on average 12 days. There were 3 deaths. Overall mean skeletal muscle Hounsfield Unit (HU) density was 41.64 (SD 10.79) and all deaths occurred in myosteatotic patients. Patients who died had a significantly lower skeletal muscle density than those who survived ($p=0.0146$). There was no correlation between muscle density, initial lactate and length of stay (LOS). BMI data were available for 8 patients allowing calculation of skeletal muscle index (SMI), a marker of sarcopenia. SMI was positively correlated with increasing hospital LOS, but not significantly so ($r^2=0.412$), possibly limited by small patient numbers.

Conclusion: We have identified for the first time that body composition is associated with survival in trauma patients. This has implications for the development of interventions to address the potential for improving survival in the longer term. It is likely that nutritional interventions would improve outcomes in trauma care.

Take-home message:

Body composition may influence outcome in trauma and could form the basis for novel interventions in the treatment of trauma patients.

O104 ARE HISTOLOGICALLY NORMAL APPENDICES NORMAL?

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Introduction: Patients with a clinical diagnosis of acute appendicitis often undergo laparoscopy. In the laparoscopic era opinion is divided about removal of macroscopically normal appendices. We aimed to establish if subclinical inflammation was present in histologically normal vermiform appendices excised from patients with right iliac fossa pain.

Method: We studied four groups of patients: Group I (n=120) – uncomplicated acute appendicitis, Group II (n=118) – complicated appendicitis (perforation/gangrene), Group III (n=104) – histologically normal appendices excised for right iliac fossa pain and Group IV (n=106) – incidental appendicectomy at right colectomy (excluding inflammatory bowel disease). Immunohistochemistry was performed for IL-2R, IL-6 and TNF- α . The immunostaining was assessed quantitatively for IL-2R / TNF- α and semi-quantitatively for IL-6 in full-section specimens.

Result: Median, Q1-Q3 mucosal IL-2R expression in Groups I (47.7, 34.8-69.0), II (37.8, 25.4-60.4) and III (27.0, 20.2-42.4) was increased compared with Group IV (15.4, 7.9-24.8, $p<0.01$). Submucosal IL-2R expression in Group III (18.4, 10.1-34.7) was also increased compared with Group IV (2.8, 1.2-5.7, $p<0.01$). Epithelial IL-6 expression in Groups II (44.0, 8.0-97.0) and III (71.0, 18.5-130.0) was increased compared with Group IV (9.5, 1.0-60.2, $p<0.01$), as was IL-6 expression in non-epithelial cells in Group III (21.0, 10.0-42.2) compared with Group IV (8.3, 4.4-23.6, $p<0.01$). TNF- α expression was increased in Groups I (5.9, 3.1-9.8), II (6.5, 3.5-12.1) and III (9.8, 6.2-15.2), compared with Group IV (3.0, 1.4-4.7, $p<0.01$).

Conclusion: Histologically normal appendices from symptomatic patients exhibit pathological levels of cytokine expression suggesting the presence of an inflammatory process that cannot be detected on conventional microscopy.

Take-home message:

This study suggests that there may be a case to remove macroscopically normal appendices in patients being laparoscoped for right iliac fossa pain.

O105 IS THERE A MISUSE OF GROIN ULTRASOUND FOR DIAGNOSING INGUINAL HERNIAE IN PRIMARY CARE?

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Introduction: The diagnosis of inguinal hernias is usually a straightforward clinical diagnosis. The British Hernia Society guidance suggests that ultrasound (US) in the diagnosis of inguinal hernias should be limited to secondary care. We noticed a high incidence of groin US requested by primary care physicians in clinically obvious inguinal herniae. The study was designed to identify proportion of patients having groin US, prior to hernia operation, and ascertain clinical relevance.

Method: A retrospective consecutive review of patients having inguinal hernia repairs in 2014-15 at South Tyneside Hospital was undertaken. Those who had had US were then evaluated further. Note was taken of when the US was performed, who had requested it and the correlation between clinical, US and

operative findings.

Result: Of the 163 inguinal hernia repairs, 75 (46%) patients had US of their groin. 78.6% had ultrasounds prior to being seen in the outpatient clinic and only two were not requested by GPs. There was an 87.1% concordance between clinical and operative findings. In this study ultrasound did not show specificity for direct or indirect herniae. **CONCLUSION** This study suggests that a high proportion of patients are having US of their groin to look for inguinal herniae that are clinically obvious, majority from primary care. Ultrasound can play a role in the diagnosis of non-clinically obvious herniae, but this investigation should be at the discretion of the secondary care team.

Take-home message:

Groin US need be done by secondary care physicians, to help make patient journey smoother and save on expenses.

O106 DETERMINING SURGICAL OUTCOMES IN THE OVERWEIGHT

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Student Audit and Research in Surgery

Introduction: Current evidence is conflicting as to how obesity influences surgical outcomes. Multicentre studies outside of the UK have found associations with adverse outcomes and paradoxically lower mortality rates. This study aimed to determine if body mass index is an independent risk factor for development of postoperative complications.

Method: A Multicentre prospective cohort study across 163 hospitals in the UK and Republic of Ireland providing major gastrointestinal surgery. Patients undergoing elective or emergency intra-abdominal surgery between September 2014 and December 2014, with a minimum one-night stay were eligible for inclusion. The primary outcome measure was the 30-day major complication rate, as defined by the Clavien-Dindo classification. Body mass index (BMI) was used as a measure of obesity. Multilevel regression models were built to adjust for confounding patient and operative risks, creating odds ratios (OR) and 95% confidence intervals.

Result: Of 9267 patients (61.5% elective, 38.5% emergency), 8239 had a BMI recorded of whom 2673 (32.4%) were overweight and 2747 (33.3%) were obese. The overall 30-day major complication rate was 7.1%. After risk adjustment, compared to normal BMI, neither overweight (OR 1.11, 0.89 to 1.37, $p=0.355$) nor obese (OR 1.15, 0.92 to 1.45, $p=0.219$) patients were at increased risk of major complications. Obese patients had a higher risk of surgical site infection compared to normal BMI patients (OR 1.48, 1.16 to 1.89, $p=0.001$).

Conclusion: Overweight and obese patients are not at increased risk of major complications after gastrointestinal surgery.

Take-home message:

Overweight and obese patients are not at increased risk of major complications after gastrointestinal surgery.

O107 WHO IN EMERGENCY SURGERY

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Introduction: The Royal College of Surgeons has strict standards for unscheduled surgical care, stating that the consultant must be aware of every patient undergoing an operation. Patients with an ASA ≥ 3 must have direct consultant supervision. We aimed to see if a district general hospital was meeting these criteria.

Method: We prospectively analysed all emergency surgery cases for general and vascular surgery over 2 one month periods. As the primary source of data collection, theatre staff were asked to document consultant presence/awareness status on the World Health Organization surgical checklist. If this was incomplete, patient case notes and the Phoenix theatre system were used as secondary sources. Education was provided after the initial audit.

Result: For the first cycle 65 cases were eligible and as per the checklist, the consultant was aware of 94% of patients and present in 90% with ASA ≥ 3 . After using secondary sources only 1 operation did not comply (98.5% overall compliance). During the re-audit there were 42 cases. As per the checklist, the consultant was aware of 93% of cases, but only present for 42.9% with ASA ≥ 3 . After consulting case notes and Phoenix, 2 operations were non-compliant (95.2% overall compliance).

Conclusion: The department is close to meeting the criteria for unscheduled surgical care, with 98.5% compliance and 95.2% compliance respectively. However, this should be clear from the surgical checklist and compliance should be 100%. We need thorough education to ensure that these standards are met for every patient. ASA – American Society of Anaesthesiologists

Take-home message:

Consultants must be directly involved in all patients undergoing surgery. This should be communicated clearly before the start of the operation.

O108 DOES THE FINANCIAL COST IMPLICATION OF ROUTINE HISTOPATHOLOGY OF CHOLECYSTECTOMY SPECIMENS OUTWEIGH THE BENEFIT TO PATIENT CARE WITHIN THE NHS

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Introduction: Routine histology requests for cholecystectomy specimens despite normal gross morphology are performed in accordance with the Royal College of Pathologists Guidelines published in 2005. However, gallbladder carcinoma is rare and a small proportion of cholecystectomy specimens are found to have cholangiocarcinoma or other malignancy.

Method: A literature search and histopathology report review from Ealing Hospital was performed. This included all patients undergoing cholecystectomy between June 2011 and September 2014. The results of routine histopathology reports of cholecystectomy specimens were collected retrospectively from the internal pathology department database. A detailed cost breakdown of a standard cholecystectomy histopathology test was calculated within the department.

Result: Between June 2011 and September 2014, 699 patients received cholecystectomy and routine histopathology of gallbladder specimen. Low grade dysplasia was detected in 0 patients (0.00%), high grade dysplasia was detected in 1 patient (<0.01%) and gallbladder malignancy was detected in 2 patients (<0.01%). Of the 2 malignancies, only 1 patient had evidence of lymph node metastasis (0%). Both cases of malignancy were identified with gross macroscopic assessment by the operating surgeon at the time of surgery. The cost of routine cholecystectomy histopathology analysis was calculated as £128 per patient case, inclusive of tissue processing and examination by consultant pathologist.

Conclusion: We recommend a selective approach to gallbladder histology based on a macroscopic assessment by the operating surgeon to reduce unnecessary histology requests and cost burden to the NHS. Routine histopathology of macroscopically normal cholecystectomy specimens is unlikely to alter subsequent clinical management.

Take-home message:

Selective approach to gallbladder histology based on macroscopic assessment may reduce cost burden and unnecessary histology requests in the NHS.

O109 COMBINED HYPERBILIRUBINAEMIA AND A RAISED C-REACTIVE PROTEIN AS A PREDICTIVE TOOL FOR GANGRENOUS APPENDICITIS: A SINGLE CENTRE STUDY

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Introduction: The role that an elevated bilirubin or an elevated C-reactive protein (CRP) can play in predicting a gangrenous appendicitis is well documented. This paper will assess whether an elevation in both can increase the predictive value of a gangrenous appendicitis.

Method: All emergency and elective appendix histology was reviewed retrospectively from January 1st 2013 to 1st March 2015 using the Care Record Service (CRS) and were matched to patient admission blood tests. Any elevation above the standard reference ranges used in our institution was taken an abnormal result. The data were then analysed using Chi square with SPSS statistical software.

Result: 687 histological samples were collected. 37 were excluded as the indication for removal was not presumed appendicitis, 178 cases because liver function tests hadn't been performed and one case because of a suspicion of Gilbert's disease. From the 471 samples, 94 were gangrenous. Of this 22.3% were found to have an elevated CRP and bilirubin with 77.7% having one or more normal result. Of the cases of non-gangrenous appendicitis (n=377), (8.5%) had both elevations in their CRP and bilirubin with (91.5%) having at least one biochemically normal blood result. The relationship was statistically significant (chi squared 14.46, p= 0.000143) and more so than either hyperbilirubinaemia (Chi squared: 10.9331, p= 0.0095) or raised CRP (Chi squared: 3.7323 p=0.0534) alone.

Conclusion : The combination of raised CRP and bilirubin is a useful tool in predicting a gangrenous appendicitis and is superior to using either blood test in isolation

Take-home message:

The combination of raised CRP and bilirubin is a useful tool in predicting a gangrenous appendicitis and may warrant more aggressive management and early surgery.

O110 A CLINICAL AUDIT ON PERI-OPERATIVE TEMPERATURE MEASUREMENT AND ITS MANAGEMENT.

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Introduction: Evidence shows that maintenance of normothermia reduces the risk of peri-operative and post-operative complications. Inability to maintain normothermia, can lead to increased intra-operative blood loss, increased risk of wound infection, post-operative shivering, cardiac events, longer duration of recovery and hospital stay. Aim: To monitor peri-operative temperature to investigate if normothermia is being maintained in accordance with the SPSP programme and NICE guidelines.

Method: Data was collected from patients within the recovery area, HDU and ITU in a district general hospital. All surgical procedures from all theatres were recorded. An ear thermometer was used as a standardised tool for core temperature measurement. A proforma was created to assist in data

collection. Interventions were recorded for patients who had a core temperature of <36.00C.

Result: Two audit cycles, each with a population of 50 patients were completed. In our first audit cycle, 15% of patients were not meeting SPSP requirements with orthopaedic patients being most at risk of inadvertent perioperative hypothermia (IPH) (43.7% of orthopaedic patients). Relevant staff were informed and educated after the first cycle. In the second cycle we also noted that orthopaedic patients were most at risk of IPH (35% of orthopaedic patients). 10.1% of patients did not meet SPSP requirements in our second cycle. In both cycles, no significant differences were noted between elective and emergency cases and inpatient and day surgery cases.

Conclusion: We recommend effective and frequent monitoring of patients. This will enhance patient safety due to quick recognition and therefore early restoration of normothermia.

Take-home message:

Raising awareness for regular recording of temperature and maintaining normothermia - important for reducing peri-operative complications.

O111 CHILD-PUGH SCORE: A POTENTIAL RISK STRATIFICATION TOOL IN PATIENTS UNDERGOING SURGERY FOR ENCAPSULATING PERITONEAL SCLEROSIS

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Introduction: Encapsulating peritoneal sclerosis (EPS) is a rare complication of peritoneal dialysis (PD) carrying a high risk of mortality. Although surgery improves overall survival, EPS patients are at a high mortality risk due to their complex co-morbid state (renal failure, malnutrition, sepsis and predisposition to liver failure). Existing risk stratification tools are therefore unable to reliably predict prognosis after surgery. We hypothesise that liver failure scores may help in predicting mortality in EPS patients undergoing surgery. Aim: To compare survival in EPS patients that have undergone surgery after stratifying them according to the Childs-Pugh score.

Method: Retrospective analysis was performed on 87 patients that had undergone surgery for EPS. Patients were grouped according to their pre-operative Childs-Pugh score (A and B). 100-day, one-year and overall survival was compared between the groups using log-rank test. The influence of sepsis and intestinal fistulation on mortality in the groups was assessed using Cox proportional hazard survival analysis. Type of total parenteral nutrition (TPN), TPN duration and post-operative liver function tests were also compared between the two groups.

Result: Although not statistically significant, the survival in Child's group A was better than in group B (100 day, 1- year and overall survival- 91% vs. 75%, 71% vs. 59% and 67% vs. 50% respectively). Sepsis significantly increased the risk of mortality in the Childs group B with a hazard ratio of approximately 3 at all time points.

Conclusion: Child-Pugh score can be used as a tool to predict prognosis in patients undergoing surgery for EPS.

Take-home message:

Child-Pugh score can be used as a tool to predict prognosis in patients undergoing surgery for EPS.

O112 THE USE OF PRE-OPERATIVE BLOOD GROUPING AND SAVING IN APPENDICECTOMIES

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Introduction: To assess the necessity of preoperative blood grouping and saving before performing emergency appendicectomies based on the risk of red blood cell (RBC) transfusion.

Method: A computerised retrospective search of the database in a District General Hospital using the relevant OPCS-4 Codes for appendicectomies was performed over the period January 2012 to December 2014. The data was then cross referenced against the hospital blood bank database to identify patients who received blood products postoperatively.

Result: We identified 1098 patients who had appendectomy over the 2-year period (excluding incidental appendectomies). Of these, 564 (51.4%) patients were male and the mean age was 29.6 years. Of the Appendicectomies performed, 832 (75.8%) were open and the remaining 266 (24.2%) were Laparoscopic. In total, six patients (0.5%) received blood products (Prothrombin complex concentrate, albumin, fresh frozen plasma or RBC) but only one patient (0.09%) required RBC transfusion. The risk of requiring RBC transfusion was 0.12% for open appendicectomy and 0% for laparoscopic appendicectomies.

Conclusion: In this District General Hospital, the risk of requiring RBC blood transfusion when undergoing appendicectomy was extremely low (0.09%). Current local policy requiring all patients undergoing this operation to have routine preoperative blood grouping and saving requires amendment. Appendicectomies can be safely performed without delay in the administration of RBC transfusion should it be required. A change of policy will support efficient use of emergency operation theatres by reducing delays caused by incorrect/insufficient blood samples and also reduce fiscal expenditure on clinically unindicated tests.

Take-home message:

Routine blood grouping and saving should no longer be a requirement in patients undergoing emergency appendicectomy.

O113 INTRA-OPERATIVE USE OF INDOCYANINE GREEN NEAR INFRA-RED FLUORESCENCE IN COLORECTAL SURGERY: A FEASIBILITY STUDY

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Introduction: Anastomotic leak following colorectal surgery complicates 2–20% of cases, resulting in increased morbidity and mortality and higher rates of cancer recurrence. Adequate tissue perfusion is a major factor influencing anastomotic healing. This feasibility study aimed to assess the use of indocyanine green (ICG)-near-infrared (NIR) angiography to evaluate anastomotic perfusion and minimise anastomotic leak.

Method: Patients undergoing elective colorectal resection with primary anastomosis were included. ICG (0.3 mg/kg) was administered by bolus intra-venous injection at 3 time points: following bowel mobilisation, prior to proximal bowel transection, and on completion of anastomosis (endoluminal). Fluorescence angiography was visualised using the NIR-PINPOINT laparoscope. Any change in operative plan (site of bowel transection, revision of anastomosis, use of defunctioning stoma) was recorded.

Result: Intra-operative ICG was administered to 20 patients (17 anterior resection (12 high, 5 low) and 3 right hemicolectomy). Indications for surgery were malignancy (n=17), diverticular disease (n=1), rectal prolapse (n=1) and chronic ileo-caecal intussusception (n=1). Adequate ICG-NIR angiogram was achieved in 19 (95%) patients with no morbidity related to ICG injection. ICG angiogram resulted in revision of the proximal transection point in 4 patients (20%). One patient, with no change in surgical plan, developed an anastomotic leak, managed with a radiologically placed drain.

Conclusion: Intraoperative vascular assessment with ICG is a safe and feasible tool for intra-operative assessment of colonic perfusion. A randomised controlled trial is now required to further explore the role of ICG-NIR in colorectal resection and to develop surgical experience of this intra-operative adjunct.

Take-home message:

The intra-operative administration of indocyanine-green is a safe and feasible tool to assess colonic perfusion by fluorescence angiography. With further development this may have the potential to reduce anastomotic leak rates following primary anastomosis in colonic resection.