

ABSTRACTS

Abstracts of the College of Surgeons of East, Central and Southern Africa (COSECSA) 19th Annual General Meeting and International Scientific Conference

5th – 7th December 2018 • Kigali, Rwanda

© 2018 COSECSA. This open access article is licensed under a Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.



East Cent Afr J Surg. 2018 Dec;23(3):126–200
<https://dx.doi.org/10.4314/ecajs.v23i3.8>

Abstract 1

PREDICTORS OF INFECTION IN OPEN TIBIA SHAFT FRACTURES MANAGED AT NATIONAL REFERRAL HOSPITALS IN RWANDA

Dusingizimana L.R.; Byiringiro J.C.; Buteera A.M.

Keywords:

open tibia fracture, infection predictors, Rwanda

Background

Infections especially those complicating open fractures are among the most challenging orthopedic trauma conditions. We conducted this study to appraise the effect of time to surgery and identify the other predictors of infection in open tibia shaft fractures operatively managed at the national referral hospitals in Rwanda.

Methods

This was a multicenter observational study conducted in four tertiary level hospitals in Rwanda. Patients with open tibia shaft fractures were recruited and, distributed in two cohorts according to whether the debridement was done within (Cohort I) or after (cohort II) 24 hours from injury. Patients were followed up to twelve weeks after surgery. Demographic data, injury characteristics, details about treatment and signs of infection were recorded and analyzed

Results

Eighty-six patients distributed into two cohorts of 43 patients each were included in the study. The mean age was 36.88 years in cohort I and 35.07 in cohort II. Males were predominant (Cohort I=69.8%, Cohort II=81.4%); Gustilo grade III accounted for 67.4% (Cohort I=74.4%, Cohort II=60.5%). Antibiotics were given within 3 hours of admission in 45.3% of the cases (Cohort I=53.5%, Cohort II=37.2%). In 77.9% of cases, fractures were

stabilized by external means and wound cover within 5 days was achieved in 44.2%. Early antibiotherapy (OR=5.34, P=0.02) and Gustilo grade III (OR=19.12, P=0.021) were associated with infection. There was no statistically significant difference in infection rate between the two cohorts but patients debrided after 24 hours from injury had a tendency to have an infectious complication (OR=2.79, P=0.106)

Conclusions

Surgical debridement is a cornerstone of the management of open tibia shaft fractures; however, its timing was not an important predictor of infection in our study. The injury severity and timing of antibiotic administration were the two independent predictors of infection development

Abstract 2

ANTIBACTERIAL SUSCEPTIBILITY PATTERNS OF SURGICAL SITE INFECTIONS AT TEACHING AND REFERRAL HOSPITAL, ELDORET KENYA

Stephen o. Okello

Keywords:

Surgical site infection

Background

Surgical Site Infection (SSI) poses a burden to patients and the healthcare system by increasing cost and hospital stay as well as causing significant morbidity and mortality. The incidence of SSI in sub-Saharan Africa is approximately 10% and 60% for clean wounds and dirty wounds respectively. We determined bacterial etiology and antimicrobial susceptibility of surgical site infections at Moi Teaching and Referral Hospital, Eldoret-Kenya

Methods

We conducted a cross sectional study among 57 cases of SSI. Data was collected on sociodemographic and clinical characteristics using a structured questionnaire. Pus swab was collected from the cases for culture and antimicrobial sensitivity. Blood culture was done for participants who presented with fever of 37.50C and above. Frequencies and proportions were determined for bacterial etiology and antimicrobial susceptibility

Results

A total of 55 bacterial organisms were isolated from 46 patients. The most common isolate was Staphylococcus aureus - 22 (40.0%) followed by Escherichia coli- 11 (20.0%), Acinetobacter baumannii- 6 (10.9%), Klebsiella pneumoniae -5 (9.1%), Pseudomonas aeruginosa-4(7.3%), Proteus mirabilis 2(3.6%) and Streptococcus pyogenes 1 (1.8%). Methicillin Resistant Staphylococcus Aureus (MRSA) comprised 59% (13) of all Staphylococcus aureus. Gram positive bacteria had over 50% resistance to Ceftriaxone, Cotrimoxazole, Ciprofloxacin, Azithromycin, Erythromycin, Cefuroxime and Levofloxacin. Gram negatives had more than 50% resistance to Ceftriaxone, Cefotaxime, Ceftazidime, Cefepime and Levofloxacin. MRSA and Acinetobacter baumannii showed multidrug resistance

Conclusions

Staphylococcus aureus was the commonest causative agent for SSI with MRSA constituting 59% of Staph aureus infection. Organisms causing SSI were resistant to most commonly used antimicrobial agents at MTRH.

Abstract 3

INTRA-ABDOMINAL INFECTIONS AT A RWANDA REFERRAL HOSPITAL IN PATIENTS UNDERGOING EMERGENCY LAPAROTOMY

SIBOMANA I.; ABAHUJE E.; Rickard J.

Keywords

Emergency laparotomy, intra abdominal infections, Kigali

Background

Emergent laparotomy (EL) is associated with a wide range of conditions and results in relatively high morbidity and mortality. The study aim was to evaluate postoperative complications in patients undergoing EL with infectious versus noninfectious etiologies

Methods

This was a prospective study conducted of patients undergoing non-trauma EL at University Teaching Hospital-Kigali from September 1, 2017 to July 31, 2018. Patients with intraabdominal infections (IAI) were compared with non-infectious etiologies using Chi square and Wilcoxon rank sum test.

Results

Over 11 months, there were 216 patients who underwent non-trauma EL. Median age was 37 years (interquartile range (IQR): 26, 52.5) with 146 (68%) male. Residents performed most (n=153, 71%) operations. Postoperatively, 15 (7%) patients were admitted to the ICU and 10 (5%) developed a surgical site infection. Eleven (5%) patients required a reoperation. Mortality was 7%. Median length of hospital stay was 5 days (IQR: 4, 7) IAI accounted for 68 (31%) of non-trauma EL. Patients with infections had longer symptom duration (3 vs 5 days, p=0.008), were more likely to develop a surgical site infection (10% vs 2%, p=0.008),

require a reoperation (12% vs 2%, $p=0.003$), and have longer median hospital length of stay (6 days vs 5 days, $p=0.019$). There was no difference in mortality in patients with IAI versus noninfectious diagnoses ($p=0.259$).

Conclusions

Infectious etiologies for EL were associated with higher rates of morbidity with no difference in mortality. Efforts to reduce surgical site infection in EL should be targeted towards patients with infectious diagnoses.

Abstract 4

EFFECT OF SHORT VERSUS LONG ANTIBIOTIC COURSE IN PREVENTING POST TRANSURETHRAL RESECTION OF PROSTATE INFECTIONS AT A NORTHERN TANZANIA HOSPITAL.

Orgeness J., Mbwanbo K., A. Mteta

Keywords:

Transurethral resection of prostate, antibiotic, post operative infections.

Background

Duration of antibiotic course for catheterized patients undergoing transurethral resection of prostate (TURP) is still controversial. The effectiveness of long versus short term antibiotic course in preventing post-operative infections was compared among catheterized patients undergoing transurethral resection of prostate (TURP) at Kilimanjaro Medical Christian Centre in Tanzania.

Methods

We conducted a single blinded randomized clinical trial at Kilimanjaro Christian Medical Centre from September 2017 through May 2018. Patients were randomized into two groups according to the duration

of antimicrobial course. Control group received perioperative antibiotics for duration of 8 days and intervention group received perioperative antibiotics for 3 days. Urinalysis and urine culture was done prior, on day 2 post TURP and day 9 to 11 post TURP. All patients were monitored for signs and symptoms of infections post-operative and followed up to one month post TURP.

Results

Both regimens of antibiotic were equally effective in preventing post operative infections. The incidence of bacteriuria at day 9 to 11 post TURP was 40 % in short term group and 38.7% in long term group (RR 1.03, 95% CI 0.097 to 2.573, $p>0.05$). The incidence of symptomatic UTI was 11.4% in short term group and 9.7% in long term group. None of the patients enrolled in the study developed clinical sepsis.

Conclusion

A short term antibiotic course is not inferior to long term antibiotic course in preventing post-operative infections in catheterized patients undergoing TURP.

Abstract 5

POST OPERATIVE INFECTION RATE FOLLOWING SPINE SURGERY. A RETROSPECTIVE REVIEW OF SPINE SURGERY OUTCOME DATABASE.

NSHUTI Steven

Keywords:

spine surgery, surgical outcomes, post operative infections, surgical site infections, post operative meningitis.

Background

Systematic evaluation of surgical outcome of patients who underwent spine surgery in our neurosurgery unit was conducted in a cross sectional fashion. We here present

post operative infection rate identified by retrospective review of our patients' database.

Methods

The study was performed by assessing outcome of all the patients who underwent spine surgery at our department in a cross sectional fashion using a 5 year operative retrospective series. This was an all inclusive spine outcome study composed of spine trauma and non trauma groups of patients. Post operative infection was identified as any deep or superficial surgical site infection, post operative meningitis or any reported sepsis related to the procedure. We further report on individual cases of infections and the different causes of this complication.

Results

From October 2011 to December 2016, retrospective chart review identified 361 patients operated on for various spine pathologies by the senior author. Our analysis included 197 patients who met inclusion criteria for the study. The overall study population was mainly dominated by spinal cord injured patients and spinal degenerative disease patients; 34 % and 60.9 % respectively. Among the 197 patients available for outcome assessment, we identified 2 patients with a documented post operative infection. This represents an infection rate of 0.9%.

Conclusion

The low rate of post operative infection following spine surgery in our study is a probably a result of multifactorial causes. It is however obvious that in view of the dreadful consequences of infection resulting in death, this rate should and can be even lower.

Abstract 6

IMPROVING POST-CESAREAN FOLLOW-UP IN THE COMMUNITY: DEVELOPING AND VALIDATING A SCREENING PROTOCOL TO SUPPORT COMMUNITY HEALTH WORKER DIAGNOSIS OF SURGICAL SITE INFECTIONS IN RURAL RWANDA

Hedt-Gauthier B., Nkurunziza T., Riviello R., Ngamije P, Teena C., Kateera F.

Keywords:

Cesarean section, surgical site infection, screening algorithm, community health workers, rural

Background

In sub-Saharan Africa, 10-15% of women develop a surgical site infection (SSI) after cesarean section (c-section), which could be deadly if not treated. We developed and validated a screening algorithm for community health workers (CHWs) to better identify SSIs in the community.

Methods

Adult women who underwent c-sections at Kirehe District Hospital (rural Rwanda) between April-October 2017 were eligible and were asked to return to the hospital on post-operative day 10 (+/- 3). At this visit, a CHW and general practitioner (GP) independently assessed for increasing pain since discharge, fever since discharge, erythema, edema, induration, dehiscence, discolored drainage, drainage with foul odor, and thick drainage. Independently, the GP assessed SSI presence. Data was split into development (April-July) and validation (August-October) sets. Using a simplified CART analysis, we identified a subset of questions with maximum sensitivity for the GP and CHW and evaluated its sensitivity and specificity in the validation dataset.

Results

Of the 596 women enrolled, 525 (88.1%) returned for follow-up. For GP-administered questions, fever/pain/discolored drainage (sensitivity=96.8%, specificity=85.6%) and fever/gaping wound/discolored drainage (sensitivity=96.8%, specificity=86.7%) maximized sensitivity. For CHW-administered questions, fever/pain/discolored drainage maximized sensitivity (sensitivity=87.1%, specificity=73.8%), and was the subset of screening questions recommended. In the validation dataset, this subset had sensitivity=95.2% and specificity=83.3% for the GP-administered questions and sensitivity=76.2% and specificity=81.4% for the CHW-administered questions.

Conclusion

The combination of questions – fever/pain/discolored drainage – shows sufficient sensitivity and specificity and is simple enough for CHWs to screen for SSIs post c-section.

Abstract 7

EMERGING THREAT TO PROGRESS IN MATERNAL MORTALITY REDUCTION: ANTIMICROBIAL RESISTANCE (AMR) TRENDS AMONG OBSTETRIC PATIENTS WITH POST-CESAREAN PERITONITIS IN RWANDA

Ruzindana Kenneth

Keywords:

Antimicrobial resistance, Post cesarean peritonitis

Background

Complex intra-abdominal infection (CIAI) after cesarean section is an emerging threat to progress in maternal mortality reduction in Rwanda. CIAI is associated with antimicrobial resistance (AMR), prolonged hospital stay, higher treatment cost and

increased morbidity and mortality. To address the limited data in a low-income country (LIC) on post-operative obstetric outcomes and AMR, we present trends among patients with post cesarean CIAI at a tertiary referral hospital in Rwanda.

Methods

This is a prospective, observational study conducted in a tertiary referral hospital in Kigali, Rwanda over fourteen months from 2015 to 2016. Women hospitalized with evidence of post-operative infection were enrolled. Intra-operative wound cultures were obtained and processed with a standard antibiogram if positive. Patient data was collected using structured questionnaires and medical record review.

Results

A total of 135 patients with post-operative peritonitis were enrolled during the study period. Of the 135 pus cultures, 61% (83/135) produced gram negative isolates. The two most common organisms were *Escherichia coli* (34/135; 25%) and *Klebsiella pneumoniae* (28/135; 21%). 64% of Enterobacteriaceae exhibited resistance to third-generation cephalosporins and one was a carbapenemase-producer. Of the gram negative strains tested, 89.7 % (44/49) and 69.56% (48/69) were resistant to Ampicillin and Gentamycin respectively. Nearly all Enterobacteriaceae were responsive to Amikacin and Imipenem.

Conclusion

The majority of post cesarean CIAIs are associated with significant antimicrobial resistance, with some strains exhibiting near pan-resistance to recommended antibiotic selection in obstetrics. Isolation of Enterobacteriaceae resistant to third-generation cephalosporins in higher proportions than previously reported calls for carefully selected laboratory guided therapy and strengthening of infection control surveillance. The impact of resistance on

costs, morbidity and mortality in a region with already limited resources is significant. In addition, patients received an average of 12 days antibiotic therapy; 8 days more than recommended by the CIAI treatment guidelines. These findings indicate that national antibiotic prescribing guidelines must be established.

Abstract 8

OBSTETRIC ADMISSIONS IN INTENSIVE CARE UNIT OF TERTIARY HOSPITALS IN RWANDA: PREVALENCE AND OUTCOME.

RUDAKEMWA A.; NSHIMYUMUREMYI I.; UWINEZA J.B.; TWAGIRUMUGABE T

Keyword:

Obstetric, intensive care unit, critical care, mortality.

Background

Reasons for obstetric admission in intensive care unit (ICU) vary from a setting to another and may depend on bed availability. Outcomes from ICU and its prediction models are not well explored in Rwanda because of lack of appropriate scores.

Methods

We prospectively collected data from obstetric patients admitted in the two ICU of public referral hospitals in Rwanda from 1st March 2017 to 28th February 2018 to identify reasons for admissions and factors for prognosis.

Results

In total, 747 cases were admitted to the two ICUs, and of them, 94(12.8%) admitted for obstetric reasons. These obstetric patients were drawn from 4,999 patients who delivered in the two facilities, indicating that 1.8% of obstetric patients were admitted in ICU. The most common reasons for admission in ICU were respectively sepsis (31.9%), peripartum hemorrhage (25.5%)

and pregnancy-induced hypertension (17%). Mortality within ICU for these obstetric patients was 54.3% while the average length of stay was 6.6 days. When adjusted for reason for admission and Cesarean section before admission, Modified Early Obstetric Warning Score (MEOWS) was an independent predictor of mortality with adjusted OR of 1.25[1.07-1.46]; $p=0.005$ and one point of increase of quick Sequential Organ Failure Assessment (qSOFA) increased odds of ICU mortality by 181% [adj.OR:2.81[1.25-6.30]; $p=0.012$).

Conclusion

Sepsis is the most common reason for obstetric admissions to ICU with high risk for mortality in Rwanda. Modified Early Obstetric Warning Score (MEOWS) is a good tool for ICU mortality prediction for obstetric patients but needs to be explored in a larger study.

Abstract 9

THE GAP BETWEEN INTERNATIONAL GUIDELINES AND ANTIBIOTIC PRESCRIPTION FOR CAESAREAN SECTION PATIENTS AT A RURAL HOSPITAL IN EASTERN RWANDA.

Kateera F.

Keywords:

Caesarean section, antibiotic, antimicrobial resistance, resource-limited settings, surgical site infection

Background

Antibiotic stewardship remains a major challenge in sub-Saharan Africa where there are limited trainings, written guidelines, and compliance processes on proper antimicrobial prescriptions. There is a paucity of studies on current antibiotic prescription practices relative to international protocols, especially for caesarean section (c-section) patients. We characterized perioperative

antibiotic prescription practices for c-section patients at a rural Rwandan hospital.

Methods

We prospectively collected antibiotic prescription data from medical charts of all women 18 years or older who received c-sections at a rural district hospital in eastern Rwanda between November 2017-February 2018. We describe prescribing practices with frequency and percentages, stratified by operative stage.

Results

Of the 332 patients eligible for chart review, 255 (76.8%) received preoperative antibiotic. Only about 60% received the antibiotic within one hour before incision. Ceftriaxone (n=204; 80.0%) and Ampicillin (n=47; 18.4%) were the most commonly prescribed preoperative antibiotic. Postoperatively, even though only one patient had an indication of infection, 327 (98.5%) were given at least one antibiotic- almost all these patients received Ampicillin. Of these, over 98% received a second postoperative antibiotic, the most common being Gentamycin, for prophylaxis purpose. At discharge, close to 75% were prescribed antibiotics, such as Amoxicillin (n=169; 52.3%) and Cloxacillin (n=64; 19.8%).

Conclusion

There is major non-compliance of international antibiotic prescription guidelines by rural hospital personnel for c-section patients. A better understanding of the rationale for prescription habits observed and the effect of over-prescription on infection prevention and antibiotic resistance are required to establish a robust antibiotic prescription practice in Rwanda.

Abstract 10

RAPID INCREASE IN ADHERENCE TO PERIOPERATIVE INFECTION PREVENTION PRACTICES USING A QUALITY IMPROVEMENT PROGRAM IN ETHIOPIA

Jared Forrester; Nichole Starr; Diego Schaps, Abebe Bekele, Thomas Weiser Tihitena Negussie

Keywords:

Surgical site infections, quality improvement, WHO Surgical Safety Checklist, infection prevention

Background

The WHO Safe Surgery Checklist (SSC) contains items targeting reduction in surgical infections; complications that account for a large proportion of perioperative morbidity, particularly in low- and middle-income countries (LMICs). Lifebox, a nonprofit organization, developed Clean Cut, a quality improvement program focused on perioperative infection prevention. This program aims to improve adherence with evidence-based infection prevention standards embedded in the SSC. We evaluated changes in adherence to perioperative standards before and after Clean Cut implementation.

Methods

The Clean Cut program was implemented at five pilot sites in Ethiopia from August 2016 through July 2018. Intraoperative data were collected via direct observation of checklist use, timing of antibiotic administration, hand decontamination methods, sterility confirmation, and gauze counting. Data analysis and descriptive statistics were performed using Excel.

Results

Adherence to infection prevention guidelines increased significantly following Clean Cut implementation. Verification of

surgical instrument sterility doubled (36 to 67%, $p<0.0001$), and increased four-fold for surgical linens (14 to 64%, $p<0.0001$). Prophylactic antibiotic administration in the operating room doubled (28 to 49%, $p=0.20$) and gauze counting improved to 95%. SSC use also improved, with performance of an appropriate, verbal "Time Out" increasing from 61 to 77% ($p<0.0001$).

Conclusion

Clean Cut rapidly improved adherence to surgical infection prevention standards at five hospitals in Ethiopia. Checklist use also increased after implementation. Improved adherence to these evidence-based standards is expected to decrease perioperative infectious complications and mortality but will require a larger, more robust study. This program is feasible to be implemented on a larger scale in low resource settings.

Abstract 11

A QUALITATIVE ANALYSIS MODELING THE STANDARD PATHWAY TO CARE FOR WOMEN AFTER CESAREAN SECTION AT A RURAL DISTRICT HOSPITAL IN RWANDA

Brittany Lynn Powell; Théoneste Nkurunziza; Fredrick Kateera; Marthe Kubwimana; Rachel Koch; Robert Riviello

Keywords:

Global surgery, cesarean section, surgical site infection, mHealth, maternal health, postpartum care, pathway to care, healthcare decision-making, barriers

Background

In LMICs, post-operative patients often present late and with more advanced stages of surgical site infection, risking severe complications. Understanding

patients' pathway through care from their perspective may help illuminate reasons for delays. The healthcare seeking behaviors of women after cesarean section are not well documented.

Methods

A Grounded Theory approach was used to analyze 25 interviews with women who received c-sections at Kirehe District Hospital (KDH). Open-ended interviews, conducted February-April 2018, explored patients' experience giving birth and during recovery, healthcare decision-making, perceptions of care, and social and financial support. Coded interviews were analyzed using an inductive approach to identify emergent themes.

Results

Overall, women's perceptions of healthcare services were positive, particularly related to trust in providers and quality of care received at both KDH and surrounding health centers. Women largely followed the tiered referral system, reporting to health centers before referral to KDH for c-section. The majority faced financial barriers to returning to care – paying for transport and borrowing money to pay for their unexpected operation. Half were not able to describe the reason for their c-section, the complications experienced, or the treatment prescribed.

Conclusion

Women had positive perceptions of their healthcare during and after c-section at this rural Rwandan Hospital. However, financial barriers and insufficient understanding of their medical status and the rationale for the care they received were consistent impediments to higher quality care. Understanding the existing healthcare pathway for postpartum women is a critical step in strengthening interventions that properly serve their needs.

Abstract 12

QUALITY OF SURGICAL CARE IN THE LAKE ZONE OF TANZANIA: A QUASI-EXPERIMENTAL BASELINE ASSESSMENT

Salome Kuchukhidze; Shehnaz Alidina; Sarah Maongezi; John Meara; Asha Varghese; Augustino Hellar

Keywords:

Surgery, Tanzania, Surgical Site Infection, Sepsis, Infection Prevention

Background

Surgical site infections (SSIs) and maternal sepsis are a major cause of morbidity and mortality in Tanzania. Safe Surgery 2020 (SS2020) is a multi-partner collaboration aiming to strengthen the quality of surgical services in low and middle-income countries. We implemented a baseline assessment of surgical care quality in Tanzania to evaluate the impact of SS2020 suite of interventions.

Methods

We implemented a quasi-experimental, baseline assessment for a pre-and post-study in 10 intervention and 10 control facilities in the Lake Zone. Twenty-five Tanzanian physician data collectors followed surgical and post-natal inpatients February 2018-April 2018 to detect the development of SSIs, post-operative and maternal sepsis. We used two-sample t-Test and Chi-squared tests to compare rates between intervention and control facilities. Mixed effects logistic regression was used to explore associations between risk factors and SSIs/sepsis.

Results

9357 patients were followed until discharge. There were 113(7.3%) and 130(8.3%) SSIs in intervention and control sites respectively. Post-operative sepsis rates were 24(5.6%) and 29(6.6%) while maternal sepsis rates were 78(2.0%) and 69(1.5%) among intervention and control sites. Having a

C-section was associated with an increased risk of developing maternal sepsis (OR= 6.6; $p<0.05$). Length of surgery was associated with higher post-operative sepsis rates (OR= 3.7; $p<0.05$).

Conclusion

The study shows high SSI, post-operative and maternal sepsis rates in primary, district and regional level facilities in Tanzania. Efforts to improve infection prevention and safe peri-operative practices are needed to improve the quality of surgical care.

Abstract 13

THE PROFILE OF INTRACRANIAL PYOGENIC INFECTIONS AT CENTRAL UNIVERSITY TEACHING HOSPITAL OF KIGALI (CHUK).

ERIC SHINGIRO

Keywords:

Profile, intracranial pyogenic infection, Centre University Teaching Hospital.

Background

Intracranial pyogenic infections are a common neurological condition with potential lethality and neurologic disabilities. Etiology and incidence vary greatly across the developed countries comparing to developing countries. The brain abscess at CHUK is common and poses management challenges as it requires long hospital admission in a busy tertiary hospital and non-easily affordable medications. Moreover, it involves multidisciplinary specialists including neurosurgeons, ENT surgeons, dental surgeons and infection specialists for optimal management. The aim of the study is to assess the clinical presentation, diagnosis, management and outcome of intracranial pyogenic infections at CHUK, so that we can bring awareness

to the community and health care providers on this neurological pathology. In addition, this will guide in developing the guideline of intracranial pyogenic infections management in our settings.

Methods

This is an observational retrospective study from 1st January 2010 to 1st August 2018 looking for all patients with imaging confirmation of intracranial abscesses

Results

Intracranial pyogenic abscess are most common in pediatric population mean age of 12 year old. The most common source of infection is local spread mostly complicated rhinosinusitis representing 82%. The mean time from symptoms to diagnosis was 10 days. Headache and seizures were the most common presenting symptoms. Surgery commonly involved burr hole or craniotomy drainage of the abscess with or without functional endoscopic sinus surgery combined with antibiotic therapy. The overall outcome of intracranial pyogenic infections is favorable in 79%, 10% had refractory seizures and 7% of them died.

Conclusion

Intracranial pyogenic infections are a common neurological condition at CHUK. Timely diagnosis and treatment is the key of good outcome. The guideline of antibiotics use in intracranial pyogenic infections at CHUK and Rwanda in general is advised.

Abstract 14

EMPHYSEMATOUS PYELONEPHRITIS: A PROPOS OF THREE CASES AND LITERATURE REVIEW

*E. Ngendahayo, Florence Ngarambe
Umurangwa, Yves Constantin Bizumuremyi
Mugisha, Paul Ndagijimana, Emile Rwamasirabo*

Keywords:

Emphysematous pyelonephritis, necrotizing infections, nephrectomy, diabetes mellitus, minimally invasive.

Background

Emphysematous pyelonephritis (EPN) is a rare urological emergency characterized by a necrotizing infection of the kidney and its surrounding tissues. Uncontrolled diabetes mellitus is an underlying cause in up to 85% of cases. Contemporarily the mortality rate of EPN has fallen to 18%. Despite controversy between medical therapy and minimal invasive surgery versus early nephrectomy; early diagnosis, patient's optimization with antibiotherapy and fluids followed by definitive surgery are the key to a good outcome.

Methods:

We report on 3 cases of EPN managed at a tertiary hospital in a low-income African country, from 2014 to 2018, with a literature review.

Results:

Within the 4-year period 3 patients were managed for EPN. They were two females and one male, respectively aged 57, 47 and 75 years. All had diabetes mellitus and one of them presented with an acute kidney injury that required hemodialysis prior to definitive management. In all of them the definitive diagnosis was given by an abdominal CT scan. The female patients had nephrectomy and survived. The elderly male patient with many comorbidities was treated medically,

together with minimally invasive surgery but could not survive.

Conclusion:

EPN is a urological emergency associated with a high mortality rate. Following a controversy between medical therapy associated with minimally invasive surgery versus early nephrectomy, the choice of definitive treatment should be individualized.

Abstract 15

MICROBIOLOGY AND ANTIMICROBIAL RESISTANCE OF PATIENTS ADMITTED TO FOUR INTENSIVE CARE UNITS IN RWANDA

Mvukiyehe J.P; Tuyishime E.; Jennifer Rickard Elizabeth; Ruhato R.; Paulin Banguti

Keywords:

Infections and Antimicrobial Resistance

Background

Infections contribute to significant morbidity and mortality worldwide. Antimicrobial resistance (AMR) is increasing which is especially concerning in low resource environments where antibiotic options are limited. Patients in the ICU are highly susceptible to infections due to severity of their illness, invasive medical devices, and proximity to other infected patients.

Methods

We conducted a retrospective study of ICU patients at four tertiary referral hospitals in Rwanda from January 2015 through December 2016. We collected data on demographics, antibiotics, microorganism, AMR and outcomes.

Results

Overall, 1075 patients were admitted to the ICU. Median age was 34 years (interquartile range (IQR): 22, 50) and 189 (53%) patients were male. Most patients were admitted

from the operating theater (n=302, 28%) and emergency department (n=234, 22%). The most common diagnoses were sepsis (n= 320, 30%) and head trauma (n= 208, 19%). The most common antibiotics were cephalosporins (n=810, 87%) and metronidazole (n=450, 48%). Median length of stay was 15 days (IQR: 9, 27) and mortality was 49%. In total, 597 samples were collected with 234 (39%) positive samples. The most common organisms were *Klebsiella* (n=81, 34%), *Acinetobacter* (n=61, 26%), and *Escherichia coli* (n=53, 22.6%). Of these, 97% were resistant to ceftriaxone, 88% resistant to cefotaxime, 59% resistant to ciprofloxacin, and 8% resistant to imipenem

Conclusion

There is an alarming rate of antimicrobial resistance to commonly used antibiotics in Rwandan ICUs. There is need of strengthening infections prevention and control in ICUs. Expanding antibiotic options and strengthening antimicrobial stewardship are critical for patient care.

Abstract 16

UTILIZING THE SMART ADVOCACY APPROACH TO UNLOCK SAFE SURGERY RESOURCE AND POLICY IMPLEMENTATION BARRIERS AT THE SUB-NATIONAL LEVEL IN KENYA

Angela Mutunga, Alena Troxel, John Varallo, Joseph Sitiene, Radha Karnad, Freda Kalema Nyaga, Daisy Ruto, Florence Waweru, Anne Katharine Wales, Belinda Ngongo, Charles Ngwalla

Keywords:

SMART advocacy, safe surgery, policy implementation, Kenya

Background

A national or county-level safe surgery investment plan does not exist in Kenya.

Jhpiego, in close collaboration with the Kisumu County Health Management Team (KCHMT) and local champions, developed and implemented an advocacy plan to improve the availability of safe obstetric surgical care. This plan was devised using WHO guidelines and the first-of-its-kind public maternal death audit in Kenya.

Methods

The SMART advocacy strategy was co-created to target the right decision-maker with the right message at the right time in order to achieve measurable policy, financial, clinical, and political outcomes. The co-creation guided safe surgery advocates and key stakeholders through a process for designing, implementing, and capturing the results of an evidence-based, locally driven advocacy strategy. Participants examined the existing evidence in order to agree upon shared goals and objectives for making obstetric surgery safe, accessible and affordable, including identifying the most relevant decision-makers, and creating effective messages for safe surgery.

Results

KCHMT identified key priorities for safe surgery advocacy strategy such as leadership and governance, human resources for health, service delivery and quality of care, commodities and equipment/supplies, blood, and data management. The local government committed to placing 76 additional surgical team members, institutionalizing the WHO surgical safety checklist at all hospitals, conducting two blood drives and securing resources to conduct further blood drives, developing and implementing a specialist/non-specialist mentorship model, and increasing the budget allocation for surgery to 10%.

Conclusion

A co-created SMART advocacy strategy is

an effective way to cultivate ownership and consensus on key safe surgery priorities.

Abstract 17

LIFEBOX CLEAN CUT PROGRAM: A QUALITATIVE ANALYSIS OF BARRIERS AND STRATEGIES FOR SUCCESSFUL IMPLEMENTATION

Nichole Starr; Aviva Mattingly; Senait Bitew; Jared Forrester; Tihitena Negussie; Thomas Weiser

Keywords:

WHO Safe Surgery Checklist, qualitative, surgical site infection, infection prevention, quality improvement

Background

Appropriate use of the WHO Safe Surgery Checklist (SSC) can substantially reduce perioperative complications such as surgical site infections and mortality. The Lifebox Clean Cut program is a checklist-based intervention focused on perioperative infection prevention implemented in five Ethiopian hospitals from 2016-2018. We sought to refine our implementation framework by understanding the challenges and successes of the Clean Cut program.

Methods

We conducted 20 semi-structured interviews of all available members of Clean Cut implementation teams at the four active sites in Ethiopia. Audio recordings were transcribed, coded for themes, and analyzed using Dedoose software.

Results

Qualitative analysis revealed themes in challenges to implementation, specific process improvements, and strategies for success. Challenges included lack of material resources, such as sterile indicators,

functional autoclaves, and alcohol hand rub. Payment for data collection affected motivation for SSC completion, as other team members associated these activities with additional compensation. Process improvements included increased use of the SSC, of sterile indicators, and improved timing of prophylactic antibiotic administration. Strategies for successful implementation were providing evidence-based training to staff on infection prevention standards, incorporating checklist completion into routine OR duties, and one-on-one conversations to motivate staff resistant to change.

Conclusion

Staff perceived the Clean Cut program as beneficial and creating permanent changes in their operating room practices. Expansion must consider an individualized approach to motivate staff with evidence-based trainings. We identified a need for increased education to disseminate quantitative findings beyond Clean Cut participants, and a need for a new strategy of efficient data collection that minimizes payment conflicts.

Abstract 18

POST INFECTIOUS HYDROCEPHALUS

PAULIN MUNYEMANA

Keywords:

Endoscopic third ventriculostomy, post-infectious hydrocephalus, outcome, ventriculo-peritoneal shunt.

Background

In Sub-Saharan Africa, post-infectious hydrocephalus is the most common cause and challenging type of hydrocephalus. Current views on hydrocephalus are giving due attention on Dandy's legacy on management of hydrocephalus inasmuch

as Endoscopic Third Ventriculostomy has become the quintessence of treatment of post-infectious hydrocephalus in our practice. Certainly, there is a need to know the outcome of patients treated for post-infectious hydrocephalus in Rwanda.

Methods

This retrospective observational study was conducted at all neurosurgical centers in Rwanda from September 2013 to August 2017, included all cases presenting hydrocephalus with documented history of CNS infection and evaluated their outcome after treatment. We excluded post-procedural infection without improvement of the previous non-infectious hydrocephalus.

Results

This study describes the epidemiology, presentation and outcome of patients with post-infectious hydrocephalus at neurosurgical centers in Rwanda.

Conclusion

This study provides a description of post-infectious hydrocephalus and gives needed information on the management and outcome of this condition in our setting.

Abstract 19

PERIOPERATIVE ANTIBIOTIC USE AND OCCURRENCE OF SURGICAL SITE INFECTION IN TRAUMA AND ORTHOPEDIC SURGERY AT THE UNIVERSITY TEACHING HOSPITAL OF KIGALI

Olivier KUBWIMANA; Jean Claude BYIRINGIRO

Keywords:

Surgical site infection, Chemoprophylaxis, prophylactic measures, perioperative, standard protocol

Background

Surgical Site Infections (SSIs) are among preventable but devastating complications in Trauma and Orthopedic surgery. We conducted this study to determine the prevalence of SSIs and assess adherence to standard SSI preventive protocols in the Trauma and Orthopedic Unit at the University Teaching Hospital of Kigali (CHUK).

Methods

This was a retrospective study. Patients who underwent any major trauma or orthopedic procedure from 1st October 2015 to 31st December 2015 were included. The patient's clinical records were reviewed to analyze the perioperative antibiotic use and track infectious complications within 90 days post-surgery. Percentages, means and ranges were used to describe the general characteristics and the outcome of interest.

Results

132 patients with the mean age of 34.9 years were included in the study. Males accounted for 62.8% with a male to female ratio of 1.8/1. Emergencies and elective cases were accounting respectively for 90.1% and 9.8%. SSIs occurred in 8 patients accounting for 6.06%. The mostly recommended prophylactic antibiotic, a first generation cephalosporin (cefazolin), was not used at all. Instead, a third generation cephalosporin (ceftriaxone) was used in 60.6% of cases. The recommended chemoprophylaxis administration interval of 60 to 30 minutes prior to skin incision was respected in only 31.7% of cases. A single dose of chemoprophylaxis was given in 89.4% of cases.

Conclusion

We noted significant deviations from internationally accepted standards of SSI chemoprophylaxis. We therefore recommend CHUK to develop and implement evidence-

based protocols for antibiotic prophylaxis in trauma and orthopedics, to minimize SSI and ensure antibiotic stewardship.

Abstract 20

RADIATION SAFETY KNOWLEDGE, ATTITUDES AND PRACTICES AMONGST ORTHOPAEDIC RESIDENTS.

WAMUTITU MAINA

Keywords:

RADIATION, C-ARM, RESIDENTS, SAFETY, KNOWLEDGE

Background

The C-arm is a precious tool to the orthopaedic surgeon. Locally the use of intraoperative fluoroscopy has increased in the last few years. Residents are exposed to ionizing radiation, they should therefore be sufficiently informed in order to use it with safety.

Methods

Residents in orthopaedic surgery were asked to respond to various questions on a preset confidential questionnaire. Questions covered various aspects of radiation safety including use of protective gear, radiation safety training and regular work practices.

Results

A total of 28 residents completed the questionnaire (84.8% response rate). 85.7% of residents felt they had received inadequate training in regards to radiation safety. 78.6% were unaware of the ALARA principle and only 7.1% applied it in practice. 25 residents reported using the body apron always or most times (89.2%). The thyroid shield and dosimeter were rarely used and most residents (85.7%) cited lack of availability as the main reason.

Conclusion

Most orthopaedic residents lack knowledge regarding radiation safety. Most have used available means to protect themselves but unavailability of all protective gear means they are left exposed to radiation.

Abstract 21

INDICATIONS FOR NON-TRAUMA EMERGENCY LAPAROTOMY: A COMPARISON OF SOUTH AFRICA, RWANDA, AND THE UNITED STATES

Jennifer Rickard; Linda Pohl; Isaie Sibomana; Alexandria Coughlin; Egide Abahuje; Kathryn Chu

Keywords:

Laparotomy, Emergency, Infections, Surgery, Complications, Mortality, Surgical site infection

Background

Emergency surgical conditions requiring exploratory laparotomy (EL) can be challenging especially when patients present late with complicated disease. The objective of this study was to describe the causes and perioperative mortality rate (POMR) after non-trauma EL in Rwanda, South Africa and the United States (U.S.).

Methods

This was a prospective study conducted at four hospitals in South Africa, Rwanda, and the U.S. from September 1, 2017 to July 31, 2018. All adult patients undergoing non-trauma EL were included.

Results

Over an 11-month period, there were 496 EL at the four hospitals. Median age was 44 years (interquartile range 30, 60.5) and 292 (59%) were male. Overall, the most common indications for EL were appendicitis (n=101, 21%), peptic ulcer disease (n=79, 16%), and hernia (n=58, 12%). The most common

indications in South Africa were appendicitis (n=60, 28%) and peptic ulcer disease (n=40, 19%); in Rwanda, appendicitis (n=40, 19%) and hernia (n=36, 17%); and in the U.S., peptic ulcer disease (n=14, 22%) and other (n=24, 11%). Surgical site infection was 16% with differences between sites (South Africa 30%, Rwanda 5%, U.S. 13%, $p<0.001$). Postoperatively, 56 (12%) patients had a reoperation (South Africa 14%, Rwanda 5%, U.S. 26%, $p<0.001$) and 25 (5%) underwent an interventional procedure (South Africa 9%, Rwanda 0%, U.S. 11%, $p<0.001$). Perioperative mortality rate was 8.6%, with no difference between hospitals ($p=0.509$).

Conclusion

Surgical conditions requiring EL vary between countries however POMR was similar. Better understanding of methods of surgical site infection prevention and monitoring is needed.

Abstract 22

PREVALENCE OF COMPLICATED APPENDICITIS AT KIGALI UNIVERSITY TEACHING HOSPITAL "A ONE YEAR RETROSPECTIVE STUDY"

Jeremie SINGURANAYO; Egide ABAHUJE

Keywords:

Complicated appendicitis, perforation, peritonitis, laparoscopy, appendectomy, acute care surgery, Kigali University Teaching Hospital.

Background

Appendicitis is the most common surgical emergency worldwide, development of complicated appendicitis decreases outcome and is a burden to the community, yet no many studies have been done to assess prevalence of complicated appendicitis and outcome. The aim of this study was to assess

the prevalence of complicated appendicitis at a tertiary hospital, KUTH (Kigali University Teaching Hospital).

Methods

This is a retrospective study conducted for a period of one year, from 1st January to 31st December 2016, 84 patients with appendicitis was found, we excluded 3 patients who didn't have archival codes to access their medical files, 10 patients with intra-operative findings different from appendicitis was excluded. Within 71 patients of appendicitis, 56 patients of complicated appendicitis were studied. Data were collected onto paper questionnaires then entered onto the computerized questionnaires driven by SPSS. The final analysis was done with the help of SPSS (version 16.0).

Results

A total number of 2386 patients in general surgery was admitted with 71 patients of appendicitis studied, 56 (78.8%) were complicated appendicitis that account 2.6% of general surgery admission and 15 (21.13%) were uncomplicated appendicitis, within 56 patients of complicated appendicitis, appendicular perforation with peritonitis predominated at 29 patients (51.8%). with a male to female ratio of 1.6:1, there is no association between gender and appendicular complications ($p=0.761$, $p>0.05$), the ages ranged between 7-67 years with mean 30.27 ± 13.382 years, young ages predominated with range of 7-20 years at 30.36%. Right iliac fosse pain was mostly predominated at (76.8%), RIF' tenderness predominated at 96.4%. 53 patients were operated where by 52 (92.9%) were operated by open appendectomy while 1(1.8%) was operated by Laparoscopic appendectomy. 6 (10.7%) were admitted in ICU, With mean of hospital stay of 7.5 ± 3.475 days, 46.43% stayed in hospital for 7-9 days and mortality rate was 8.9%, there is correlation between peritonitis

secondary to appendicular perforation and death ($p=0.024$, $p<0.05$).

Conclusion

Complicated appendicitis account for 2.3% of all emergency general surgery patients (acute care surgery). The prevalence of complicated appendicitis is higher in all appendicitis cases in our setting and common in men, early diagnosis should be emphasized to prevent complications and prevent high mortality.

Abstract 23

CHALLENGES IN SAFE SURGERY IN LOW INCOME SOCIETY IN MALAWI

Mr Aubrey Filimoni, Prof Eric Borgstein, Dr Kathleen Casey

Keywords:

Challenges, Safe surgery, Low income

Background:

Malawi, a low income Southern Africa country with a population of 17 million, has 42 physician surgeons posted at 4 central hospitals. Safe surgery especially in the District Hospitals (DH) in Malawi remains a big challenge. COST-Africa, a 4 year project undertaken at Malawi College of Medicine from 2013-2016, trained Clinical Officers (COs) with Diplomas in Clinical Medicine over three years, awarding Bachelors of Science in General Surgery. Meant to scale up surgical personnel and services at district hospitals, the Surgical COs are intended to provide safe surgery, increase numbers of surgeries including complex procedures, and reduce referrals to central hospitals. The initial training cohort comprised of 17 students, who, after graduation, were deployed in various District Hospitals through an agreement with the Government of Malawi.

Methods:

The PI, identified a need to help scale up surgery in the districts, providing facility based mentorship and when needed, material resources for safe surgery in the DHs in Southern Malawi.

The cohort of initial BSc Clinical Officers has been supported by the Physicians for Peace Local Programme Director through monthly visits providing clinical assistance and assessing challenges faced in providing safe, quality surgical care. An assessment tool is used to gather information on each visit.

Results:

Of 17 trained Clinical Officers in General Surgery, 8 are actively doing surgery; the rest are doing their own business, compounding further misery for needy surgical patients at district hospital and overburdening Central Hospitals with patients' referrals. Typical reasons why surgical cases are cancelled at the DH level include lack of or inadequate theatre space and shortage of anaesthesia, lack of sterile drapes, lack of surgical supplies and power outages.

Conclusions:

Challenges for safe surgery in district hospitals are multi-factorial. Government commitments to support COs trained as surgical providers must be kept if we want to reduce attrition. Most of the initial cohort of surgically trained COs has left surgery: defeating the intended purpose of the programme. Not only is human personnel in surgery a problem, but also lack of equipment and medical supplies including consumables, sterile fabric, and blood remain to be addressed.

Abstract 24**TIMING OF EMERGENCY GENERAL SURGERY IN A MAJOR REFERRAL HOSPITAL IN RWANDA: A RETROSPECTIVE STUDY**

Eugene Tuyishime; Paulin Ruhato Banguti; Giles Cattermole; Mvukiyehe J.P.; Ntirenganya F.

Keywords:

Emergency general surgery, Low income settings, perioperative mortality

Background

Access to timely and safe emergency general surgery remains a challenge in sub-Saharan Africa due to issues such as insufficient human capacity and infrastructure. This study describes the timing of emergency surgery in one major referral hospital in Rwanda.

Methods

This was a retrospective review of emergency general surgery cases performed at the Centre Hospitalier Universitaire de Kigali (CHUK) in Rwanda between June 1st and November 31st, 2016. Our primary outcomes were Home to Emergency Department (ED) time and the time to surgery (TTS).

Results

During the study period, 148 emergency surgeries were performed. Most of the patients were male 118 (80%), aged between 15-65 years old (68.9%), and had insurance 106 (80.3%). The most common diagnosis was abdominal trauma 36 (24.3%), followed by peritonitis 30 (20.3%), and intestinal obstruction 23 (15.5%). The mean Home to ED time was 3.15 (1-14) days and the mean TTS was 12.8 (0 to 110) hours. There were delayed home to ED time and delayed TTS for most of the patients respectively 67 (52.34%) versus 61 (47.66%) and 111 (77.62%) versus 32 (23.38%). Only a few had reoperation 13 (8.8%) and the POMR was 34 (23%). Factors associated high TTS included

reoperation and death. Factors minimizing delay to surgery include age, diagnosis, and high risk patients.

Conclusion

Our study found that more than half of the patients encountered delay in emergency surgery. Improving surgical capacity at the district hospital and referral system, might result in timely, safe and affordable emergency general surgical care in tertiary hospitals in Rwanda.

Abstract 25

ABS EMBRACES THE WOMEN OF SUB-SAHARAN AFRICA. SKILLS TRANSFER INITIATIVE FOR THE COSECSA REGION

Dr MUNYARADZI Samson MAGARA, Mr Richard RAINSBURY, Ms Leena CHAGLA

Keywords:

skills transfer, breast cancer, multi-disciplinary management, training programme, pilot project

Background:

The incidence of breast cancer cases is on the rise in sub Saharan African countries. In some countries of the region, breast cancer ranks among the top three causes of cancer related deaths among women. Early detection and intervention leads to long term disease-free survival. In order to realise this ideal, there ought to be well-coordinated breast care services comprising screening, diagnostic services as well as multidisciplinary management. Countries of sub-Saharan Africa would need to set up a number of such services if the menace of breast cancer mortality is to be curtailed.

Methods:

The Association of Breast Surgery of the United Kingdom has offered to develop a skills transfer teaching program for the COSECSA region. The course aims to equip

general surgeons and plastic surgeons with breast surgery specific skills ranging from simple diagnostic

Results:

This presentation is a write up of the project build-up thus far. Information pertaining to the inaugural training course is given. And an invitation to attend the course has been extended to surgeons.

Abstract 26

HIV PREVALENCE IN PATIENTS UNDERGOING UPPER GASTROINTESTINAL ENDOSCOPY AT A TERTIARY REFERRAL HOSPITAL IN MALAWI

Gift Mulima; Chifundo Kajombo, Khataza Botha Adrian; Stanley Mark Hendrickse

Keywords:

gastrointestinal, endoscopy, HIV, Kamuzu, Malawi

Background

We aimed at determining the prevalence of HIV infection among patients undergoing upper gastrointestinal (GI) endoscopy at Kamuzu Central Hospital (KCH), Lilongwe, Malawi.

Methods

A retrospective review of prospectively recorded data from the KCH endoscopy database from April 2016 to February 2018. Stata 12.0 was used for data analysis

Results

A total number of 838 records were reviewed. There were 466 males and 372 females with a mean age of 45.7 ± 16.2 years. 61 (7.3%) patients were HIV positive (HIV-R) and 244 (29.1%) patients were HIV negative (HIV-NR). The HIV status was unknown in 533 (63.6%) patients. At the time of endoscopy 95.1% of HIV positive patients

were on antiretroviral therapy (ART). Among the patients with known HIV status (n=305), common endoscopy indications were dysphagia (HIV-R, 52.3%; HIV-NR, 20.1%, $p<0.001$), upper GI bleeding (HIV-R, 21.3%; HIV-NR, 42.2%, $p<0.003$) and dyspepsia (HIV-R, 18.0%; HIV-NR, 34.8%, $p<0.01$). The most common endoscopic findings in these patients were peptic ulcer disease (HIV-R, 36.1%; HIV-NR, 42.6%, $p=0.35$), GI tumours (HIV-R, 32.8%; HIV-NR, 19.7%, $p=0.03$) and oesophageal varices (HIV-R, 4.9%; HIV-NR, 27.1, $p<0.001$).

Conclusion

HIV status is unknown in the majority of patients for upper gastrointestinal endoscopy at KCH. The significant statistical difference in the indications for endoscopy may suggest a particular GI disease pattern in HIV-R patients. GI tumours and oesophageal varices were more common in HIV-R patients and HIV-NR patients respectively. Integration of HIV testing and counseling in the provision of GI endoscopy service is highly recommended in this setting.

Abstract 27

ANTIMICROBIAL STEWARDSHIP PROGRAMMES IN SURGICAL PRACTICE

Magnus J Grabe

Keywords:

Stewardship, surgical practice, microbial resistance

Introduction:

Microbial resistance to antibiotics is increasing while antimicrobial agents are limited and few new in development. A responsible use of available antibiotics is necessary respecting both the patients' real needs (evidence based treatments) and the consequences on the environment.

Aims:

To describe the present acquisitions of antimicrobial stewardship programmes (ASPs) in general with focus on urological surgery.

Methods:

Review of the present literature on ASPs in general and urologic surgery in particular. Antimicrobial stewardship programme teams include clinical active surgeons/urologists, infectious diseases practitioners, microbiologists, pharmacists, and other specialists as required.

Present evidence:

Well-designed ASPs have an impact on reducing treatment duration, shortening intravenous treatment in favour of oral targeted therapy, and reducing the total antibiotic prescription in a setting. Moreover, the hospital length of stay can potentially be reduced without hazard for the patients. AMP is a tool for education of staff, patients and the community.

Conclusions:

It is recommended to set up an ASP for education and feedback of prescribers and staff, as standard for surgical specialities. The exact design of the ASP should be tailored to regional prerequisites.

Abstract 28

USE OF THE DELPHI METHOD TO DETERMINE THE MOST IMPORTANT QUESTIONS IN SOURCE CONTROL FOR INTRA-ABDOMINAL INFECTIONS ACROSS THE GLOBE

Robert Sawyer

Keywords:

Source control, intra-abdominal infections, global, Delphi method, questionnaire

Background

Management of intra-abdominal infection is a major challenge in general surgery, but guidelines for surgical source control are lacking.

Methods

The iterative Delphi process was used to formulate source control guideline questions in the Population, Intervention, Comparator, Outcome (PICO) format. The goal was consensus, defined as when > 80% of the scores for a question were at least 4 or 5 (1 is lowest, 5 is highest), based on disease frequency and importance. A panel of 23 experts representing all hemispheres and low-, middle-, and high- income countries were queried in three rounds to develop and rank the most important questions. At the final in-person meeting, 29 questions achieved consensus.

Results

The top three scoring PICO questions were: 1. After successful percutaneous drainage of a peri-appendiceal abscess, is interval appendectomy associated with less overall morbidity, including need for subsequent source control procedures, compared to no further intervention? 2. In healthcare-associated secondary peritonitis, does culture of the intra- abdominal material and adjustment of antibiotic therapy based on culture results lead to a lower rate of recurrent infection compared to no cultures? 3. In a patient with a suspected intra-abdominal infection that requires drainage, is image-guided percutaneous drainage superior to open/laparoscopic drainage in terms of overall morbidity, including need for re-intervention and resource utilization?

Conclusion

International consensus was achieved for questions regarding source control. The remaining 26 PICO questions will also be presented. These questions will become

the basis for systematic review, GRADE analysis, and the formulation of global guidelines.

Abstract 29

OVERVIEW OF THE WHO GLOBAL SSI PREVENTION GUIDELINES

Kemal Rasa; Peter Nthumba; Jana McLeod ;Joseph Solomkin; Claire Kilpatrick; Benedetta Allegranzi

Keywords:

WHO, SSI Prevention, Guidelines, global burden of SSI, LMICs

Background

The 2016 World Health Organization (WHO) Global guidelines for the prevention of surgical site infection (SSI) are evidence-based and unique in that they are the first global guidelines of this sort, are based on systematic reviews and present additional information in support of actions to improve practice.

Methods

They were developed by international experts adhering to WHO's Guideline Development Process and overall aim to achieve standardization, which gives them relevance in any and every context globally.

Results

The objectives of the new Guidelines include: 1. To provide comprehensive evidence- and expert consensus-based recommendations to be applied during the pre-, intra- and postoperative periods for prevention of SSI and to help combat antimicrobial resistance (AMR). 2. To support health (and related) settings and practitioners to develop or strengthen infection prevention and control (IPC) programs, with a focus on surgical safety, as well as AMR action plans. 3. To highlight that working as teams,

both practices and patient outcomes can be improved, taking account of resource availability. These objectives are achieved through: 1. Increased awareness of the global burden of SSI in all settings, and including in maternal and child health. 2. Increased knowledge of the need for appropriate antibiotic prophylaxis for surgical patients. 3. Increased knowledge of the high burden of preventable SSI and to mobilize surgeons, nurses, technical support staff, anesthetists and any professionals directly providing surgical care.

Conclusion

Every infection prevented is an antibiotic treatment avoided. A summary of these guidelines will be presented and discussed with the audience.

Abstract 30

WHO SSI PREVENTION IMPLEMENTATION TOOLS

Claire Kilpatrick; Benedetta Allegranzi

Keywords:

WHO, SSI Prevention, Guidelines, Implementation, tools, LMICs

Background

The objective of the WHO SSI Prevention Implementation tools is to support targeted SSI prevention improvement steps, whatever the type and level of progress of the health care facility. Following the successful application of this model and the use of additional supporting implementation resources and improvement tools, the outcome should be a reduction in SSI.

Methods

The five key elements identified by the WHO for infection prevention and control multimodal strategies in a health care context include: 1. The system change needed to enable IPC practices, including

infrastructure, equipment, supplies and other resources; 2. Training and education to improve health worker knowledge; 3. Monitoring and feedback to assess the problem, drive appropriate change and document practice improvement; 4. Reminders and communications to promote the desired actions, at the right time, including campaigns; 5. A culture of safety to facilitate an organizational climate that values the intervention, with a focus on involvement of senior managers, champions or role models;

Results

This approach was successfully demonstrated in a Surgical Unit Safety Program (SUSP) project involving 5 hospitals in Kenya, Uganda, Zambia and Zimbabwe between 2013 and 2015.

Conclusion

This approach was successfully demonstrated in a Surgical Unit Safety Program (SUSP) project involving 5 hospitals in Kenya, Uganda, Zambia and Zimbabwe between 2013 and 2015. This approach proved very successful in the African SUSP project involving 5 hospitals in Kenya, Uganda, Zambia and Zimbabwe between 2013 and 2015, and provides excellent insights into the potential for scale-up in similar environments.

Abstract 31

ANTIBIOTIC STEWARDSHIP AND ANTICIPATED IMPACT ON RESISTANCE IN THE SURGICAL HEALTHCARE SETTING

Jana Mcleod

Keywords:

Anti-microbial resistance, stewardship, impact on healthcare, implications, surgical practice

Background

Antibiotic resistance has been present since antibiotics themselves were first developed. Penicillin, despite having saved countless lives, is now rarely used because of the wide spread bacterial resistance against its actions. Indeed, while there has been an exponential increase in the number of antibiotic resistant genes discovered each year, there has been no new antibiotic class discovered since the late 1990s; all new antibiotics are based on existing classes - therefore antibiotic resistance is a growing health threat that can no longer be ignored by surgeons.

Methods

As we already know many aspects of antibiotic resistance: how and why it develops, what factors enhance its emergence, and what changes can be implemented to reduce it, the knowledge base for action is not lacking. It is necessary for the health care professionals, to increase awareness, examine present models of stewardship and adapt and implement best practices-models in an ever-increasing number of health care settings.

Results

We will highlight the scope and depth of the problem, with an emphasis on COSECSA regional context-specific factors. Models and strategies that have been implemented will be reviewed, including a variety of approaches utilized to increase the life-span of existing antibiotics. The surgically-relevant clinical practice guidelines for antibiotic stewardship will be summarized and their clinical implications discussed.

Conclusion

Future directions and innovations relevant for the COSECSA region context to advance surgical antibiotic stewardship will be considered.

Abstract 32

SAFETY AND FEASIBILITY OF A KETAMINE PACKAGE TO SUPPORT EMERGENCY AND ESSENTIAL SURGERY IN KENYA WHEN NO ANESTHETIST IS AVAILABLE: AN ANALYSIS OF 1216 CONSECUTIVE OPERATIVE PROCEDURES

Dr Taha Shabberali Yusufali

Keywords:

ketamine, anesthesia

Background:

Lack of access to emergency and essential surgery is widespread in low- and middle-income countries. Scarce anesthesia services contribute to this unmet need. The aim of this study was to evaluate the safety and feasibility of the Every Second Matters for Emergency and Essential Surgery-Ketamine (ESM-Ketamine) package for emergency and essential procedures when no anesthetist was available.

Methods:

From November 2013 to September 2017, the ESM-Ketamine package was used for patients requiring emergency or life-improving surgeries in fifteen selected facilities across Kenya when no anesthetist was available. A mixed-methods approach was used to assess safety and feasibility of the ESM-Ketamine package, including demand, acceptability, and practicality. The primary outcome was ketamine-related adverse events. Key-informant interviews captured perceptions of providers, hospital administrators, and surgeons/proceduralists.

Results:

Non-anesthetist mid-level providers used ESM-Ketamine for 1216 surgical procedures across the fifteen study facilities. The median ketamine dose was 2.1 mg/kg. Brief (<30 s) oxygen desaturations occurred in 39 patients (3%), and prolonged (≥30 s) oxygen desaturations occurred in seven patients

(0.6%). There were 157 (13%) reported cases of hallucinations and agitation which were treated with diazepam. All patients recovered uneventfully, and no ketamine-related deaths were reported. Twenty-seven key-informant interviews showed strong support for the

program with four main themes: financial considerations, provision of services, staff impact, and scaling considerations.

Conclusions:

The ESM-Ketamine package appears safe and feasible and is capable of expanding access to emergency and essential surgeries in rural Kenya when no anesthetist is available.

Abstract 33

DEVELOPING A NATIONAL SURGICAL, OBSTETRIC, AND ANESTHESIA PLAN (NSOAP) FOR BURUNDI – PROJECT INITIATION PHASE

Prof Gabriel Ndayisaba

Keywords:

NSOAP, LMIC, health policy, baselining surgical capacity, stakeholder engagement, access to surgery

Background

Approximately 70% of the world's population is deprived of safe and affordable surgical care. A national surgical, obstetric, and anesthesia plan (NSOAP) provides the framework for the planning and delivery of essential surgical care. Burundi has begun developing its first NSOAP and will lead in global surgical policy for francophone nations. At this preliminary stage, we sought to identify, engage key stakeholders, and establish the baseline of the Burundian surgical system to identify preliminary gaps and next steps.

Methods

A preliminary survey of the Burundian surgical system was carried out via 2 sets of semi-structured interviews at the Ministry of Health, as well as with the surgical leadership at the University of Burundi health centre. A NSOAP working group was formed at both institutions.

Results

An overview of the surgical service delivery structure, healthcare financing, and surgical workforce density was formulated. With a per capita spend on healthcare of US\$ 26 the Burundian healthcare system is underfunded. There is a lack of universal health coverage, with 50% of population remaining unprotected from financial risk related to healthcare. The surgical workforce density is 3.9 surgeons per 1,000,000 population (0.02% of recommended density), leading to a lack of qualified surgical/anesthesia educators.

Conclusions

The Burundian surgical system faces several important gaps, including underfunding and human resource shortages. These challenges can be further detailed and addressed using a NSOAP.

Abstract 34

MOVING TOWARDS SURGICAL EQUITY IN PAKISTAN

Dr Muhammad Nabeel Ashraf; Dominique Vervoort; Irum Fatima; Alexander Peters; Haitham Shoman; Lubna Samad

Keywords:

Surgical care planning, Surgical equity, Pakistan, South Asia, NSOAP, National Surgical Obstetric Anesthesia Planning

Background

Challenges in delivering surgical care globally are well documented. National Surgical, Obstetric, and Anaesthesia Plans (NSOAPs)

provide a framework for improving surgical care at the country level. NSOAPs have been defined and are currently in various stages of implementation in four African countries; however, NSOAP not yet been initiated in other regions.

Methods

Pakistan is a lower-middle-income South Asian country with a population of 200 million, with one federal and four provincial health ministries. A situational analysis will be conducted to assess the existing policy, strategy, and capacity for surgical care at all levels of the health system, both centrally and provincially, in order to establish a baseline for developing a National Surgical Strategic Vision with which to coordinate an implementation framework.

Results

Pakistan has a poorly implemented health system with limited capacity and compromised quality of care at government facilities. Out-of-pocket expenditure accounts for a high percentage of healthcare costs; an estimated 83% of the population depend on the private sector for meeting health needs (National Health Accounts, 2011-22). The devolution of health policy and strategy to the provinces allows for greater autonomy, but also makes it more challenging to implement a unified national strategy.

Conclusions

Initiating the NSOAP process in Pakistan requires consideration of specific challenges unique to the country in order to successfully address gaps in surgical care. Learning from a successful Pakistan NSOAP process has the potential to benefit 20% of the world's population that lives in South Asia, with similar dynamics and demographics.

Abstract 35

A MIXED-METHODS ASSESSMENT OF SURGICAL CAPACITY IN THE LAKE VICTORIA ZONE OF TANZANIA

Ms Amanda Florian; DiMeo Tenzing; Namtse Lama; Meaghan Marie; Sydlowski Shehnaz; Alidina Augustino; Hellar Ntuli Kapologwe

Keywords:

global surgery, surgical capacity, anesthesia, obstetrics, Tanzania

Background

Five billion people worldwide are in need of safe, affordable surgical and anesthesia care. The impact is felt most strongly in low and middle-income countries (LMICs). This mixed methods study examines the infrastructure, service delivery, workforce, financing and information management capacity in the Lake Zone of Northern Tanzania. The results are used to inform the implementation of the Safe Surgery 2020 initiative, a multi-partner collaboration to strengthen surgical services in rural, low resource settings.

Methods

Our sample includes 20 health facilities. We used mixed methods, blending quantitative data collected using the WHO-PGSSC Surgical Assessment Tool (SAT) and qualitative interviews with leadership and surgical team members at each facility. We used descriptive analysis to quantify surgical capacity and thematic analysis to gain a richer understanding of capacity issues.

Results

Surgery is provided by generalist physicians and associate medical officers, and anesthesia by nurse anesthetists. Only 2 of the 3 Bellwether procedures, Cesarean sections and laparotomies, are performed, with no open fracture repairs being performed. The majority of the facilities lack post-operative recovery areas and intensive

care units. Less than 25% of patients have health insurance and the WHO Safe Surgery Checklist is not in use at any facility.

Conclusions

Safe surgery in the Lake Zone is impacted by shortcomings in surgical workforce, infrastructure, and equipment, among other constraints. This study has identified strengths and key areas for improvement. The SAT provides essential context needed to understand the process of strengthening a surgical system and the implementation of the Safe Surgery 2020 initiative.

Abstract 36

ESTABLISHING A NATIONAL SURGICAL INFORMATION SYSTEM IN ZAMBIA – THE SURG-AFRICA PROJECT

Dr Mweene Cheelo; Jakub Gajewski; Chiara Pittalis; John Kachimba; Ruairi Brugh

Keywords:

The SURG Africa project aims to support the Ministry of health (MoH) to develop a reliable surgical information system (SIS) platformed on the existing structures of health information management system (HMIS).

Background

Participatory Action Research framework was applied to develop the SIS. In the initial phase focus group discussions were held with MoH and national surgeons to review the HMIS and determine the gaps. Secondly the surgeons determined the type of information to be captured through the SIS. Subsequently a technical team from the departments of monitoring and evaluation and information technology of the MoH was tasked to input the agreed variables into the HIMS.

Methods

Participatory Action Research framework was applied to develop the SIS. In the initial phase focus group discussions were held with MoH and national surgeons to review the HMIS and determine the gaps. Secondly the surgeons determined the type of information to be captured through the SIS. Subsequently a technical team from the departments of monitoring and evaluation and information technology of the MoH was tasked to input the agreed variables into the HIMS.

Results

The current SIS captures: 1) types of procedures performed, 2) urgency of surgery, 2) ASA score, 3) adverse events (death, cardiovascular event, haemorrhage, pulmonary event, urinary tract infection, wound infection, re-operation and others) and 4) referral cases. The data is collected through the DHIS-2 software. Following the MoH Permanent Secretary approval, surgical data has been included as part of key performance indicators (KPIs). SURG-Africa will support roll out of training of data clerks who will collect data at district level and enter it into the system.

Conclusions

Concerted efforts and funds with involvement of all relevant stakeholders are prerequisite to ensuring that a surgical information system with the capacity to collect all relevant data on surgical delivery and outcomes is in place.

Abstract 37**DEVELOPING SUSTAINABLE PREHOSPITAL TRAUMA CARE IN RWANDA - A COLLABORATION BETWEEN SAMU, MINISTRY OF HEALTH OF RWANDA AND VIRGINIA COMMONWEALTH UNIVERSITY***Dr Ignace Kabagema; Basil Asay; JM Uwitonze; Ashley Rosenberg; Theophile Dushime; SudhaJayaraman***Keywords:**

Prehospital, Trauma, Global Surgery, Rwanda, Education

Background

Trauma accounts for 83% of the prehospital care provided by SAMU, the public ambulance service in Kigali, Rwanda, although the staff has not had standardized training in prehospital trauma care. We developed and implemented a prehospital Emergency Trauma Care Course (ETCC) and train-the-trainers program for SAMU as a part of a memorandum of understanding to facilitate trauma and emergency system capacity development in the country.

Methods

A context-appropriate two-day ETCC was developed using established best practices. Two cohorts participated-- SAMU staff that would form an instructor core and emergency staff from ten district, provincial and referral hospitals that are likely to respond to local emergencies in the community. The Instructor core completed ETCC 1 and a one-day educator course and then taught the second cohort (ETCC2). Pre and post course assessments were conducted and analyzed using Student's t test and matched paired t-tests. Discrimination index (Di) was used to validate the questions.

Results

ETCC 1 had 24 SAMU staff and ETCC 2 had 22 hospital staff. ETCC 1 median scores increased from 61% to 90% and ETCC 2 increased from 40% to 82% after the course ($p < 0.001$ using matched pair analysis). A one way ANOVA mean square analysis showed that regardless of the baseline level of training for each participant, all trainees reached similar post-course assessment scores, $F(1) = 15.18$, $p = 0.0004$.

Conclusions

The Ministry of Health has long invested in a public ambulance service, SAMU, which provides much needed prehospital trauma care in Kigali. This course and program improved their knowledge of prehospital trauma care and created an instructor core to support the Ministry's planned scale up of SAMU across the country.

Abstract 38**DEVELOPING THE MONITORING AND EVALUATION PILLAR OF ETHIOPIA'S NATIONAL SURGICAL PLAN: SAVING LIVES THROUGH SAFE SURGERY***Ms Olivia Ahearn; Kaya Garringer; Katherine Iverson; Abebe Bekele; Atlibachew Teshome; Daniel Burssa***Keywords:**

national surgical plan, monitoring and evaluation, Ethiopia, health policy, surgical data

Background

The Ethiopian Federal Ministry of Health (FMOH) and Harvard's Program in Global Surgery and Social Change (PGSSC) designed the 'Monitoring and Evaluation (M&E)' Pillar of Ethiopia's national surgical plan, 'Saving Lives Through Safe Surgery' (SaLTS). The following describes the development of the M&E Plan and progress to date.

Methods

Two SaLTS M&E strategies were designed: (1) 15 surgical and anesthesia key performance indicators (KPIs) for monthly prospective data collection; and (2) an adapted surgical assessment tool for long-term evaluation of SaLTS implementation. KPI definitions, formulas, and collection methods were tailored for national and facility-level decision-making. The validated WHO Situational Analysis Tool and WHO-PGSSC Surgical Assessment Tool were modified to ensure data would inform SaLTS policy. Ethiopia's resultant tool includes 363 quantitative and qualitative questions delineated by clinical provider and 8 domains.

Results

Key Performance Indicators: 9 KPIs were integrated into Ethiopia's existing data collection system for national reporting. The PGSSC conducted trainings in 10 hospitals to develop local capacity for indicator collection, learn best practices, and devise a plan to scale nationally. Surgical Assessment Tool: The adapted tool has been administered in 29 facilities in three regions of Ethiopia. National trainings on both components were conducted for hospital leadership and surgical staff.

Conclusions

The SaLTS M&E Pillar will inform the FMOH of surgical care disparities, drive health policy, and ensure appropriate resource allocation. Countries looking to develop M&E strategies for national surgical planning should consider adaptations of comprehensive existing tools to ensure data collected is internationally comparable and contextually relevant.

Abstract 39

FINANCIAL RISK PROTECTION IN CESAREAN SECTION PATIENTS AT A RURAL DISTRICT HOSPITAL IN RWANDA

Dr Rachel Koch; Thenoeste Nkurunziza; Holly Louise Irasubiza; Mark Shrimie; Bethany Hedt-Gauthier; Fred Kateera

Keywords:

financial expenditure universal health coverage global surgery maternal health community based health insurance

Background

To ensure universal health coverage (UHC), essential surgical care must be affordable. In Rwanda, >90% of citizens have community-based health insurance (Mutuelle de Sante). For all but the poorest, insured members are responsible for a 10% co-pay as out of pocket (OOP) payment. However, 59.5% of the population is below the poverty line. The aim of this study was to describe OOP payments for cesarean sections and determine if having insurance reduces catastrophic health expenditure (CHE).

Methods

All eligible women undergoing cesarean section at a district hospital between March and June 2018 were surveyed at discharge. Data included demographics, income and monthly expenditures and direct and indirect spending related to the cesarean delivery hospitalization. CHE is defined as >10% estimated total yearly expenses.

Results

Of 346 women, the majority (93.2%) have Mutuelle de Sante. The median OOP expenditure for medical costs was \$26.29. 30 (8.7%) patients had unpaid balances. The average cost including transportation to the hospital was \$34.35. 168 patients (48.6%) had to borrow money and 43 (12.4%) sold possessions to pay for the hospitalization. The direct medical costs alone were a

CHE for 22 patients (6.3%). However, this increased to 33 (9.5%) when including direct non-medical costs and 94 (270%) when including indirect expenses.

Conclusions

Although insurance offers some protection against catastrophic expenditure from the cost of essential surgery alone, when adding in non-medical expenses, cesarean section is still too often a catastrophic financial event in Rwanda. Further innovation in financial risk protection is needed in order to provide equitable UHC.

Abstract 40

BUILDING A PARTICIPATORY FRAMEWORK FOR ETHICS IN GLOBAL SURGERY - AN INTERACTIVE SESSION

Abdullah S, Cheryl M.

Keywords:

Ethics framework, global surgery, partnerships, stakeholder engagement

Background

The field of global surgery is garnering increasingly more attention, particularly in academic settings and is moving beyond just the short-term volunteer surgical camps to include educational programs, exchanges, partnerships and system level interventions in Surgery, Anesthesia and perioperative care, Obstetrics and Gynecology as well as Palliative Care and Pathology. Global surgery initiatives and relationships are initiated by High Income Country (HIC) partners or those from Low and Middle-Income Countries (LMIC) or both. However, as this field grows, it needs to mature and become more introspective to explore in depth some of the ethical considerations and challenges. In moving these relationships forward there is a need to improve what has been a historical lack of clarity regarding the terms of engagement between partners.

This has led to a misalignment of needs and expectations, leading to often serious ethical dilemmas. The hope is that wide stakeholder involvement and engagement in the development of an ethical guiding framework and tools can serve as a foundation document and process that will help align needs and expectations to achieve the best outcomes for both patients and the global partners. This framework and tools could also be a powerful in helping design and evaluate global surgical interventions on more equal footing for all partners including the patients, while taking into account implicit and explicit differences in expectations, goals, resources, limitations and even motivations.

Methods

A systematic review is being performed to identify potentially relevant ethics literature. The initial bibliographic database search strategy was designed and performed by a professional librarian using Ovid Medline, CINAHL, Embase, Scopus and PubMed. This literature review was then peer-reviewed by an independent librarian using the Peer Review of Electronic Search Strategies (PRESS) guidelines. Results were limited to English language publications and conference proceedings from the past 10 years. Stakeholder mapping has begun amongst bioethics, Anesthesia, Surgery, Obstetrics and Gynecology, Pathology and Palliative Care (professional associations, LMIC and HIC partners and relevant civic societies). The involvement of these stakeholders is assessed utilizing the following criteria: expertise in content, experience with area of concern, willingness to engage, necessity to success of project, and scope of influence. During this COSECSA session the process of stakeholder engagement will be described and further stakeholders may be identified for inclusion. The interactive portion of this session will be used to identify some relevant issues for this project. Following engagement,

stakeholders will participate in a series of webinars to identify the main issues and priorities for the stakeholders. These will be assessed by all the stakeholders for their relevance within the scope of this project and will be grouped into themes that will be the focus of the framework development. From this a draft framework will be written for review and revision at the upcoming Bethune Round Table Global Surgery Conference. This revised framework will then be circulated amongst the stakeholders for further input and evaluation.

Results

This initial systematic review identified 54 relevant titles, of which 25 abstracts were reviewed in more depth for relevance identifying 9 relevant articles which were reviewed in full. These articles approached ethical considerations to surgical partnerships, in particular short term surgical missions and camps but primarily only from the HIC perspective. No papers were identified capturing the voice of LMIC partners in terms of ethical consideration or in preparation for surgical partnerships or initiatives. This literature review identified gaps and set the themes and questions for an interactive session and the foundation for the draft ethical framework in global surgery. A stakeholder map has also been developed ranging from professional bodies to civic societies in both LMIC and HIC.

Conclusions

Global surgery is increasingly receiving more attention around the world, particularly in academic settings. Most of the experience to date has come from short term surgical missions and camps but increasingly initiatives focusing on education, partnerships and system level interventions are becoming more prevalent. However, these interventions face a number of significant ethical dilemmas ranging from cultural barriers or differences, prioritization of care, and misalignment between needs

and expectations. The ethical considerations in approaching these global surgical initiatives is, however still a nascent field, focusing on short term surgical camps. Most of the exiting literature delving into these topics and providing recommendations or guidelines is still coming from the HIC setting with a noted gap in the voice of LMIC partners. The findings from this systematic review and stakeholder mapping will be utilized to provide a foundation for what will be an interactive dialogue to help identify the main themes that require attention in building an ethical framework. The hope is that this framework will then be collaboratively developed to build a guidance document to advise the future direction of global surgical partnerships.

Abstract 41

GLOBAL SURGERY APPROACHES: STRATEGY FOR EXPANDING SCOPE OF SHORT-TERM MEDICAL SERVICE TRIPS TO LOCAL PROVIDERS

Dr Hal Fletcher Starnes; Kristin L Long; Maria Bates; Richard Harding; Peter Mazzaglia; Michael Starks

Keywords:

Training local medical providers in surgery for enlarged thyroid goiters in East Africa

Background

Goiter is endemic in Sub-Saharan East Africa. Medical resources throughout the area are minimal in general and specifically for the treatment of symptomatic enlarged thyroid glands due to iodine deficiency. Our immediate goal was to determine the safety and success of short-term, focused surgical missions by high-volume endocrine surgeons. The longitudinal goal is to train local East African surgeons in these surgical

techniques and engage active administrative support from area hospitals and medical facilities to build surgical capacity.

Methods

From January 2017 to January 2018, 6 high-volume U.S. thyroid surgeons completed multiple short term surgical trips, totaling 8 clinical days in Migori, Kenya. All patients' symptoms and operative fitness were evaluated; intervention in this setting was declined for those with previous anterior neck surgery or prohibitive comorbidities. Operating surgeons' assessment of patients on post-operative day one was followed by subsequent attempts to reach all patients by phone.

Results

Over 6 operative days, 104 procedures (81 thyroid-related, 23 minor general surgeries) were performed by 6 high-volume surgeons with 2-30 years in practice. Patients were predominantly female (90/104) and ranged in age from 10-77 years, with an average age of 42.8 years. Thyroid procedures included 66 unilateral lobectomies, 11 subtotal bilateral thyroidectomies, and 4 near-total thyroidectomies. There were no total thyroidectomies due to concern for levothyroxine availability, and to minimize potential for bilateral complications. One hematoma required urgent re-exploration. One intraoperative recurrent laryngeal nerve injury was repaired primarily. There were no issues with hypoparathyroidism or bilateral nerve injury/palsy, and no long-term complications have been reported. Local surgical residents were recruited to assist and improve technical skills.

Conclusions

Our goal is to establish programs to improve training for local surgeons. Short-term medical service trips alone cannot provide a long-term solution for the need to expand global surgical services. We established that high-volume surgeons can safely perform

successful thyroid surgery in low-resource ambulatory setting and have begun incorporating local surgical trainees in these focused surgical teams. A longitudinal study will facilitate improvement in the quality of surgical care for specialized surgical procedures. Improving and expanding regional medical services through specialized training can achieve milestones in the Sub-Saharan medical landscape.

Abstract 42

MULTI-STAKEHOLDER PARTNERSHIP TO IMPROVE SURGICAL SERVICES IN RURAL AREAS: A QUALITATIVE STUDY OF SAFESURGERY 2020 IN ETHIOPIA

Dr Waruguru C Wanjau; Michelle Willcox; Alena Skeels; John Varallo; Medhanit Mekonnen Mekonnen; Supriya Mehta

Keyword:

surgery, sustainability, rural, partnership

Background

5 billion people have no access to surgical care with a majority of these being in LMICs. Safe Surgery 2020 worked with various partners in Ethiopia in a program that aimed to develop and support local surgical leaders to make surgical care more accessible in rural areas. The goal of this study was to evaluate the partnership to uncover strategies to guide and improve productivity and sustainability.

Methods

We conducted in-depth interviews with various partners using a structured interview guide based on published guidance for partnership evaluations. The interviews were audio recorded and transcribed verbatim. Deductive analysis was done to identify key themes. A codebook was created and inductive analysis was then done using MAXQDA software.

Results

Thirteen individuals from participating partner organizations were interviewed: ministry of health (n=4), Surgical Society of Ethiopia (n=5), Anesthesia Society of Ethiopia (n=1), Regional Health Bureaus (n=1) and participating hospitals (n=2). The partners viewed the program positively, reporting improved quality of surgery, and the prioritization of surgery. With regard to the partnership design, the partners reported different levels of involvement in decision making and differing levels of ownership. For the partnership process, community engagement was viewed positively across partner types.

Conclusions

Clear responsibilities and expectations from the start are keys to ensuring all partners have a full understanding of their expectations and roles. Local context consideration and some local autonomy led to the surgical policy and plan being adapted to the local needs. An integrated approach with participation at all levels from local to national leads to ownership and therefore sustainability.

Abstract 43

REASONS FOR UNNECESSARY SURGICAL REFERRALS IN MALAWI, TANZANIA AND ZAMBIA

Dr Juma Adinan; Jakub Gajewski; Mweene Cheelo; Gerald Mwapasa; Chiara Pittalis; Kondo Chilonga

Keywords:

Surgery, Unnecessary surgical referrals, Anesthesia

Background

Access to surgical care in district hospitals (DHs) is essential to meet the needs of rural populations in sub-Saharan Africa,

where unnecessary surgical referrals impact negatively on costs of accessing care for patients, families and efficiency of the health system. This study aims to determine reasons for unnecessary referrals in Malawi, Tanzania and Zambia.

Methods

This mixed-methods study done in 2017 involved 85 DHs: in Malawi (22), Tanzania (36) and Zambia (27). Data on self-reported reasons for unnecessary referrals (cases that should be done at district level) was collected using semi-structured survey.

Results

72.7%, 77.8% and 44.4% of Malawi, Tanzania and Zambia DHs respectively refer surgical cases unnecessarily. 41%, 27.8% and 14.8% of DHs in Malawi, Tanzania and Zambia respectively, refer simple cases to another DH. Commonly referred cases are laparotomies and C/S in Malawi; laparotomies, Hernia and C/S & Hysterectomies in Tanzania; and hernia and laparotomy in Zambia. In DHs lack of basic surgical and anesthesia skills are the commonest reported reasons for surgical referral in all three countries. Lack of safe blood services was reported as the additional common reason for referral in Malawi and Tanzania.

Conclusions

Substantial numbers of DHs in all three countries refer unnecessarily Bellwether procedures. This can be improved by interventions aiming to address skills gaps of surgical teams.

Abstract 44

PROFILE OF SURGICAL SUPPLIES TO MEET THE INCREASED VOLUME OF THE NATIONAL SURGICAL, ANESTHESIA AND OBSTETRICS PLAN (NSAOP) IN PROVINCIAL AND REFERRAL HOSPITALS IN RWANDA

Mpirimbanyi C., Sibomana I., Gasakure M., Niyongombwa I., Nkurunziza C., Mutuyimana G., Bunogerane G., Sandeep P., Rwamasirabo E.

Background:

The Lancet Commission on Global Surgery indicators provides a framework for identifying areas of prioritization to improve surgical access worldwide and particularly in developing countries. Common indicators include 2-hour access to surgery, surgical volume per 100,000 population, SAO provider density, perioperative mortality, impoverishing and catastrophic expenditure. Little is known about needed surgical supplies in low-resource settings to meet these indicators. An operational research was conducted in 8 provincial and referral Rwandan hospitals to understand the challenges of surgical supplies in provincial and referral hospitals for the implementation of NSAOP in Rwanda.

Objectives:

(i) To determine the real burden of surgical diseases in relation to the bellwether procedures; (ii) To characterize and know the profile of materials (drugs/consumables) needed for safe and effective implementation of NSAOP to meet the required surgical volume; (iii) To explore the supply chain and its challenges.

Methods:

Surgery, anesthesia and OBGYN residents prospectively collected data on surgical conditions managed at provincial and referral Rwandan hospitals over a six months period (February-July 2018) using a customized WHO IMEEC tool kit. Data were collected on

available surgical supplies/consumables and conducted interview for surgical supplies process.

Results:

Over a 6 months period, 12,411 operations were performed in all 8 new referrals and provincial hospitals with 9,090 operations (73%) being emergencies and 3,321 (27%) electives. Cesarean sections and trauma accounted the big number of emergencies performed by 54.9% and 14% respectively. Discrepancy in surgical operations among the hospitals is very significant and Ruhengeri is the leading referral hospital in performing most of operations 4,201 (34%) while Kinazi provincial hospital is the least in surgical volume 700 (6%). Out of 8 hospitals, 5 have at least one surgeon and one obstetrician and the rest are general practitioners; no physician anesthesiologist. There was scarcity of some basic surgical supplies in almost all hospitals such as chest tubes, pediatric urinary catheters, different types and sizes of sutures. Furthermore, the scarcity of specific orthopedic sets implants and insufficient general surgery sets contributed to the common reason of referral. While most of the surgical supplies are covered under the community-based health insurance (CBHI), it was found out that the supply chain is also not set to procure surgical supplies with some of the hospitals relying only on donation or surgical missions; other main factors negatively impacting more volume include unreliable sterilization, limited surgical teams.

Conclusion:

The increased surgical volume in Rwanda requires human resources, appropriate supply chain of surgical supplies to respond to the highlighted surgical burdens. New regional referral and provincial hospitals should be facilitated to become effective surgical front line for Bellwether procedures and trauma at large.

Abstract 45

HOW DO WE MEET THE SAOS TARGETS FOR 2024?

Mukagaju F, Nyirimodoka A, Shumbusho JP, Mpirimbanyi C, Taylor K, Ntiringanya F, Rwamasirabo E..

Keywords:

Lancet Commission on Global Surgery, Surgery Anesthesia and Obstetric providers, SAO density, NSOAPP

Introduction:

The 2015 Lancet Commission on Global Surgery (LCoGS) report and the 2015 WHA resolution 68.15 recognize availability of surgical anesthesia and obstetric providers (SAOs) as one of the key indicators for access to safe surgery. The SAOs target is 20/100,000 while the surgical volume will need to be a minimum of 5,000 surgeries per 100,000 people across the world in order to meet the 2030 sustainable development goals in the framework of the Universal Health Coverage (UHC). The LCoGS proposed a methodology to assess and draft for countries to develop their National Surgical, anesthesia and obstetrics Plans (NSAOPs) with the relevant development, deployment and retention of SAOs across the health system to meet the targeted surgical volumes. This study is intended to assess and highlight the human resource factors that might enable the successful implementation of the road-map to Global Access to Safe surgery goal..

Objectives

1. To assess the current SAOs status in the 42 regional referral, provincial and district government and faith-based hospitals
2. To determine the required SAOs needs in order to meet the doubling of surgical volumes by 2024

Methods:

4 teams drawn from 8 surgical residents, 2 PGSSC (Harvard) interns and the MOH support collected data from the 42 regional referral, provincial and district government, faith-based hospitals for 3 weeks; they used the WHO tool for Situational Analysis to Assess Emergency and Essential Surgical Care; comprehensive data on infrastructure, equipment, surgeries, human resources, information management and financing was collected, analyzed using descriptive statistics with STATA 12 and report created. Additional data was collected from the Rwanda Medical Dental Council (RMDC) registry. Subsequent consensus and drafting shareholders workshops under the MOH leadership involving the RBC, MINALOC, RSSB, Professional Societies (RSS, RSOG, RSA), Nursing and Midwife Association, University Teaching Hospitals, Academic Institutions and Private Medical Practitioners Association took place.

Results:

In 2016 – 2017, 92,892 procedures (in all public and faith-based hospitals in Rwanda) were carried out for a catchment of 11,823,248 people, bringing the surgical volume estimate in Rwanda to be 786 procedures per 100,000 population; 134 SAO providers (64 surgeons, 18 anaesthesiologists, 52 obstetricians) were accounted; the SAOs are therefore estimated to be 1.13 SAO/100,000 bearing in mind that significant number of trained non-surgeons physicians (420) carried out most of the C-sections. Additional 101 SAOs in 2017 – 2024 are to be trained by relevant training institutions including University of Rwanda and COSECSA by expanding the yearly in-take and also expanding the COSECSA training sites.

Workforce development covering not only the traditional SAOs (surgeons, anaesthesiologists and obstetricians) but also non-surgeons physicians, non-physicians anaesthetists, theatre nurses and ICU nurses

is estimated to cost 22,035,140.00 USD (2017 – 2024)

Conclusion:

The required SAOs providers are the main challenge for the successful implementation of the Rwanda NSAOPs. The political will and institutional set-up are available. The successful implementation factor will therefore be the appropriate financial back-up.

Abstract 46

DEVELOPING SURGICAL SERVICES FOR CHILDREN IN EAST AFRICA - PROJECT UPDATE

Mr David Robert Cunningham; Garreth Wood

Keywords:

Children Paediatric Surgery

Background

At the COSECSA Conference in 2017 we presented with Dr John Sekabira on the impact made by providing a single Operating Room to the Paediatric Surgeons in Uganda. We also introduced KidsOR, the new organisation that would lead a rollout of the Uganda model and our plans to extend a substantial funding programme across East Africa and beyond. Since then, we have carried out this promise and by December 2018 will have opened new Operating Rooms in Rwanda, Tanzania, Sierra Leone and two in Malawi. In addition, we will have completed surveys of hospitals and committed to projects in a further 12 countries, including 6 in East Africa (Uganda, Kenya, Mozambique, Zambia, Zimbabwe and Ethiopia). In partnership with Yale Medical School, we are also embarking on a major data collection and impact assessment programme designed to show the immediate and wider impact of providing high-quality facilities for children's surgery. This update presentation will

highlight progress made across COSECSA countries, detail the research programme and offer opportunities for other hospitals to benefit from a KidsOR investment. Due to other commitments, if selected for a presentation, we would be extremely grateful if the organising committee would consider allowing KidsOR to present on Friday. This would allow our chair and funder, Mr Garreth Wood, to present new funding opportunities to the delegates.

Abstract 47

PREHOSPITAL EPIDEMIOLOGY, MANAGEMENT AND OUTCOMES OF INJURED CHILDREN IN KIGALI, RWANDA

Dr Vizir Nsengimana; Myles Dworkin; Ashley Rosenberg; Jean Claude Byiringiro; Theophile Dushime; Sudha Jayaraman

Keywords:

Injury, Prehospital, Pediatric, Trauma, Rwanda, Emergency Medicine

Background

Injuries are a major cause of mortality and disability worldwide, especially during childhood. We aim to describe the childhood injuries seen and managed by Service d'Aide Medicale d'Urgence (SAMU) in Kigali, Rwanda.

Methods

A retrospective, descriptive analysis was conducted of all injured children (below 18 years old) treated by SAMU in the prehospital setting between December 2012 to April 2016.

Results

A total of 459 patients, 7% of the total SAMU calls, were seen, 66% were male with an average age of 11 +/- 5. Most were 6-14 years old (47%), 35% were 15-17 years old. The most common causes of injuries were road traffic incidents (RTIs) (308, 69%), falls (54, 12%), and

fight (27, 6%). Injuries included head trauma (151, 33%), lower limb trauma (110, 24%), and fractures (103, 22%). Common interventions included analgesia (223, 49%), IV fluids (136, 30%), and stabilization with a cervical collar (93, 20%). The majority of pediatric cases occurred between 6:00-18:00 (286, 63%), of those, the most common mechanism was RTIs (36%).

Conclusions

Most RTIs were amongst school aged children during school hours. These findings suggest the need for increased educational initiatives for road safety in schools. Childhood injuries are a public health burden in Rwanda and better understanding can lead to new strategies to reduce the mortality and morbidity associated with trauma.

Abstract 48

WHATSAPP GROUP FORUM (WGF) IMPROVES RURAL POPULATION ACCESS TO SPECIALIST SURGICAL CARE IN MALAWI – PROSPECTIVE OBSERVATIONAL STUDY

Mr Gerald Dalitso, Mwapasa TiyaMike; Chilunjika Kapalamula; Jakub Jagewski; Patrick Noah; Ruairi Brugha; Eric Borgstein

Keywords:

WhatsApp Group Forum Improves Rural Population Specialist Surgical Care

Background

Malawi Access to surgery is a challenge for low-income countries like Malawi because of shortages of specialist surgeons, especially in rural areas. District Hospital (DH) clinicians send difficult cases with referral form to Central Hospitals (CH) with no prr communication and little likelihood of feedback from CH.

Methods

A secure WhatsApp Group Forum (WGF) was established, March 2018, including all Surgeons from Queen Elizabeth Central Hospital (QECH) and all clinicians from 10 DHs referring to QECH. DH clinicians post information on the forum on patients for specialist opinion. For patients who ended up being referred, the specialists provide feedback to referring clinicians.

Results

From April-July 2018 DHs posted 95 cases for specialist consideration, with 49% including an image to help assessment of the case. 52% of cases were referred immediately, 33% not referred, and 15% referred later. On average, 1.74 consultants contributed to case discussions. 78% and 68% of the cases received first response and decisions within an hour respectively.

Conclusions

WGFs provide rapid, free access to multiple specialists' opinion. Advice provided on cases and feedback post-discharge from CHs is educative for referring clinicians, leading to improved patient surgical care. Unnecessary referrals save costs for patients, families, hospitals and the health system.

Abstract 49

IMPLEMENTING PROSPECTIVE COHORT STUDIES IN RURAL AFRICA: BARRIERS TO RETURN AFTER DISCHARGE AMONG WOMEN UNDERGOING CESAREAN SECTION IN RWANDA

Mr Theoneste Nkurunziza; Fredrick Kateera; Robert Riviello; Bethany Hedt-Gauthier

Keywords:

C-section, Post-discharge surveillance, Barriers to care, surgical site infection, Sub-Saharan Africa, Rwanda

Background

C-section is the leading surgical procedure performed globally. Due to lack of standardized post discharge follow up for c-section patients, most global surgery research is based on clinical outcomes while hospitalized and fails to study post-discharge outcomes. This study aimed to determine the barriers of return to care among women who underwent c-section at a rural hospital after discharge.

Methods

We prospectively followed up women aged 18 and above who underwent c-section during April-October 2017 at Kirehe District Hospital (KDH), in rural Rwanda. At discharge, consenting women were given appointment to return to care on postoperative day 10 (POD 10) (± 3 days) and provided a voucher to cover transport and compensation for participation to be redeemed on their return. We used multivariable logistic regression, built using stepwise backward selection up to $\alpha=0.05$ significance level, to identify factors associated with failure to return to care.

Results

Of 746 women who underwent c-section during the study period, 597 (80.0%) were eligible for follow-up. The majority were aged between 22-30 years (56.6%, n=338), with primary education (69.9%, n=417), were farmers (86.8%, n=518), earned less than 37.5 USD/month (92.8%, n=554), and used public transport to reach the hospital (75.8%, n=300). 10.6% (n=63) did not return for follow up clinic. Barriers to return to care were lack of a reminder call (OR=14.59, 95% CI: 7.3, 29.3; $p<0.001$) and post-operative length of stay > 3 days (OR=2.21, 95%CI: 1.20, 4.08; $p=0.011$). Female data collector contributed to higher return to care as compared to other males ($p=0.043$).

Conclusions

Although loss to follow up rate in our setting was low, reminding patients of their appointment was important to facilitate return for study follow-up. Further, the fact that female data collector, counseling patients before discharge, was associated with return needs further exploration to standardize procedures across study staff.

Abstract 50

ETIC: EARLY TRAUMA-INDUCED COAGULOPATHY: IMPLICATIONS FOR THE SURGEON IN THE COSECSA REGION.

Jana B.A. Macleod, Daniel Ojuka, Josiah Mwendwa, Peter Odhiambo, Beth Shaz. Kenya Surgical Research Consortium

Background:

Injury-related mortality remains high despite advances in surgical and critical care. In Western countries, ETIC is associated with an increased incidence of death post-injury but is not fully understood. Recently, ETIC was shown in Kenyan trauma patients. Therefore, we compared ETIC in two different health care settings to improve our understanding of ETIC.

Methods:

We compared two prospective trauma cohorts from Grady Hospital, Atlanta, GA with Kenyatta National Hospital, Nairobi, Kenya by measuring the prevalence and pattern of ETIC post-injury. Patient and injury-specific variables were collected to assess the comparability of the two patient cohorts.

Results:

The prevalence rate of ETIC was 16.3 % in the US and 52.7% in Kenya. The cohorts were similar in age and predominance of

male patients; however, the Kenyan cohort was more severely injured an average ISS of 23.3 compared to an average ISS of 9 in the US. The US cohort investigated ethnicity and found relatively more African-Americans patients developed ETIC as compared to Caucasians. Mortality was significantly higher in patients with ETIC, 28.8% in Kenya and 26.3% in the US cohort, with almost identical Kaplan-Meier survival curves.

Conclusion:

We have shown that ETIC is a global post-injury condition that portends a grave prognosis and merits increased clinical recognition. Its prevalence rate appears to vary across different settings and injury severity but its impact on mortality is consistently high. The high prevalence of ETIC in the Kenyan cohort potentially reflects the ethnicity findings of the US cohort and warrants further focused study.

Abstract 51

WATER, SANITATION, AND HYGIENE CONDITIONS FOLLOWING CESAREAN DELIVERY IN RURAL RWANDA

Mr Caste HABİYAKARE; Katharine Robb; Theoneste Nkurunziza; Fredrick Kateera; Patient Ngamije; Bethany Lynn Hedt-Gauthier

Keywords:

Water, Sanitation, and Hygiene (WASH); cesarean section; postoperative infection; environmental exposures

Background

Access to cesarean-sections has substantially reduced maternal mortality across sub-Saharan Africa. However, postoperative infections are common, leading to preventable morbidity and mortality. Safe water, sanitation, and hygiene (WASH) are critical for infection prevention, yet many healthcare facilities and households lack basic WASH infrastructure and supplies.

The aim of this study was to characterize the WASH conditions women are exposed to following cesarean-section in rural Rwanda.

Methods

Using survey and observation data, we describe the overall WASH conditions at Kirehe District Hospital, the variability of WASH conditions in a postpartum ward over two-months, and the WASH conditions women return home to following delivery.

Results

Overall, WASH conditions at the hospital were good, exceeding regional averages. In the postpartum ward, seasonality was a driver of variability. Piped water was more consistently available during the rainy month, which increased availability of drinking water and water for handwashing ($p < 0.05$ for all). Latex gloves and hand-sanitizer were more likely to be available on weekends compared to weekdays ($p < 0.05$ for both). There was no variability in WASH conditions by time of day. Following hospital discharge, 92% of women did not return to a safe WASH environment where they could practice proper hygiene, with notable shortfalls in access to handwashing supplies and improved sanitation.

Conclusions

More attention must be paid to hygienic conditions following childbirth, especially in the home environment, to reduce the substantial risks of postoperative infection. Measuring WASH conditions and their variability not only serves to identify gaps but can facilitate targeted improvements.

Abstract 52

ESTABLISHING AN ACADEMIC GLOBAL SURGERY PROGRAM: NOVEL TRAINING FOR THE AMERICAN GENERAL SURGERY RESIDENT

Dr Rachel Davis; Megan Vu; Todd Rosengart; Larry Hollier

Keywords:

Global Surgery, America, Humanitarian Deployment, DCP3, General Surgery, Resident education

Background

In concert with the United Nations Sustainable Development Goals, the Lancet Commission on Global Surgery, and World Health Assembly Resolution 68.15, the third edition of the Disease Control Priorities (DCP3) provided critical evidence proving the need for global access to surgery. The DCP3 outlined 44 cost-effective, essential surgeries which cover a breadth of procedures, including general surgery, obstetrics, gynecology, orthopedics, and urology. As certified by the American Board of Surgery, the U.S. general surgery residency does not include formal training in many of the procedures necessary in resource-limited environments.

Methods

A broad-based curriculum was developed at a single institution. The Global Surgery Track was designed as a two-year program incorporating rural surgery, international surgery, research, and advocacy. The program features both clinical skills training in specialties beyond general surgery and cognitive and systems-based learning from regional experts and global organizations such as the World Health Organization.

Results

The first global surgery fellow began training in July 2016. The program has grown to include a new global surgery track resident

each year. This is the first global surgery training program recognized by the U.S. National Residency Matching Program.

Conclusions

Academic global surgery training provides a long-term and sustainable structure to enhance the typical American general surgery curriculum. This program is an opportunity to prepare residents for essential surgery in austere environments and to become academic leaders and advocates for the growing need for global surgery.

Abstract 53

ENGINEERING FOR GLOBAL MINIMALLY INVASIVE SURGERY

Prof Jenny Dankelman; Roos Oosting; Linda Wauben; Julie Fleischer; Tim Horeman

Keywords

Instrument design, laparoscopic devices, affordable devices, multidisciplinary

Background

With the introduction of new instruments, more complex surgical procedures can be performed via the minimally invasive technique. As a result, surgery is becoming more dependent on technology. For low- and middle income countries (LMICs) this trend is challenging, because these instruments are often too expensive and difficult to implement and to maintain. To develop instruments that can be implemented globally, it is essential that engineers and surgeons cooperate closely together. Aim of this study is to use the clinically driven approach to develop novel surgical instruments that fit the LMIC context.

Methods

The development of new instruments starts with task analyses. The surgeon's activities during actual surgical procedures

are observed by the engineers and discussed with the surgeons to detect fundamental problems and limitations. Next, problem assessments, definition of technical requirements, development of new engineering principles, development of prototypes, and finally pre-clinical evaluation will be performed.

Results

The above described clinically driven approach resulted in new concepts for instruments for laparoscopy and arthroscopy developed at the Delft University of Technology. Examples of instruments that will be presented are, an isolator system creating a local sterile environment around laparoscopic instruments, and new principles for steerable instruments that can be re-used and easily cleaned.

Conclusions

It has been shown that for surgical instrument development, the clinically driven approach forms an excellent basis on which surgeons and engineers can effectively work together resulting in prototypes that are developed towards the actual needs of all stakeholders. The prototypes need further evaluation and testing (certification) before they can be safely implemented in surgical practice.

Abstract 54

STRENGTHENING SURGICAL QUALITY DATA COLLECTION AND REPORTING IN TANZANIA'S LAKE ZONE: A MIXED METHODS ASSESSMENT

Mr William Washington Lodge II; Gopal Menon; Salome Kuchukhidze; David Barash; Sarah Maongezi; Augustino Hellar

Keywords:

surgery, data quality

Background

Safe Surgery 2020 (SS2020) is a multi-partner collaboration aimed at strengthening the quality of surgical and anesthesia services in Tanzania. Strengthening surgical services in resource-poor settings is contingent on using high-quality data to demonstrate where resources are most needed. The objective of this study was 1) to understand the flow of data at the facility level; 2) to assess the documentation and completeness of patient files; 3) to develop a data strengthening intervention.

Methods

We used a mixed-methods approach to develop a data strengthening intervention in SS2020 intervention regions. Semi-structured interviews were conducted with key stakeholders to understand data flow. 157 patient files with proven surgical site infections (SSIs) and sepsis were retrospectively assessed for completeness, based on key diagnostic indicators. Assessment results informed a surgical data quality training module and trained data collectors worked with providers to improve data collection.

Results

We found the data collection and reporting processes were uniform across all facilities with some-resource dependent variation. 77% of obtainable files did not have SSI or sepsis documentation. Few patient files (6%) were completed with necessary documentation of patient history, daily progress notes, doctors' orders, and SSI/Sepsis documentation along with criteria essential for their diagnosis.

Conclusions

While it was challenging to obtain patient files from medical records, results from obtainable patient files highlight a need for data strengthening, specifically in documentation and completeness. This

data strengthening framework will serve as a model for training facility personnel on high-quality data collection and reporting, regardless of the context that they work in.

Abstract 55

VALIDATING THE GLOBAL SURGERY ACCESSIBILITY INDICATOR: COMPARING GEOGRAPHICAL MODELING TO PATIENT REPORTED TRAVEL TIMES TO A RURAL DISTRICT HOSPITAL IN EASTERN RWANDA

Mr Nicolas Rudolfson; Magdalena Gruendl; Frederick Kateera; Theoneste Nkurunziza; Robert Riviello; Bethany Hedt-Gauthier

Keywords:

Global Surgery, caesarean section, GIS, travel time, geographic accessibility, obstetrics

Background

Because long travel times to reach health services are associated with worse outcomes, “geographic accessibility” is one of the six core global surgery indicators. This indicator is based on geographical information systems (GIS) estimates, which requires numerous assumptions. We compared GIS estimates to self-reported travel times for patients traveling to a district hospital in rural Rwanda for emergency obstetric care.

Methods

Our study includes all women, >18 years, undergoing a cesarean delivery from June 2017 to February 2018 at Kirehe District Hospital. We compared self-reported travel times with estimates based on the WHO AccessMod tool, using linear regression.

Results

A total of 664 patients were included. The majority of patients used multiple modes

of transportation (walking = 47.9%, public = 74.2%, private transportation = 2.9% and ambulance 71.1%). The total transport time reported by patients, not including waiting at the health center, was longer than the time estimated by the standard GIS model, with a regression coefficient of 1.49 [95% CI: 1.40 – 1.57], i.e. GIS estimates could be multiplied by 1.49 to yield a better approximation of patient reported travel times. When the GIS model was modified to take journeying via the assigned health center into account, GIS estimates were much closer to travel times reported by patients [b = 1.12; 95% CI: 1.05 – 1.18]

Conclusions

Typical approaches to estimate patient travel time significantly underestimate patient-reported travel times. Modifying GIS models to take travel via a health center into account, the most common pathway for patients would likely yield more accurate estimates.

Abstract 56

A STUDY OF PULSE PRESSURE AS A MEASURE OF ERECTILE DYSFUNCTION AMONG MEN IN NDOLA URBAN, A STUDY DONE AT NDOLA TEACHING HOSPITAL, NDOLA, ZAMBIA

Prof Kasonde Bowa; Geoffrey Chitambala

Keywords:

erectile dysfunction, pulse pressure, copperbelt University, Ndola, men, urology:

Background

Erectile dysfunction (ED), the persistent inability to achieve and maintain an erection sufficient to permit satisfactory sexual performance, is a common problem worldwide. It is reflective of atherosclerotic disease in subintimal intimal spaces. Much of research has been to ascertain its epidemiology and association with

cardiovascular, metabolic and neurological diseases. Scanty studies to date have determined its association with Pulse Pressure (PP), which is a surrogate of endothelial health.

Methods

Aim: To determine the correlation between erectile dysfunction and pulse pressure. **Method:** An analytic, quantitative, cross-sectional study was conducted on non-institutionalized healthy males aged 45 years and above. These randomly recruited participants passed strict inclusion criteria and were invited to outpatient department for consenting, demographic and anthropometric data capture. Three blood pressure readings were taken 5-10 minutes apart in sitting position with digital sphygmomanometer. Participants were ultimately subjected to an abridged 5-item version of IIEF (by Rosen et al, 1999a). This instrument classifies ED severity into five categories: severe (5 to 7), moderate (8 to 11), mild to moderate (12 to 16), mild (17 to 21), and no ED (22 to 25). Statistical package SPSS version 20 was employed to determine the correlations among input variables (age, pulse pressure, hypertension, diabetes, smoking status) and outcome variable, IIEF score.

Results

A total of 382 males participated. The overall prevalence rate for erectile dysfunction was 58.9% with 23.8% (91) having mild, 22.5% (86) mild to moderate, 8.1% (31) moderate and 4.7% (18) severe ED. Pulse pressure increased with age at coefficient value of 0.293. There was a negative correlation between ED and pulse pressure across all age groups (Pearson correlation coefficient = -0.142). The sensitivity of wide pulse pressure in detecting ED was 58.67, specificity 71.97, P value <0.05. (P value = 3.8×10^{-10}) and a diagnostic accuracy of 64.1%.

Conclusion

The prevalence of ED was high. Its severity increases with age and rise in Pulse pressure. A statistically significant specificity and sensitivity of wide pulse pressure for ED exists. Therefore wide pulse pressure in a patient with ED should warrant a comprehensive screening for other risk factors.

Abstract 57

MANAGEMENT OF UROLITHIASIS AT HAWASSA UNIVERSITY REFERRAL HOSPITAL

Dr Getaneh Tesfaye Teferi; Anteneh Tadesse kefle

Keywords:

Management Urolithiasis Hawassa pyelolithotomy hydronephrosis renal failure endoscopy

Background

Urolithiasis is health condition characterized by a presence of stone anywhere in the urinary tract. It has been known and studied for so long in the history of mankind. Unlike the west, Sub Saharan African region is said to have lower prevalence though it shows rising pattern. There are various options of treatment for urolithiasis. In developed countries, most patients are treated with less invasive techniques like ESWL, URS, PCNL and laparoscopy. The objective of this study is to assess the burden of urolithiasis treatment in our hospital which would add additional information to the existing data from other hospitals in the country.

Methods

This study is a retrospective descriptive study done at Hawassa University Referral Hospital (HURH) from July 01, 2017 – June 30, 2018. All patients with the diagnosis of Urolithiasis and operated in the specified time frame were included with the exclusion of those with incomplete data. Data were collected

from patients' charts with a pre-structured form and analyzed using Statiscial Package for Social Sciences (SPSS) V. 20.0.

Results

From a total of 100 cases admitted and operated with the diagnosis of urolithiasis in the study period, we were able to retrieve 78 charts with complete data. Of the total of 78 patients suspected and diagnosed of urolithiasis ,57 (73.1%) were male and 21(26.9%) were female making the M:F ratio 2.7: 1.The age of patients was in the range15-77 years with the mean age being 35.7 years and a standard deviation of +/-13.4. Forty-six (59.0%) of the patients were from the SNNPR while 32(41%) patients were from Oromia region. The most common presentation was flank pain in 69(88.5%) followed by dysuria 45(57.7%) and hematuria 38(48.7%). Twenty-three (29.5%) patients had history of urolithiasis of which 15(65.2%) had undergone surgery for stones. The most common admission diagnosis was renal stone (36, 46.2%) followed by concomitant renal and ureteric stones (19, 24.4%), bladder stone (11, 14.1%) and other types (12, 15.4%). Of the patients with renal stone, 29 had bilateral and the rest had unilateral stones. Majority of ureteric stones were found in distal ureter (9, 32.1%) followed by proximal ureter (8, 28.6%), mid ureter (4, 14.3%) and the rest is combination of the above. Hydronephrosis was one of the major complications at presentation. Nineteen patients (24.4%) presented with bilateral hydronephrosis and 42(53.8%) have unilateral hydronephrosis. Of the eighty hydronephrotic kidneys, 33(41.3%) had severe followed by 24(30%) moderate and 23 (28.8%) mild respectively based on the radiologist report.Thirty-four patients (43.6%) presented with renal failure (creatinine > 1.2gm/dl) and their mean was 4.36 mg/dl. Majority of renal stones were treated with pyelolithotomy (19, 24.3%), PCNL (8, 10.3%), nephrolithotomy (7, 9.0%). For ureteric stones, URS (13, 16.7%), ureterolithotomy (6, 7.7%) and stenting only

for 3 (3.8%) was done. Cystolithotomy (8, 10.3%) and cystolitholapaxy (5, 6.4%) was done for bladder stones. Nephrectomy was done for 9 (11.5%) of patients who presented with a nonfunctional kidney. Post-operative complications were noted in 24(30.8%) patients. These complications were SSI (5, 6.4%), prolonged urine leak (4, 5.1%), stone migration (7, 9%), blood transfusion (1, 1.3%) and others (3, 3.8%). According to The ClavienDindo grading, majority of complications (50%) are minor while 6.8% are major. Two patients died in the post-operative period due to acute myocardial infraction and severe renal failure.

Conclusions

This study shows urolithiasis is one the major reason for operation in our unit. The male to female ratio (2.7:1) and age range is consistent with other studies in Ethiopia and other developing countries. Majority of patients present with complications like hydronephrosis and renal failure. In our study, most patients are treated by open surgical option like pyelolithotomy and nephrolithotomy while few patients undergo endoscopic treatment. This shows very low rate of endoscopic treatment options even when it is compared to similar studies in Ethiopia. Despite its limitations, this study shows urolithiasis is one of the major health burden which causes significant renal damage in majority of patients and our treatment options are still outdated.

Abstract 58

SURGICAL OUTCOMES OF LIVING KIDNEY DONORS AT A NASCENT TRANSPLANT CENTER IN A SUB-SAHARAN AFRICAN COUNTRY

Dr Engida Abebe Gelan Prof Jeffery Punch

Keywords:

transplant, living kidney donor, outcome

Background:

Living donors are the main source of kidney in most transplant center and the only in some. The safety of these special peoples is a high priority. The objective of the study was to describe socio-demographic characteristics and surgical outcomes of living kidney donors in a nascent transplant center in a sub-Saharan African country

Methods:

A retrospective analysis of all living kidney donor in the first two years (September 2015 to August 2017) performed at Ethiopia's National Kidney Transplant Center was done. The center is located at St. Paul's Hospital Millennium Medical College in Addis Ababa

Results:

A total of 52 donor nephrectomies were done of which 38.5 % (20) of the cases were done in the first year. Females made 53.8 % (28) of the donors. Age of donors ranged from 21 to 66 with mean of 32.8 years. Most common donors were siblings 23 (44.2%) followed by parents 7 (13.5%). The most common form of surgery was Hand Assisted Laparoscopic Donor Nephrectomy (HALDN) 80.8 % (42) with a conversion rate of 6.7 % (3). All nephrectomies were left side, 48 (92.3%) of the patients had only one artery. Average operation time and estimated blood loss were 159 minutes and 160ml in HALDN while that of open nephrectomy were 126 minutes and 220mls. Only 3 patients had early postoperative complications. One patient had postoperative small bowel obstruction. No donor death.

Conclusions:

In initial experience, young adults and females are the main living kidney donors. Outcomes of living kidney donors are excellent and comparable to high volume

Abstract 59**CLINICO-MORPHOLOGICAL PATTERN OF MUSCULOSKELETAL TUMORS SEEN AT MOI, FROM JAN 2013 TO DEC 2014**

Dr Salome John Mduma; Robert Isack; Mhina Violet; Lupondo Ngini

Keywords

Musculoskeletal tumors, retrospective study, clinico-morphological pattern, histopathology, anatomical site, benign tumors, primary malignant tumors, metastases, soft tissue tumors

Background

Musculoskeletal tumors (mst) are relatively rare, its distribution varies in different parts of the world. There hasn't been recent documented data on mst in Tanzania, the diagnosis of mst remains to be major source of concern.

Methods

A retrospective hospital based study, analyzing histopathology report from central pathology lab and case notes of patients diagnosed clinically and managed for mst at MOI. The objective of the study is to determine clinico-morphological patterns of musculoskeletal tumors seen at MOI.

Results

Among 210 cases attended at MOI for mst, 181 cases were analysed. The demographic distribution had male: female ratio of 1.2:1 with age ranges from 3-85 yrs with mean age of 27 yrs. The commonest affected was 11- 20 yr age group. The histology type frequency distribution of mst: primary malignant tumors accounted for 54 (29.8%), benign bone tumors 47 (26.0%), soft tissue tumors 48 (26.5%) and metastases 32 (17.7%). Both benign and primary malignant tumor showed predilection to these anatomical sites: femur 39 (21.5%), tibia 28 (15.5%) and humerus 26 (14.4%). The benign and primary malignant tumors accounted for 40

(75.4 %) cases among 53 cases seen in adolescent age the secondary malignant tumors (mets) were more commonly seen in elderly, >50yrs that accounted for 32 (17.7%).

Conclusions

There's slightly higher male prevalence. The 11- 20 yr age group was mostly affected group. The malignant bone tumors made up most of musculoskeletal tumors. The femur, tibia and humerus are anatomic site frequently affected

Abstract 60

MANAGEMENT OF TRAUMATIC BRAIN INJURIES IN THE PREHOSPITAL SETTING IN KIGALI, RWANDA

Ms Alphonsine Uwamahoro; Ashley Rosenberg; Leoncie Mukeshimana; Ignace Kabagema; Theophile Dushime; Sudha Jayaraman

Keywords

TBI, Trauma, Kigali, Rwanda, Pre-hospital, Africa, Emergency Medicine, Global Surgery

Background

Traumatic brain injuries (TBI) are an important cause of mortality and disability. We aim to describe the epidemiology of patients with TBI treated by SAMU, the prehospital ambulance service in Kigali.

Methods

SAMU clinical data including demographic, mechanism and intervention data are routinely captured in a REDCap database, which was analyzed descriptively for all patients with TBI seen between December 2012 to May 2018.

Results

Patients with TBI accounted for 18% of all SAMU cases (n=2416), 81% were men & mean age was 30.5 + 12. The most common mechanisms were road traffic crashes

(76%), assault (10%), and falls (7.5%). Mild TBI, GCS>13, was most common (84%, n=1973), while 10% (n=233) sustained moderate TBIs (GCS 9-12) and 5% (n=132) sustained severe TBIs (GCS 3-8). A cervical collar was used for 52% of patients, and 80 patients were intubated (3.3%). A minority died (n=20) en route to the hospital. Patients with TBI also sustained injuries to lower limb (19%), upper limb (15%), thorax (5%), spinal cord (2.5%), and abdomen (2.4%).

Conclusions

TBI from road traffic crashes is a common and important problem for young men in Kigali, Rwanda. Although most were mild or moderate, the disability associated with TBI may not be immediately measurable. Concomitant injuries especially involving lower extremities may also contribute to functional impairment. These suggest the value of injury prevention and early recognition and management of polytrauma in addressing the impact of TBI in Kigali, Rwanda.

Abstract 61

CLINICAL FRAILTY SCALE AS A PREDICTOR OF SURGICAL OUTCOMES AMONG ADULT PATIENTS AT ST. FRANCIS HOSPITAL, NSAMBYA

Ms Josephine Namugenyi; Ignatius Kakande; Peter Ssenyonjo; Michael Lweta

Keywords:

Frailty, Disability, major surgery

Background

The decision as to whether a patient can tolerate surgery is subjective. Apart from age and comorbidities, frailty as a risk factor for adverse post-operative outcome has recently been recognised. Preoperative risk assessment using the Clinical Frailty Scale (CFS) can give prognostic information and early recognition of the frailty syndrome. The

role of the Clinical Frailty Scale in predicting surgical outcomes is unknown in Uganda.

Objective:

The general objective of this study was to determine the role of the clinical Frailty scale (CFS) as a predictor of post-operative outcomes among adult patients managed at St. Francis Hospital Nsambya. This study therefore sought to find out the role of the clinical frailty scale in predicting post-operative outcome among adult patients such that appropriate recommendations can be made.

Methods

This was a prospective descriptive cohort study that was conducted at St. Francis Hospital Nsambya, departments of Surgery. A total of 259 patients aged 18 years and older who presented for either elective or emergency surgery, between November 2017 and March 2018 were recruited. They were assessed for comorbidities. Frailty was scored pre-operatively using the clinical frailty scale (CFS)-(0-9). Patients were then classified according to the scores into: CFS 1–2-non-frail, 3–4 mildly frail, 5–6 moderate and 7–8 severely frail and CFS 9- terminally ill. Patients were followed up for outcome till discharge, death or up to 30 days maximum. Data was entered into EPI-info version 7 and exported into STATA version 12.0 software for statistical analysis.

Results

The average age for study patients was 46 (IQR 18-105) years. Males were the majority with 54.65% representation. Out of the total population, 25.58% were non-frail, 60.47- mildly frail, 11.63 % -moderate and 2.33- severely frail. One patient was terminally ill and this was dropped. The overall prevalence of frailty was 14% in the surgical population. The prevalence of frailty was observed to increase with age as noted in the different age groups: 2% for $\leq$ 40 years, 5% for those 40-49 years and 29%

for those $\geq$ 50 years. Factors associated with frailty among surgical patients included Age (p-value-0.000), Gender-being female and comorbidities like Diabetes (p-value-0.000). The CFS was able to predict post-surgical complications as an adverse outcome in severely frailty patients (p-value- 0.001).

Conclusions

1. Among surgical patients in Nsambya hospital at 14% are frail.
2. Patients aged 50 years and above are more likely to be frail
3. The CFS was able to predict for postoperative complications among severely frail patients

Abstract 62

NEO-ADJUVANT CHEMOTHERAPY IN PATIENTS WITH BREAST CANCER – HOW SHOULD WE MANAGE THE AXILLA?

Ms Bahaty Riogi H; Fowler R; Sripadam Leena; Chagla

Keywords:

Neoadjuvant chemotherapy, Breast Cancer, Axilla

Background

Locally advanced breast cancer was traditionally managed with mastectomy and axillary lymph node clearance (ANC). However, with the advent of neoadjuvant chemotherapy (NAC) the incidence of breast conservation for these patients has increased, but the management of the axilla, still remains controversial. We assess our practice in management of the axilla, recurrence and survival of patients who have had NAC.

Methods

A prospective database was maintained of all patients undergoing NAC between 2007-2013. Data collected included patient

demographics, indication for chemotherapy, adverse events, initial and post-operative staging, surgical management and survival.

Results

A total of 103 patients received NAC with a mean age of 50 years. The commonest reason for NAC was to down size the tumour for breast conserving surgery n=40 (49%). Of the 68 patients who had axillary disease at diagnosis, 32% (n=22) were down staged, with 24% of patients having no residual nodal disease. Relapse of disease was in 27% of patients, with only 1 recurrent axillary disease. Survival at the time of analysis was 74%.

Conclusions

Management of the axilla has changed over time and less invasive procedures can be performed to the axilla after NAC with less morbidity and with comparative recurrence and survival rates.

Abstract 63

LONG-TERM OUTCOMES OF BRAIN TUMOR SURGERY PATIENTS

Dr Lydia Nanjula

Keywords

Brain tumor adjuvant therapy GOSE surgery determinants

Background

For over 10 years, the rate of surgical site and systemic infection as remained high among patients undergoing major surgery; and contributing highly to mortality

Methods

follow up of all patients who underwent brain tumor surgery at Mulago national referral hospital from 01.01.18 to date data collected included age, sex, pre-operative

diagnosis, major intra-operative events, duration of ICU stay, complications, duration of hospital stay, adjuvant therapy and GOSE at 6 months

Results

26 patients were recruited. 64.7% were female, 35.3% were male. The average pre op Karnofsky score was 60. Commonest histology was meningioma and glioblastoma, major intra operative event was massive hemorrhage, average ICU stay was 6 days and duration of hospital stay at 9 days. The wound sepsis rate was 29.4%. mortality rate was 23.5%. Average GOSE at 6 months was 5

Conclusions

Surgical site and systemic sepsis account for a lot of morbidity and mortality among brain tumor surgery patients. The protocols to reduce surgical infections will highly contribute to improved outcomes among these patients

Abstract 64

TEAM WORK, AS A SUCCESS STORY IN MANAGEMENT OUTCOME OF PHAEOCHROMOCYTOMA AT THE ENDOCRINE SURGICAL UNIT OF MULAGO NATIONAL REFERRAL HOSPITAL

Fualal J.O, Makumbi Timothy, Kilyewala Catherine, Kintu Luwaga Ronald

The Endocrine Surgical Unit at Mulago National and has recorded 33 phaeochromocytomas for the last 16 years. There is good clinical acumen and the less than adequate but expensive investigations have always led to accurate diagnosis. The interest of the surgical team and the more vigilant anaesthesia team has contributed to the successful management of the cases. All patients are referred thus indicating

the awareness already present among the medical fraternity that treatment requires a specialty centre.

Abstract 65

A RETROSPECTIVE DESCRIPTIVE QUANTITATIVE STUDY TO DETERMINE PATTERNS OF DIAGNOSIS AND TREATMENT OF OSTEOSARCOMA PATIENTS AT QUEEN ELIZABETH CENTRAL HOSPITAL, MALAWI

Dr Vincent Lewis Mkochi; Leo Masamba

Keywords

Osteosarcoma, patterns of diagnosis, pattern of treatment

Background

Bone malignancies are relatively uncommon tumors. In Malawi out of a total of 18,946 newly registered cases of cancer, 2.2% were bone tumors.^{4,6} This being the case delays in diagnosis and treatment is a common occurrence. The delays may be attributed to prolonged patients delay (time span from first symptoms to consultation), professional delay (from consultation to treatment) or symptom interval (from first symptoms to treatment).⁶ The other factor may be missed diagnosis. This has never been studied in light of this particular tumor (osteosarcoma) only. It is in this view that study has to be done to establish evidence of patterns of diagnosis and patterns of treatment so interventions can duly tally the deficiencies, if there are at all any.

Methods

Between January 2011 and December 2016, 25 patients were diagnosed with osteosarcoma. Their records were reviewed and information extracted to establish patterns of diagnosis and treatment. The ethical approval was sought from College of Medicine Research and Ethics Center (COMREC).

Results

Total of 11,165 malignancies were registered in this period and 0.22% (n=25) was represented by osteosarcoma. The records of 27 patients were reviewed: 25 met the inclusion criteria (13 males and 12 females). The median age was 26years (age range 13-58 years). Duration from onset of symptoms to presenting at our unit had a median of 8.5 months. An average of 8 days to arrive at diagnosis when patient present at tertiary hospital. 16.4 days was an average time from diagnosis to treatment. Staging was not done because no tumor grade was recorded on histology report.

Conclusions

Conclusion: Due to rarity of the disease, misdiagnosis will still remain an issue and poor prognosis due to late presentation is another concern. High index of suspicion among clinicians especially the first contact of the patient is of importance, use of radiographs and a sound knowledge of the subtle X-ray changes are required. When primary carers review case that is suspected of osteosarcoma, consultation with a specialized/tertiary unit is advisable, as missed or late diagnoses could have catastrophic consequences

Abstract 66

MANAGEMENT CHALLENGES OF HELICOBACTER PYLORI ASSOCIATED GASTRITIS FACED IN A SINGLE PRIVATE INSTITUTION IN NORTHERN NAMIBIA.

Dr BROWN C.; NDOFOR KAIKAI; M. SHAABAN

Keywords

Helicobacter Pylori Challenges

Background

Helicobacter pylori remain the most prevalent chronic bacterial infection. Despite clear association with peptic ulcer disease,

gastric adenocarcinoma and gastric mucosa associated lymphoid tissue lymphoma; the diagnosis and treatment remain challenging in the setup of gastritis. The aim of the study is to look at the diagnostic and treatment challenges faced during the management of H Pylori associated gastritis.

Methods

In 2018, all cases with epigastric pains and a positive stool or serology test for H pylori were subjected to gastroscopy with biopsy. Those positive were placed on treatment and followed up in 6 weeks. Cases which remain symptomatic, a stool test was done, if positive a second gastroscopy was performed with culture and sensitivity; treatment was then given based on the result.

Results

Of the 90 cases with epigastric pains and positive H pylori on stool or blood test, only 46 (51.1%) were positive on biopsy during gastroscopy and 44 (48.9%) were negative. Of the 46 cases which were positive on biopsy, 6 were placed on triple therapy (esomeprazole, amoxil and clarithromycin) and 40 of the cases were placed on quadruple therapy (bismuth sulphate, metronidazole, levofloxacin and esomeprazole) each for 2 weeks. Of the 6 cases placed on triple therapy, 3 cases (50%) remained symptomatic after 6 weeks, whereas of the 40 cases placed on quadruple therapy only 1 case (2.5%) was symptomatic. The 4 cases which remained symptomatic, 2 remained positive for H pylori on culture and sensitivity.

Conclusions

The diagnosis H pylori remain a challenge especially if a non-invasive modality is the only available test. There is poor response with triple therapy, suggestive of drug resistance. We recommend gastroscopy with biopsy as the preferred diagnostic

modality for all cases of suspected H pylori and quadruple therapy should be the ideal treatment.

Abstract 67

IMPROVE SPINAL & PEDIATRIC ORTHOPAEDIC CARE – MOZAMBIQUE/ OTHER PARTS IN AFRICA

Prof Alaaeldin Azmi Ahmad

Keywords:

Scoliosis, Africa, Mozambique, pediatric, Orthopedic

Background

The number of children with scoliosis in general would be 1.3% by the population, making it about 400,000 in Mozambique. A quarter of those children are estimated to need clinical attention, translating to about 100,000 children. It is a highly demanding field that needs a long sustainable program to promote local doctors to be qualified to do this service

Methods

Placement of MOA between the Palestine international cooperation agency (PICA), Mozambique MOH of a 3 years program aiming primarily at local capacity building by teaching, combined with direct clinical service in the field of pediatric orthopedic with special focus on pediatric spine surgery.

Results

Clinical assessment in the clinic including training of 2 pediatric orthopedic surgeons. Surgeries for 9 patients were done in 2 working weeks within 4 months including 5 cases of AIS, 3 cases of EOS and one casting under GA. During that the local doctors were involved in some surgical procedures. Filing for all the cases with good follow up was done.

Conclusions

Capacity building / develop country-specific training programs in the COSECSA region can be implemented through South South cooperation.

Abstract 68

POST-TRAUMATIC ELBOW STIFFNESS: OUTCOMES AFTER OPEN SURGICAL RELEASE

Prof Basil Christopher; Vrettos Stephen; Roche Robert; Dachs Jean-Pierre; Du Plessis

Keywords:

Elbow, stiffness, post-traumatic, surgical release, heterotopic bone

Background

Stiffness is a common complication of elbow trauma. Outcomes of a cohort of patients who underwent an open surgical release for post traumatic elbow contracture were investigated.

Methods

A retrospective review was completed on thirty-five consecutively managed patients who underwent an open elbow release for post-traumatic stiffness between 2007 and 2012. Pre-operative and post-operative range of motion (ROM), pain scores and functional outcomes were recorded.

Results

Mean follow-up was 31 months. The interval from injury to time of release was 26 months. An improvement in flexion arc from 49° to 102° was obtained. The improvement in flexion arc was great in patients with intra-articular fracture, previous surgery or release performed after 2 years did not affect the improvement. There was an average of 25° loss of flexion arc when comparing immediate post-operative ROM and final

ROM. Improvement in range of motion was seen up to 6 months post release. Release of the posterior band of the medial collateral ligament resulted in improved final flexion. Final elbow extension was greater if anterior release was performed from a lateral approach. In total, 74% of the cohort achieved a functional final flexion arc. The complication rate was 26%, and re-operation rate was 11%.

Conclusions

Open release for post-traumatic elbow stiffness results in satisfactory functional outcomes in the majority of cases. There may be significant losses in ROM from intra-operative measures. A functional arc may take 6 months to achieve. Reoperation rate is high.

Abstract 69

TECHNIQUES AND OUTCOMES OF PERCUTANEOUS FIXATION OF PELVIC FRACTURES: EARLY RESULTS

Dr Anthony Muchiri; Maina Morris Kitua

Keywords:

Pelvic fractures, percutaneous, technique, Majeed score

Background

Introduction The surgical treatment of pelvic fractures is technically demanding. The aim is to achieve accurate reduction of the pelvic ring in unstable or potentially unstable injuries. Percutaneous pelvic fixation is gaining ground in an attempt to avoid extensile surgical approaches with their attendant complications. **Aim:** To describe the techniques and results of a retrospective study on percutaneous fixation of pelvic fracture cases done at AIC Kijabe Hospital, Kenya

Methods

It's a retrospective review of prospectively collated data. The pelvic fracture patients enrolled were 42 (with 43 pelvic ring injuries), performed between 2011 and 2018 with a 3.2:1 male to female ratio. The Pelvic fractures were stratified using the Young & Burgess classification. The clinical pathway entailed preoperative evaluation, surgery and then postoperative rehab with long-term follow-up. The functional Majeed scoring system was used postoperatively. The techniques of percutaneous fixation are described.

Results

Those due to Antero-posterior compression (APC) were 41.9 % (n=18) and Lateral compression 55.8% (n=24) and 1 vertical shear. The Majeed scores at the latest follow-ups were majorly excellent. Complications encountered were, hardware breakage-1.

Conclusions

Percutaneous pelvic fixation aids in earlier functional recovery and reduces complications associated with extensile approaches; but requires a vivid understanding of the pelvic anatomy and the various clinico-radiological approaches.

Abstract 70

PATTERN OF ADULT ORTHOPAEDIC PATIENTS' ADMISSION AND LENGTH OF HOSPITAL STAY IN TIKUR ANBESSA SPECIALIZED HOSPITAL, ADDIS ABABA, ETHIOPIA: ONE YEAR RETROSPECTIVE STUDY

Dr Mengistu Gebreyohanes Mengesha; Geletaw Tessema; Mekuant Antehunegn; Chalachew Tazebeu

Keywords:

Trauma. Polytrauma, Length of stay, Hospital admission, Adult.

Background

Knowing pattern of patients' admission and length of Hospital stay is mandatory for a Hospital manager to plan on quality of patient's care, know which patient stay longer and to manage growing demand of bed.

Methods

This is a one-year retrospective study of adult orthopedic patients admitted from January 01, 2017 to December 31, 2017. Data collected from patients Chart, discharge summary, admission/discharge data base and OR logbook and analyzed with SPSS version 23. Ethical clearance secured for the study.

Results

A total of 960 adult orthopaedic patients were admitted. Average age of patients was 38 (12 to 95) years. Among them, male account 718 (74.8%). Trauma was the primary reason for admission in 800 (83.3). The overall average length of Hospital stay was 18 (1-120) days. The extended average Hospital stay was for polytrauma patients (34 days), lower extremity injury (20 days) and malignancy (18 days). The average hospital stays for Open fracture was 39 days while for closed it was 12 days. The mean duration of stay in Hospital from admission to elective procedure was 7.2 days for the trauma cases and 11.4 days for the malignancy.

Conclusions

Overall length of Hospital stay is in line with other study, but the stay from admission to elective surgery is extended and need to be improved. The stay for malignancy patients for biopsy was very exaggerated and can be improved by scheduling tumor patients from outpatient clinic for biopsy. Primary prevention work to reduce trauma will be cost effective too.

Abstract 71

THE CONCEPT OF 2ND CHANCE RECONSTRUCTIVE SURGERY TRAINING: THE 2017-2020 PERSPECTIVES

Ms Anne Zeidan; Pierre Quinodoz; Jean Claude Esaki; Lionel Dumont

Keywords:

Reconstructive surgery training COSECSA education surgeon

Background

2nd Chance is a Swiss private association which aims at collaborating with the College of Surgeons of East, Central and Southern Africa (COSECSA) to strengthen the training in reconstructive surgery.

Methods

2nd Chance co-organizes with local surgeons, workshops on specific topics from the very basic to complex reconstructive surgery techniques. The integration of the workshops into the COSECSA training programs was made compulsory in 2015 under a partnership agreement. The aim of these 5-day workshops, organized three times a year in a different country of the region, is to train reconstructive surgery to African surgeons. The workshop provides theoretical, clinical and practical approaches offering to each trainee the possibility to actively participate and interact with expert at every step of the surgical patient management.

Results

Based on the lessons learned between the period of 2015-2016, the selection of the surgeons participating in the workshop has been upgraded and focused mainly on surgeons involved in the COSECSA FCS plastic surgery training program. A database with every participant career pathway has been established. Scholarship to encourage surgeon to enroll COSECSA plastic examination is proposed for

application. Ethical approach and follow up of reconstructive surgery are highlighted throughout the workshop. Young African surgeons have been involved in the organization team of the workshops as junior instructor. As of today, nine surgeons successfully passed their COSECSA Fellowship in plastic surgery exams.

Conclusions

In conclusion, we think that strengthened training in reconstructive surgery in Africa is a challenge for all stakeholders involved requesting dynamic adjustments, constructive exchanges and assessments.

Abstract 72

PLASTIC SURGERY TRAINING IN EAST AFRICA: KENYA AND UGANDA

Dr Waruguru C Wanjau

Keywords:

Plastic surgery, training, Kenya, Uganda

Background

Plastic surgery is uniquely placed to address the burden of surgical disease in the developing world. Local surgical programs have been started in Kenya and Uganda to address the gap between the current surgical need and the ability to provide equitable surgical care. The study aimed to analyze Plastic Surgery Training Capacity in East Africa: Kenya and Uganda

Methods

A survey was created based on core requirements from international plastic surgery core requirements. The Surveys were then modified based on local input. The survey was administered to program directors, faculty and residents at the University of Nairobi and University of Mbarara (CorSU) programs in Kenya and Uganda respectively. The curriculums of the

programs were also reviewed.

Results

2 program directors, 4 faculty and 16 plastic surgery residents responded to the survey. While in the specific rotations residents reported to have done the following number of cases a month on average: Burns- 42.6, Cleft lip and palate-12.67, Breast reconstruction-4.78, Aesthetics-6, hand surgery-13.6. 66.7% of the residents were not satisfied with the external rotation with 33.3% of them being satisfied. 18.8% of residents have not been involved in plastic surgery research. 42.8% have not published, 50% have had one publication

Conclusions

The training needs and exposure of burn surgery and cleft palate surgery was found to be adequate and satisfactory from both faculty and residents, there is a need to increase training and exposure in aesthetic, breast and flap surgery. The faculty and residents both expressed need for increased resources for research.

Abstract 73

THE IMPACT OF VACUUM ASSISTED CLOSURE (VAC) THERAPY IN MANAGEMENT OF OPEN FRACTURES RELATED WOUNDS: A CASE SERIES

Dr Laurent Nkurikiyumukiza; Emmanuel Bukara; Robert Karakire

Keywords:

Vacuum Assisted Closure (VAC), fracture, wounds, granulation, dressing, infection

Background

Negative pressure wound therapy (NPWT) is a novel form of treatment that uses sub-atmospheric pressure (vacuum) to affect early wound healing. Intermittent or continuous negative pressure of around 125mmHg is associated with increased

angiogenesis, decreased oedema and rapid formation of granulation tissue.

Methods

This is a case series of cases admitted with traumatic wounds associated with open fractures with soft tissue loss managed by VAC therapy in King Faisal Hospital.

Results

5 cases with open fractures and soft tissue loss were treated successfully. The wound closure was achieved in 7-14 days. There was no superficial or deep wound infection after 4-7 days of VAC therapy. 3 cases needed split thickness skin graft while other 2 cases wounds healed by secondary intention.

Conclusions

VAC therapy is an effective alternative in management of open fracture related wounds.

Abstract 74

EARLY OUTCOMES OF A 2 YEAR FOLLOW-UP OF MANAGING SEGMENTAL BONE LOSS SECONDARY TO HAEMATOGENOUS OSTEOMYELITIS USING VASCULARIZED FIBULA FLAP

Dr George William; Galiwango Robert; L Ayella

Keywords:

Segmental bone loss; hematogenous osteomyelitis; vascularised fibula flap

Background

Management of segmental bone defects following osteomyelitis is challenging. Our experience in using vascularized fibula flaps to manage these defects in children is presented.

Methods

A retrospective study. Data from patient files period between October 2013 and September 2015 was analysed. Patients

with significant long bone defects resulting from hematogenous osteomyelitis and the treatment thereof utilizing vascularised fibula flap were included.

Results

Total limb reconstruction was achieved in 13 of 14 cases. The average integration period was 3.5 months. No augmentation of the graft was required. The mean follow-up period was 18.7 months (range 10-31). Mean time for full weight bearing in reconstructed lower limb was 5.8 months. All patients were walking pain-free and none with a supportive device. The fibular flap with epiphysis had good functional outcomes. Complications included 1 graft resolution, 1 graft fracture and 1 foot drop. Lengthening through one graft on the forearm was achieved and the radial length restored.

Conclusions

Reconstruction of segmental bone defects secondary to hematogenous osteomyelitis in children using vascularized fibula flap is a reliable technique that salvages and restores limb function.

Abstract 75

ROLE OF TRAINEE FEEDBACK IN ENHANCING THE NON-TECHNICAL SKILLS FOR SURGERY-VARIABLE RESOURCE CONTEXTS (NOTSS-VRC) COURSE

Egide Abahuje, Rachel Koch, John Scott, Allison Linden, Steven Yule, Robert Riviello.

Keywords:

Non Technical Skills, inter-professional team health education

Background:

Non-technical skills for surgery encompass situational awareness, decision making, teamwork and leadership: concepts that are critical for optimizing surgical performance

and outcomes. Recently a Non-Technical Skills for Surgery in Variable Resource Contexts (NOTSS-VRC) curriculum was developed specifically for surgery in low- and middle-income countries. The aim of this study was to review the feedback from a recent NOTSS-VRC course in order to improve education for future participants.

Methods:

After conducting a NOTSS-VRC course in Rwanda, a post-course assessment form was distributed to course participants. Respondents were asked to describe positive aspects and give suggestions for future improvement.

Results:

Eighty six participants responded, including 76 residents, 5 consultants, and 5 nurses/non-physicians anesthetists. All participants appreciated the course organization, the video scenarios specific to their practice context, and found that the course was relevant to their context. Thematic analysis of participant reactions revealed the following suggestions: to increase access of the course around the country and to more disciplines; to train more Rwandan NOTSS-VRC trainers; to include NOTSS-VRC in the MMed curriculum; to extend the course to 2 days; and to make the course material accessible online.

Conclusion:

NOTSS-VRC is relevant to health care providers working in variable resource settings, and feedback from trainees is being used to improve its overall impact. In future research we plan to implement a two-day version of the course, make the materials available online, evaluate implementation of NOTSS-VRC in local hospitals, and assess the impact of the training on both providers' non-technical skills and patient outcomes

Abstract 76

SURGICAL COLLABORATION AS AN EXAMPLE OF HORIZONTAL CAPACITY BUILDING: VCU-RWANDA EXPERIENCE

Dr Sudha Jayaraman; Ignace Kabagema; Ashley Rosenberg; Patrick Ndimubanzi; Theophile Dushime; Sudha Jayaraman

Keywords

Global surgery, prehospital, Collaboration, EMS, Emergency Medicine, Education

Background

In order for patients to benefit from hospital level strengthening, capacity at the hospital level and access to emergency care needs to exist together. Collaborative projects on trauma conducted by VCU and CHUK confirmed the value of broader capacity in access to emergency care in Rwanda.

Methods

An MOU was developed between VCU and MOH of Rwanda to outline the aims of capacity development in EMS. Bilaterality along with MOH principles of sustainability and integration within existing systems were established as key values.

Results

Four grants from NIH (2), Rotary (1) and philanthropic (1) sources were received. R21 and P20 NIH grants provide opportunities for Rwandese clinicians to lead as Principal Investigators and participate in conferences. They support Masters Programs for six staff. Through Rotary Global Grant four short courses in trauma, medical, obstetric/neonatal and pediatric care were created and a train-the-trainers program. VCU-Crone Scholars fund allowed six Rwandese leaders from emergency medicine, and prehospital care to visit Virginia and learn about EMS, emergency medicine, and trauma. Research and clinical mentorship for Rwandese surgery, emergency medicine and prehospital staff were supported by VCU

faculty. Additional clinical collaborations in medicine, anesthesia and critical care are in process through the Fulbright Program societies.

Conclusions

This surgical partnership expanded beyond trauma to include EMS management, emergency medicine, and further included NCDs and obstetric care and is in process of expanding further across anesthesia, medicine and critical care. This is an example of the horizontal capacity building that can be developed through surgical partnerships.

Abstract 77

GRAPHICAL REPRESENTATIONS IMPROVE EXAMINEE UNDERSTANDING OF ABSITE TEST RESULTS: GENERAL SURGERY RESIDENTS' PERSPECTIVE

Christophe Mpirimbanyi, Jeffrey skubi, Faustin Ntirenganya, Egide Abahuje

Background:

The American board of surgery in training examination (ABSITE) has been used to benchmark general surgery training in Rwanda from 2015 through a partnership between the University of Rwanda and American Universities. Post examination, common residents' complaint was not to understand the results of the exam. Graphical charts comparing each individual Rwandan score to other scores in their program as well as to American and other international scores were generated. We hypothesized that the graphical representations would increase resident understanding compared to the official ABSITE test results alone.

Methods:

Graphical charts based on the ABSITE results were created as bar charts showing graphical representations of comparisons for each examinee between the first two

years of testing as well as how each resident compared to other residents in Rwanda, in the United States and other countries. Surveys assessing resident understanding of their results were distributed to each resident after they received their official ABSITE report and again after they received the newly created charts.

Results:

In 2016, thirty five residents took the ABSITE. The survey response rate was 86%. Comparing surveys given before and after the distribution of the graphical charts, we found a significant increase in how each resident understood their performance over the two years and how they compared to others ($p<0.001$).

Conclusion:

Comparative graphical representations based on official ABSITE score reports improve comprehension of score results for residents at the University of Rwanda. Administering the ABSITE results along with graphical score reports can help residents from developing countries compare themselves to peers in the US and elsewhere in the world, to benchmark individual and programmatic progress.

Abstract 78

PREVALENCE OF PERIPHERAL ARTERIAL DISEASE AMONG HIGH RISK PATIENTS IN SOUTHERN MALAWI

Dr Palesa Chisala, Prof Eric Borgstein, Queen Elizabeth Central Hospital

Keywords:

Peripheral vascular disease, HIV, Diabetes Mellitus, Hypertension

Background:

Little is known about the prevalence of peripheral arterial disease in sub-Saharan Africa, but studies have suggested a

significant disease burden and unmet healthcare need. There are few centres with expertise and resources to manage these cases. This study investigated the prevalence of peripheral arterial disease amongst high risk groups in Blantyre, Malawi.

Methods:

Patients attending outpatient clinics from January to April 2017 for diabetes, hypertension and HIV management were included in the study. All patients underwent a structured interview and clinical examination including ABPI measurement. Patients admitted for intervention related to lower limb ischaemia during the study period were also included. Data were collected regarding known vascular risk factors.

Results:

There were 186 patients included in the study. Of these, 14 (7.5%) patients were found to have an ABPI <0.9 including 3 patients with claudication symptoms and 8 with tissue loss. A further 3 patients (2%) had evidence of critical limb ischaemia and 33 patients (18%) gave a history convincing for claudication. This resulted in a potential prevalence of peripheral arterial disease of up to 27% amongst this high risk group of patients. Examining only those with a documented decrease in ABPI, there was an exponential increase in prevalence with age from 4% at 25-44 years, 9.3% at 45-64 years and 21% >65 years, with the number at risk in the 25-64 years representing the largest groups. 19 patients were admitted for intervention; 15 of these underwent major limb amputation and no revascularisation.

Conclusions:

This study demonstrates an unmet burden of PAD amongst high risk groups in southern Malawi and there is urgent need

Abstract 79

CRYOSURGERY: A MINIMAL INVASIVE METHOD FOR CHRONICAL PAIN TREATMENT

Dr. Ghislain Pierre BEEUWSAERT

Providing some basic precautions cryosurgery actualises a particularly riskless and repeatable progress of pain treatment. Its direct application to the peripheral nerve has been proven sufficiently. It especially allows pain relief for the peripheral neuropathy and neurinoma as well as an earlier mobilisation in case of cardiac and lung surgery.

Besides these classical indications, new horizons are opening. It really looks as if cryosurgery is capable to give long term relief concerning chronic myofascial pain and trigger points. This means that cryosurgery is opening up a spectrum of new and non aggressive possibilities to treat frequent pain problems. Thus, it appears that cryosurgery is finding its own defined indications.

The presentation is limited to spine pathology, even if there are a lot of other indications in other areas of the body.

Abstract 80

VIDEOLARYNGOSCOPY IN LOW-RESOURCE REGIONS: BARRIERS, REQUIREMENTS AND CONTEXT-SPECIFIC DESIGN

Ms Juilie Charlotte Fleischer, Prof Jenny Dankelman

Keywords:

Videolaryngoscope, difficult intubation, design, low-cost, barriers, design requirements, context-specific design

Background:

Difficult intubation is a well-known clinical problem which is associated with complications such as trauma, hoarseness and hypoxia. Videolaryngoscopy can reduce intubation time, increase first-pass success rate and reduce the number of esophageal intubations. However, videolaryngoscopes are not widely used in low- and middle-income countries. Therefore, this study identifies barriers to videolaryngoscopy in these regions as well as stakeholder needs in order to generate design requirements for a new context-specific design.

Methods:

Fifty-seven questionnaires were returned by surgeons, anesthesiologists, biomedical engineers and other healthcare employees attending the 2018 Surgical Society of Kenya Conference or from three hospitals in Kenya. Current practice concerning use and maintenance of airway equipment was observed for two days in a Kenyan hospital and non-structured interviews were done with stakeholders from multiple institutions in Kenya. Moreover, a literature search was performed to compare performance of various videolaryngoscope designs.

Results:

Barriers to widespread use of videolaryngoscopy in Kenya include high procurement costs, difficulty in obtaining disposables or proprietary spare parts and unfamiliarity with the equipment. Most important design requirements are possibility for local repair, a short learning curve and easy maneuverability so that it can be used by experienced and inexperienced providers. Based on these requirements a videolaryngoscope that combines a USB endoscope and smartphone screen with both standard and hyper-angulated blades was developed.

Conclusion:

The identified barriers and design comparison led to a prototype for a low-cost, easy to use videolaryngoscope suitable for local maintenance. Next step is preclinical evaluation in the local context.

POSTER PRESENTATIONS

Abstract 81

INCARCERATED FINGER TOURNIQUET SYNDROME SECONDARY TO RING DEVICES: A PROSPECTIVE STUDY ON ASSOCIATED FACTORS, PROPOSED TECHNIQUES OF REMOVAL AND SHORT-TERM OUTCOMES.

Dr Mengistu Gebreyohanes Mengesha, Dr Biruk Lambiso

Keywords:

Incarcerated finger, Tourniquet Syndrome, removal Technique, ring devices, outcome

Background:

Incarceration of rings or other circumferential metal objects on fingers is not an uncommon complaint. Patients may present with pain, swelling, ischemia, and finger wounds related to previous ring removal attempts. Ring incarceration (RI) may be due to application of an undersized ring or related to swelling around a previously well-fitted ring. Treatments for RI can be classified as ring-preserving or ring-destroying. This prospective study aims to describe epidemiologic features, associated conditions, and to report the short-term outcomes of RI.

Methods:

This is a prospective cohort study of consecutive patients presented with rings or other metallic objects incarcerated on their finger between August 1, 2016 and March 31, 2018 to our emergency OPD. This study was done after getting ethical approval.

Results:

Among the 23 patients, 56.5% were female with average age of 23.4 (1.5 - 56) years. Nine (39.1%) were presented after inserting narrow unfit ring, 5 (21.7%) were pregnant, 4 (17.4%) have trauma to the ipsilateral side, 3 patients were psychiatric and the rest 2 (8.7%) are young children. The mean duration of ring incarceration was 34 hours (4 hours-

7 days). Twenty-one patients (91.3%) have tried to remove at their home and 19 (82.6%) patients' ring were removed with ring-destructive technique. There was no report of any complication after removal at 2 weeks and 3 months follow up.

Conclusion:

Incarcerated Finger Tourniquet Syndrome is not uncommon in our set up and ipsilateral upper extremity trauma, pregnancy, undersized ring and psychiatric conditions are found to be the main risk factors.

Abstract 82

CLINICAL MANAGEMENT AND SHORT TERM OUTCOME OF PATIENTS WITH LOWER BACK PAIN FROM DEGENERATIVE LUMBAR SPINE DISEASES AT MUHIMBILI ORTHOPEDIC INSTITUTE, DAR ES SALAAM

Dr Happiness Rabel

Key words:

Lower back pain, degenerative lumbar spine disease, Oswestry disability index (ODI)

Background:

The main clinical presentation in Degenerative Lumbar Spine Disease is Lower Back pain which affects 70%–85% of individuals during their lifetime. Low back pain (LBP) is reported as a major cause of disability with substantial socioeconomic impact globally.

Methods:

This was a prospective observational study conducted at MOI neurosurgery department.

Results:

A total of 50 patients were admitted with lower back pain due to degenerative lumbar disease and operated. Females were 78%.

The common clinical presentation were LBP 80%, neurogenic claudication (78%), numbness and weakness of limbs (58% and 20%) respectively. Incontinence was seen in only 2% of patients. The mean pre-operative Oswestry disability index (ODI) score was 49.57 and the minimum duration for conservative management before surgery was 10.7 months. The commonest surgery performed was lumbar decompression by central laminectomy (84%), foraminotomy 48%, discectomy 38%, stabilization by pedicle screws was 20% and hemilaminectomy was the least performed (4%). The Mean ODI score post operatively was 15.56. The mean difference between the ODI pre-operatively and Post-operatively as calculated by paired t-test was 33.96 (95% CI 29.3-38.6) ($P < 0.004$).

Conclusion:

The clinical characteristics and the treatment outcome of our patients as measured by patient reported outcome instrument showed good acceptable results.

Abstract 83

GROWTH FRIENDLY IMPLANTS WITH RIB CLAWING HOOKS AS PROXIMAL ANCHORS IN EARLY ONSET SCOLIOSIS

Prof Alaaeldin Azmi Ahmad

Key words:

Early onset scoliosis , hooks , proximal anchors , kyphosis , thoracic

Background:

This is a retrospective study to evaluate the outcome in the surgical treatment of early onset scoliosis with proximal clawing rib fixation in hybrid growing-rod constructs. The study examines spinal deformity correction with spinal growth maintenance, and the complications associated with this technique.

Methods:

A hybrid rib construct surgery with serial lengthening was utilized for the treatment of 71 Patients, with mean age at surgery of 66.6 months and mean of 43.9 months for follow-up.

Results:

The coronal Cobb angle in patients fell from 63.1 preoperatively to 51.6 in the last follow-up, with a correction of 16.8% ($P < 0.005$). The sagittal Cobb angle fell from 66.7 preoperatively to 38 in the last follow-up with a correction of 42.6% ($P < 0.005$). Coronal balance fell from 22.8 preoperatively to 22.3 ($P = 0.86$). Sagittal balance fell from 35.4 mm preoperatively to 24.39. ($P = 0.019$). T1-S1 spine height increased from 248.7 mm preoperatively to 282.4, with a mean change of 1.13 cm per year. No neurological complications were detected.

Conclusion:

Surgical management for EOS using proximal clawing rib fixation technique is a good choice in terms of safety, ease of placing the proximal anchors, ability to use more than one form of instrumentation, and a lower complication rate.

Abstract 84

PERI-OPERATIVE MANAGEMENT AND OUTCOMES FOLLOWING CESAREAN SECTION IN RURAL RWANDA, A CROSS SECTIONAL STUDY

Ms Eline Uwitonze, Ms Teena Cherian, Dr Robert Riviello, Dr Sadoscar Hakizimana, Mr Theoneste Nkurunziza

Keywords:

Cesarean section, rural Africa, neonatal health, maternal health, surgery, operative outcomes

Background:

Cesarean sections (c-sections) are essential in reducing maternal and neonatal deaths. There is a paucity of research regarding c-section care and outcomes in rural African settings. This study aimed to describe the characteristics of women receiving c-sections at Kirehe District Hospital (KDH) in rural Rwanda, the clinical care provided, and the maternal and neonatal outcomes.

Methods:

Descriptive analyses were performed on secondary data of all adult women who are residents of Kirehe District and received c-sections at KDH during April 1-September 30, 2017. Newborn outcomes data were extracted from medical charts.

Results:

Of the 621 women included in the study, most were 25-34 years old (45.7%; n=284), married (42.2%; n=262), had only primary education (67.5%; n=419), and were farmers (75.7%; n=470). The most common indication for c-section was a previous c-section (31.9%, n=198), 67.7% (n=420) spent less than 4 days at the hospital post-surgery, and over 95% did not have any postoperative complications prior to discharge. Approximately 10% of neonates were admitted to the neonatal unit, the most common reason being neonatal infection (59.6%; n=31).

Conclusion:

Our findings shed light on c-section deliveries at a rural district hospital in sub-Saharan Africa. Previous c-section as the primary indication for c-section will result in high future demand for this surgery. This highlights the need to explore appropriateness and uptake of Vaginal Birth After Cesarean in rural district hospitals.

Abstract 85**SHOULDER ARTHROPLASTY IN THE NAIROBI HOSPITAL: A WELCOMED RETURN OF FUNCTION**

Dr Jean Makena, Dr Philip Gituri

Keywords:

Arthroplasty, Rotator Cuff,

Background:

Shoulder arthroplasty or shoulder joint replacement is done for various reasons including alleviation of pain from advanced glenohumeral arthritis, and to restore of function of the shoulder to do activities of daily living (ADLs) and improve quality of life of patients with shoulder pathology. Many patients with shoulder pain from various etiologies do receive appropriate nonoperative and operative management but a group of these patients will seek specialized treatment for their conditions through Medical tourism to Europe, Asia or United states of America.

Methods:

In August 2018, The Nairobi hospital did conduct a 3-day workshop to empower orthopedic consultants, residents, physiotherapists and theatre personnel on the care of patients with shoulder pain, undergoing shoulder arthroplasty.

Results:

It was noted that in increasing number of patients were seeking treatment for their shoulder pains with the aim of getting relief of the symptoms but also restoring function to be able to perform ADLs. Six successful surgeries were conducted in TNH under the leadership of a shoulder and sports specialist, and are currently undergoing supervised physical therapy that is essential for the first 2 weeks then, a patient-based program over 6 weeks.

Conclusion:

The whole workshop was multidisciplinary and the need for such specialties was evident and emphasized for success of shoulder replacement surgery. A close collaboration between the radiologists performing the radiographs, Computer Tomographic scans (CT scans), and Magnetic Resonance Imaging (MRI) of the shoulders facilitated the preparations.

Abstract 86

**TRENDS AND OUTCOMES OF
EMERGENCY ABDOMINAL SURGERY AT
RUHENGERI REFERRAL HOSPITAL: A 2
YEARS EXPERIENCE**

*Hirwa Aime D., NIYIRERA Eugene, RURANGWA
Emmanuel, UTUMATWISHIMA Jean Nepo*

Keywords:

Laparotomy, new referral hospital, abdominal emergencies surgery

Background:

Management of emergency general surgical conditions remains a challenge in Africa due to issues such as insufficient human resources and infrastructure (1) and it is also increasing. This study aims to assess the trend, diagnosis and the outcome of emergent abdominal surgery in a new referral hospital located in the 2nd city of Rwanda.

Methods:

This retrospective and prospective cross-sectional study included all patients who underwent Laparotomy at Ruhengeri referral hospital between September 30th 2016 and September 30th 2018 with emergency abdominal surgical conditions, including trauma patients and post partum conditions. we describe patient demographics, diagnosis, and outcomes and associated factors.

Results:

During the study period at Ruhengeri referral hospital there was 1968 operations among which 1084 were emergency abdominal surgeries. the sex ratio was 1.2/1 (male 58%, female 42%). the age ranging from 9 months to 87 years old, most of our patients were from northern province followed by the western. the diagnosis that was most present was generalized peritonitis 61% (ileal perforation, gastric perforation and appendicular perforation) then followed by sigmoid volvulus 18%, all types of complicated hernias represented 9%, post traumatic abdominal emergencies and post partum complications represented 12%. all operations were done by general surgeons, gynecologists and senior general surgeon resident. The reoperation rate was 6.4% of all operations and a mortality rate of 4.1% mostly influenced by the 2nd degree delay ($P < 0.006$) and the associated sepsis ($P < 0.000$).

Conclusion:

The abdominal emergencies represent a big part of the new referral surgical workload and the infection remain a very challenging surgical condition thus the sepsis representing a negative predictor of bad outcomes in patients treated at tertiary level hospital.

Abstract 87

**PREVALENCE AND RISK FACTORS OF
GALLSTONE DISEASE IN PATIENTS
UNDERGOING ULTRASONOGRAPHY IN
MULAGO HOSPITAL, UGANDA.**

*Mr Nimanya Alice Stella, Ocen William, Makobore
Patson, Bua Emmanuel, Ssekitooleko Badru,
Oyania Felix*

Keywords:

Gallstone disease, prevalence, risk factors, Uganda

Background:

Gallstone disease (GSD) is still the most prevalent medical condition in the pancreatobiliary system. The burden of GSD and its complications are major public health issues globally. It is a common cause of surgical intervention, contributing substantially to health care costs. Most patients are asymptomatic, with 20% becoming symptomatic after 10 years of follow-up. Its prevalence varies widely among different populations and remains unknown in Uganda. The aim of the study was to determine the prevalence, and associated risk factors of GSD in patients undergoing abdominal ultrasonography at Mulago National Referral hospital.

Methods

This was a cross-sectional study, conducted at the Department of Radiology in Mulago hospital. Convenient sampling was used to recruit individuals having an abdominal ultrasound scan at the Radiology department. Questionnaires were used to assess risk factors, and an exam was performed for individuals with gallstones to assess symptomatology.

Result

The prevalence of GSD was 22%. Statistically significant factors associated with GSD were a history of hormonal contraceptive use OR 3.2 (1.88-5.41) and a history of previous biliary symptoms OR 2.9 (1.68-4.91). Ninety-four percent of individuals with gallstones had epigastric/right upper quadrant pain.

Conclusion

The prevalence of GSD is high in Mulago; use of hormonal contraceptives and a previous history of biliary symptoms were significant risk factors for GSD. Most patients were symptomatic with epigastric pain as the cardinal symptom. We recommend countrywide screening using ultrasonography to determine the

prevalence of GSD in the general population. There is need to study further the risk of hormonal contraceptive use and GSD.

Abstract 88**FACTORS INFLUENCING DELAYS IN CARE FOR PATIENTS WITH PERITONITIS AT A RWANDA REFERRAL HOSPITAL**

Dr Martin Munyaneza, Dr Sudha Jayaraman, Dr Faustin Ntirenganya, Dr Jennifer Rickard

Key words:

Peritonitis, Delays, Rwanda, Surgery, Emergencies, Critically ill

Background

Peritonitis is a common surgical emergency with a high mortality rate. Prompt recognition and surgical treatment is the mainstay of therapy. In Rwanda, patients often present critically ill with delayed presentation. A better understanding of patient care prior to arrival at the referral hospital is needed to identify areas for improvement. The aim of this study was to describe delays in Rwandan patients presenting to a referral hospital with peritonitis.

Methods

This is a cross-sectional observational study of patients with peritonitis admitted to the department of surgery at a tertiary referral hospital in Rwanda. Data was collected on demographics, clinical course and patient delays. Patient delays were characterized according to the Three Delays Model. Factors related to delays in seeking care included consultation of traditional healers, understanding the need for medical attention, perceptions and acceptance of surgery and the healthcare system. Factors related to delays in reaching care included travel time, cost, and availability. Data entry and analysis was done using Google Form software.

Result

Over an 8-month time period, 54 patients with peritonitis were admitted to the referral hospital with peritonitis. Most (n=37, 68%) patients were male. For education, 20 (37%) patients had attended only primary school and 15 (28%) never went to school. A large number (48%) were unemployed and most (n=45, 83%) patients used community-based health insurance. For most patients (n=44, 81%) the monthly income was less than 10,000 Rwandan Francs (11 U.S. Dollars). The average duration of symptoms prior to presentation at the referral hospital was 48 hours. A large number (n=37, 69%) of patients consulted a traditional healer prior to presentation at the healthcare system. Most (n=29, 53%) patients travelled more than 2 hours to reach a health facility. A large number (n=39, 72%) reported prior good experience with health system and believed that surgery could cure abdominal pain. From the health center to the district hospital, most (n=36, 66%) patients travelled more than 10km. The cost of transportation ranged between 5000-10000 RWF (5-11 U.S. Dollars) for most of them, and 52% of patients arrived at the district hospital between 24 – 48 hours after the onset of abdominal pain. After arrival at the referral hospital, almost all (98%) patients were operated.

Conclusion

In this study, factors that were influencing seeking and reaching care were associated with sociodemographic characteristics, health-seeking behaviors, the cost of care, and travelling time. These findings may highlight points of interest to conduct a community-based survey, to understand better factors associated with delays in seeking and reaching care for patients with peritonitis.

Abstract 89

COLORECTAL CANCER IN A PATIENT WITH INTESTINAL SCHISTOSOMIASIS: A CASE REPORT FROM KILIMANJARO CHRISTIAN MEDICAL CENTER NORTHERN ZONE TANZANIA

Dr Alfred S Kische

Key words:

Intestinal schistosomiasis, Colorectal cancer, *Schistosoma mansoni*, *Schistosoma japonicum*

Background

Colorectal cancer associated with chronic intestinal schistosomiasis has been linked with the chronic inflammation as a result of schistosomal ova deposition in the submucosal layer of the intestine. Among all species *Schistosoma japonicum* has been more linked to development of colorectal cancer as compared to *Schistosoma mansoni* due to absence of population-based studies to support the association. Despite the weak evidence, some cases have been reported associating *S. mansoni* with development of colorectal cancer.

Methods

Case Report

Result

We report a patient who presented to us as a case of intestinal obstruction and found to have a constrictive lesion at the sigmoid colon at laparotomy, then later found to have colorectal cancer with deposited *S. mansoni* ova at histology.

Conclusion

Given the known late complications of schistosomiasis, and as *S. mansoni* is endemic in some parts of Tanzania, epidemiological studies are recommended to shed more light on its association with colorectal cancer.

Abstract 90

MOTO TAXI CRASHES IN AND AROUND KIGALI, RWANDA AS TREATED BY SAMU, RWANDA'S PREHOSPITAL AMBULANCE SERVICE

Mr Fraterne Uwinshuti; Ashley Rosenberg; Myles Dworkin; JM Uwitonze; Theophile Dushime; Sudha Jayaraman

Key words:

Moto, Prehospital, Rwanda, Kigali, Emergency Medicine, Global Surgery

Background

Moto taxis are a frequent mode of transportation in Kigali, Rwanda, but crashes are common. The SAMU prehospital ambulance service responds to many of these crashes to provide urgent on-scene care. We aim to describe the epidemiology of moto related crashes in Kigali that were seen by SAMU.

Methods

SAMU clinical data including demographic, mechanism and intervention data are routinely captured in a REDCap database, which was analyzed descriptively for all moto crashes between December 2012 to May 2018.

Results

There were 3436 moto related crashes in this period -- 26% of total calls to SAMU resulting in an annual rate of 41.19 crashes per 100,000 people. Of these, 80% were male, with a mean age of 30 +/- 10. The most common injuries included lower limb trauma (34%, n=1175), head trauma (31%, n=1069), and upper limb trauma (16%, n=546). The average Kampala Trauma Score was 15 +/- 9 (based on 42% of all patients due to missing data). Only 1.5% patients had severe TBI with GCS <8, 1.1% suffered from cardiac arrest and 0.9% suffered from respiratory arrest.

Conclusions

Young men are most at risk of injury from moto crashes and suffer moderate severity injury - mostly of head and lower extremities - which can lead to high cost of care and loss of productivity. Critical cases may be uncommon either due to high early mortality before SAMU is called or because injury severity is limited from this mechanism.

Abstract 91

CEMENT SPACER IN MANAGEMENT OF CHRONIC OSTEOMYELITIS. (CASE SERIES)

Dr robert karakire; Emannuel bukara; Alex mathias butera

Keywords:

Chronic Osteomyelitis, antibiotics cement spacer, management, outcome

Background

Chronic osteomyelitis is a debilitating condition and a challenge for orthopedic surgeons. Management has received minimal attention and there is a lack of scientific evidence to guide treatment. The purpose of the study is to evaluate the clinical outcome of antibiotic impregnated cement spacer (ACS) in the management of chronic osteomyelitis.

Methods

We are reporting case series of 5 patients (3 femur, 1 tibia and 1 humerus infections) with chronic osteomyelitis managed by surgical debridement and antibiotics cement spacer with a two staged protocol. We also covered our patients with broad-spectrum intravenous antibiotics and then later treated according to sensitivity. Weekly septic markers were analyzed for four weeks post operatively. Mean follow up period of 8months (6 months to 1 year);

Results

infection was cleared in all the five patients and the trend of septic markers declined tremendously,

Conclusions

chronic osteomyelitis can be successfully managed with surgical debridement with both local and systemic antibiotherapy

Abstract 92

**PREVALENCE AND CONTRIBUTORS
TO DAY OF SURGERY THEATRE
CANCELLATION IN A RURAL HOSPITAL
IN KENYA**

*Dr Mohamed Mohamud Ali; Stanley Aruyaru
Mwenda*

Key words:

Cancellation, reasons, prevalence elective surgery

Background

Day of Surgery (DOS) cancellation refers to surgical cases scheduled on an elective theatre lists that are cancelled during the day of surgery. DOS cancellation leads to patient and family anxiety, family and economic loss and is a marker of theatre inefficiency. It is a preventable cause of increased cost for surgical care worldwide. There is insufficient data documenting DOS cancellation rates in our set up. The objective was to determine the rate and main reasons for (DOS) cancellations in consolata hospital- nyeri in central Kenya.

Methods

We carried out a 1 year retrospective survey (May 2017-May 2018) by reviewing the elective surgical operations record at our hospital. Data was compiled for non-obstetric, non-gynecological elective surgeries. We extracted the biodata, type of surgery planned and reasons for DOS

cancellation. Data were analyzed using SPSS Version 20 and presented using descriptive statistics.

Results

A total of 1192 cases were booked in that year of which 190 cases were cancelled, giving a DOS cancellation rate of 15.9%. General surgery and orthopedics accounted for 13.1% (n= 160/190) and 2.8 % (n=30/190) respectively. The most common reasons for cancellation were inadequate pre-operative preparation (27.3%), Patient factors (31.7%), Overbooking (8.9%) and Cost implications (22.6%).

Conclusions

The DOS cancellation rate is high compared to international guidelines. Majority of the causative factors are preventable. There should be emphasis on the highlighted reasons for cancellations at the clinical and administrative levels to improve theatre utilization and reduce the cost of surgery.

Abstract 93

**GROWTH FRIENDLY IMPLANTS WITH
RIB CLAWING HOOKS AS PROXIMAL
ANCHORS IN EARLY ONSET SCOLIOSIS**

Prof Alaaeldin Azmi Ahmad

Key words:

Early onset scoliosis , hooks , proximal anchors , kyphosis , thoracic

Background

This is a retrospective study to evaluate the outcome in the surgical treatment of early onset scoliosis with proximal clawing rib fixation in hybrid growing-rod constructs. The study examines spinal deformity correction with spinal growth maintenance, and the complications associated with this technique.

Methods

A hybrid rib construct surgery with serial lengthening was utilized for the treatment of 71 Patients, with mean age at surgery of 66.6 months and mean of 43.9 months for follow-up.

Results

The coronal Cobb angle in patients fell from 63.1 preoperatively to 51.6 in the last follow-up, with a correction of 16.8% ($P < 0.005$). The sagittal Cobb angle fell from 66.7 preoperatively to 38 in the last follow-up with a correction of 42.6% ($P < 0.005$). Coronal balance fell from 22.8 preoperatively to 22.3 ($P = 0.86$). Sagittal balance fell from 35.4 mm preoperatively to 24.39. ($P = 0.019$). T1-S1 spine height increased from 248.7 mm preoperatively to 282.4, with a mean change of 1.13 cm per year. No neurological complications were detected.

Conclusions

Surgical management for EOS using proximal clawing rib fixation technique is a good choice in terms of safety, ease of placing the proximal anchors, ability to use more than one form of instrumentation, and a lower complication rate.

Abstract 94

BEST PRACTICES FOR ORTHOPEDIC SURGICAL SITE INFECTION PREVENTION. A SYSTEMATIC REVIEW

Dr Olivier KUBWIMANA; Jean Claude BYIRINGIRO

Key words:

Surgical site infection, preventive measures, prophylactic antibiotic, Cefazolin, standard protocol.

Background

The Surgical Site Infection (SSI) remains one of the most common and devastating complication in orthopedic practice. We

conducted this literature review to identify and describe the currently available evidence-based practice for prevention of SSI in orthopedic surgery.

Methods

A conceptual and unrestricted search was done in Medline, Embase, Webmed and Cochrane databases for articles published between January 2005 and July 2018. Twenty three articles focusing on preventive measures for SSI in orthopedics, were retained, analyzed and synthesized.

Results

Cefazolin, a first generation cephalosporin, is the recommended first line prophylactic antibiotic, and it has to be given between 30 and 60 minutes prior to skin incision. The recommended adjunctive measures are proper hand scrubbing, double gloving, preoperative skin preparation, sterile draping, the use of nasal mupirocin, the use of higher flow of FiO₂, surgical mask renewing and wound irrigation with povidone-iodine prior to closure. Post-discharge patient surveillance is another recommended potential adjunctive measure in prevention of SSI in orthopedics.

Conclusions

The good choice of a prophylactic antibiotic, its timely administration and use of recommended adjunctive measures can help to reduce the occurrence of surgical site infections in orthopedics.

Abstract 95

BRAINSTEM ABSCESS

Dr Paulin Munyemana

Keywords:

Brainstem abscess, pontine abscess, ring enhancing lesion, paranasal sinusitis.

Background

Brainstem abscesses are uncommon type of brain abscess and often present diagnostic and therapeutic challenges. Currently, there aren't many patients who have survived this condition.

Methods

This is a case report of a solitary pontine abscess in an 8-years old female.

Results

An 8-year old female presented with headaches, left-sided weakness and gait disturbance progressing for 5 days associated with fever. She was treated for malaria in another hospital and because of left sided weakness she had had a Brain CT which showed a brain lesion. This was considered to be most likely a high grade glioma which was the reason for referral for neurosurgical management. At arrival, clinical examination revealed a sick looking child, full conscious, right sided peripheral facial weakness House-Brackman grade 3, motor power of 2/5 for left upper and lower limbs with decreased DTR and gait ataxia. The blood investigations showed increased inflammatory markers. This clinical presentation was the motive to scrutinize a CNS infection. Brain MRI was performed and showed a right brainstem lesion, hypointense on T1, hyperintense on T2 with surrounding edema and ring enhancement. There were also features of ipsilateral paranasal sinusitis. This picture would support our diagnosis of a brainstem abscess. The patient was treated with broad spectrum antibiotics which resulted in significant neurological and radiological improvement.

Conclusions

Brainstem abscesses are very uncommon and they present differently. Timely acute diagnosis and best medical management may provide good outcome.

Abstract 96

ESSENTIAL NEUROSURGICAL WORKFORCE AND FACILITIES NEEDED TO ADDRESS NEUROTRAUMA IN LOW AND MIDDLE INCOME COUNTRIES

Dr Jacquelyn Anne Corley; Eliana Kim; Kee Park

Keywords:

Neurotrauma, national surgical plan, neurosurgical workforce, neurosurgical facilities, referral hospitals

Background

Among all trauma related injuries globally, traumatic brain injury (TBI) and traumatic spine injury (TSI) account for the largest proportion of cases. Where previously data was lacking, recent efforts have been initiated to better quantify the extent of neurotrauma in low and middle income countries (LMIC's). This information is vital to understand the current neurosurgical deficit so that resources and efforts can be focused on where they are needed most. The purpose of this study is to determine the minimum number of neurosurgeons to address the neurotrauma demand in LMIC's and evaluate current evidence to support facility needs so that policy based recommendations can be made to prioritize development initiatives to scale up neurosurgical services.

Methods

Using existing data regarding the incidence of TBI and TSI in LMIC's and current neurosurgical work force and estimates of case load capacity, the minimum number

neurotrauma per population was calculated. Evidence was gathered regarding necessary hospital facilities and disbursement patterns based on time needed to intervene effectively for neurotrauma.

Results

There are 4,897,139 total operative cases of TBI and TSI combined in LMIC's annually. At minimum, there needs to be one neurosurgeon only performing neurotrauma cases per approximately 500,000 people. Evidence suggests that patients should be within 4 hours of a neurosurgical facility at the very least.

Conclusions

The development of neurotrauma systems is essential to address the large burden of neurotrauma in LMIC's. The minimum requirements for neurosurgical workforce is one neurotrauma surgeon per 500,000 people.

Abstract 97

QUALITY OF LIFE AND FUNCTIONAL MEASURES FOLLOWING INTRAMEDULLARY NAILING VERSUS SKELETAL TRACTION FOR TREATMENT OF FEMORAL SHAFT FRACTURES IN MALAWI AT 6 WEEKS AND 3 MONTHS POST-OPERATIVELY: A PROSPECTIVE ANALYSIS

Mr Syed Haider Ali, Mr Patrick David, Dr Hao-Hua Wu, Dr David Shearer, Dr Linda Chokotho, Dr Brian Lau

Key words :

Skeletal traction; Intramedullary IM nailing; Malawi; Femur fracture; EQ5D; SMFA; Quality of life

Background

Femoral shaft fractures are common and cause significant morbidity and mortality in low- and middle-income countries (LMICs).

Intramedullary nailing, the gold standard for treatment of femoral shaft fractures in High-income countries, is underutilized in LMICs given limited resources, expertise, and availability of fluoroscopy. In LMICs, skeletal traction remains the standard of care. Technology permitting image-unassisted IM nailing has been introduced to LMICs. This study compares early post-operative quality-of-life and functional measures in patients treated with either IM nailing (IMN) or skeletal traction (ST).

Methods

Adults with femoral shaft fractures were enrolled from March 2016 to July 2018 at 2 central and 3 district hospitals in Malawi. Patients were managed by image-unassisted IM nailing (SIGN; Richland, WA) or skeletal traction as determined by their treatment team. Baseline demographic, injury, and treatment characteristics were recorded. Patient Quality of Life was assessed via EQ5D questionnaire, Functional Status via SMFA questionnaire, and weight-bearing status by clinical exam, at 6 weeks and 3 months post-operatively.

Results

Of 169 enrolled patients (IMN 79; ST 90), there were no differences in age ($p>0.05$) or gender distribution (IMN 83% male; ST 81% male, $p>0.05$). EQ5D (Minimum Clinically Important Difference 0.10) was worse in patients treated with skeletal traction versus IM nailing at 6 weeks (0.29 vs. 0.50, $p=0.0001$) and 3 months (0.63 vs. 0.72, $p=0.016$) post-operatively. SMFA Function and Bothersome indices (MCID 4) was likewise worse for patients treated with traction versus IM nailing at 6 weeks (Function 51.2 vs 41.8, $p=0.0001$; Bothersome 49.6 vs 40.3, $p=0.001$) and 3 months (Function 35.5 vs 27.5, $p=0.001$; Bothersome 33.1 vs 26.0, $p=0.011$). Additionally, achieving full- or partial-weight bearing was less common in traction patients than IM nail patients at 6 weeks (ST: 6% and 30%, IMN: 11% and 53%,

p=0.004) and 3 months (ST: 16% and 64%, IMN: 39% and 56%, p=0.002).

Conclusions

Quality of life, functional status and weight-bearing status were improved in the early post-operative period in femoral shaft fracture patients treated with image-unassisted IM nailing as compared to skeletal traction. Patients with femoral shaft fractures in LMICs may benefit from utilization of image-unassisted IM nailing systems over skeletal traction.

Abstract 98

PERFORATED RECHTERS HERNIA - A DIAGNOSTIC AND OPERATIVE MANAGEMENT DELIEMA

Dr Frederick Khamis Tawad

Keywords:

Perforated richters hernia, Misdiagnosis
Operative management

Background

Richter hernia is the protrusion and/or strangulation of only part of the circumference of the intestines antimesenteric border through a rigid small defect of the abdominal wall. It has been described since 1606 and poses diagnostic difficulty. They comprise about 10% of strangulated hernia and obstruction is less frequent.

Methods

An observational prospective study carried on twenty one patients, during the period April 2012 to August 2018. Of the 21 patients, 4 were females Age ranges between 28 years to 65 years.

Results

The condition commonly occurs in males (n=17) Average age is 43 years Average duration of symptom 7-8days In female the

hernia predominately occurs in the femoral canal unlike in males

Conclusions

Richter hernia is a rare presentation of strangulated hernias. Commonly occurs in males. It poses diagnostic difficulties and patient has high morbidity and prolong hospital stay postoperatively.

Abstract 99

MORTALITY RELATED TO MASS-CASUALTY INCIDENTS AT A MALAWIAN TERTIARY HOSPITAL

Dr Jennifer Kincaid; Gift Mulima; Nidia Rodriguez-Ormaza; Anthony Charles; Rebecca Maine

Keywords:

Mass-casualty incidents Malawi trauma mortality

Background

Mass-casualty incidents (MCI) strain a healthcare system with a sudden influx of trauma patients. It is unknown how MCIs in low resource settings impact mortality. We aimed to determine if the burden of MCIs at a Malawian tertiary hospital increased mortality for MCI patients and non-MCI patients who arrived on days with or without MCI occurrence.

Methods

This is a retrospective analysis of a Malawian tertiary hospital's trauma registry, from January 1, 2012-December 31, 2016. MCIs were defined as >4 trauma patients presenting simultaneously to the casualty. We conducted bivariate analysis of MCIs and non-MCIs, comparing demographics, injury mechanism, and outcomes. We compared the same variables for non-MCI trauma presenting on days with and without MCIs.

Results

The registry listed 75,350 trauma patients; 3% (2,227) were part of an MCI and 11,365 (15%) presented the same day as an MCI. More MCI patients died (90 (4%) vs. 2,124 (2.9%), $p < 0.001$). A higher proportion of MCI patients were dead on arrival (2.9% vs. 1.1%, $p < 0.001$), but MCI and non-MCI in-hospital mortality rates did not differ significantly (4.1% vs. 3.7%, $p = 0.671$). However, non-MCI traumas who presented the same day as an MCI had higher in-hospital mortality than patients who presented on days without an MCI (7.0% vs. 5.4% vs. 5.6%, $p = 0.015$).

Conclusions

MCIs frequently burdened this Malawian hospital. The higher in-hospital mortality of non-MCI trauma patients presenting the same day as an MCI points to the strain on the limited resources resulting in poorer patient outcomes when the hospital absorbs the stress of MCIs.

Abstract 100

USE OF THROMBOLYTIC PROPHYLAXIS AND OCCURANCE OF VENOUS THROMBO-EMBOLISM IN MAJOR ORTHOPEDIC SURGERIES AT CHUK.

Dr Kwesiga Stephen; Byringiro Jean Claude

Keywords:

Thrombolytic prophylaxis Venous Thrombo-Embolic Pulmonary embolism.

Background

Venous Thrombo-Embolic (VTE) are potentially catastrophic but preventable complications often following major orthopedic surgery. The aim of this study was to describe the antithrombotic prophylaxis modalities used in major orthopedic surgeries and the occurrence of VTE complication events at CHUK.

Methods

This was a retrospective study involving operated for hip fracture surgeries at CHUK from January to December 2015. Patient's demographics, type and duration of surgery, risk factors, DVT or PE events, antithrombotic prophylactic drugs used and complications were collected and analyzed.

Results

64 patients with a mean age of 51.4 years were included. There was a male predominance with a male to female ratio of 1.43/1. Pharmacology thromboprophylaxis with LMWHs (enoxaparin) was used in only 32 patients accounting for 57.1% of cases, of whom 26(46.4%) were treated for 1- 5 days. And then recommended early mobilization. Clinical evidence of VTE was present in 6 patients (10.8%) with 5(9%) developing PE and 1(1.8%) having had DVT.

Conclusions

A significant proportion of patients undergoing hip fracture surgery at CHUK do not receive adequate antithrombotic prophylaxis while they are at increased risk of VTE complications. We recommend CHUK to develop and implement evidence-based clinical protocols for thromboprophylaxis.

Abstract 101

A RETROSPECTIVE DESCRIPTIVE QUANTITATIVE STUDY TO DETERMINE PATTERNS OF DIAGNOSIS AND TREATMENT OF OSTEOSARCOMA PATIENTS AT QUEEN ELIZABETH CENTRAL HOSPITAL, MALAWI.

Dr Vincent Lewis Mkochi; Leo Masamba

Keywords:

Osteosarcoma, patterns of diagnosis, pattern of treatment

Background

Introduction: Bone malignancies are relatively uncommon tumors. In Malawi out of a total of 18,946 newly registered cases of cancer, 2.2% were bone tumors.^{4,6} This being the case delays in diagnosis and treatment is a common occurrence. The delays may be attributed to prolonged patients delay (time span from first symptoms to consultation), professional delay (from consultation to treatment) or symptom interval (from first symptoms to treatment).⁶ The other factor may be missed diagnosis. This has never been studied in light of this particular tumor (osteosarcoma) only. It is in this view that study has to be done to establish evidence of patterns of diagnosis and patterns of treatment so interventions can duly tally the deficiencies, if there are at all any.

Methods

Between January 2011 and December 2016, 25 patients were diagnosed with osteosarcoma. Their records were reviewed and information extracted to establish patterns of diagnosis and treatment. The ethical approval was sought from College of Medicine Research and Ethics Center (COMREC).

Results

Total of 11,165 malignancies were registered in this period and 0.22% (n=25) was represented by osteosarcoma. The records of 27 patients were reviewed: 25 met the inclusion criteria (13 males and 12 females). The median age was 26 years (age range 13-58 years). Duration from onset of symptoms to presenting at our unit had a median of 8.5 months. An average of 8 days to arrive at diagnosis when patient present at tertiary hospital. 16.4 days was an average time from diagnosis to treatment. Staging was not done because no tumor grade was recorded on histology report.

Conclusions

Conclusion: Due to rarity of the disease, misdiagnosis will still remain an issue and poor prognosis due to late presentation is another concern. High index of suspicion among clinicians especially the first contact of the patient is of importance, use of radiographs and a sound knowledge of the subtle X-ray changes are required. When primary carers review case that is suspected of osteosarcoma, consultation with a specialized/tertiary unit is advisable, as missed or late diagnoses could have catastro.

Abstract 102

A DETAILED DESCRIPTION OF ANORECTAL MALFORMATION (ARM) AND ITS RELATED VACTERL ANOMALIES SEEN AT QUEEN ELIZABETH CENTRAL HOSPITAL (QECH), MALAWI, FROM JANUARY 2016 TO JANUARY 2018

Dr Peter Yamikani Chaziya; Eric Borgstein

Key words:

Cardiac anomaly, anorectal malformation, gastrointestinal anomaly, genito-urinary anomaly

Background

Anorectal malformation (ARM) is a common condition seen at Queen Elizabeth Central Hospital (QECH), Malawi, Africa. Before any surgical intervention is taken an echocardiogram (ECHO) is required. Waiting for ECHO is a surgical dilemma at QECH as there are very few people capable of doing this investigation. Literature puts the prevalence of cardiac anomalies in ARM patients between 10 to 50 percent. If the prevalence of cardiac anomalies in patients with ARM would be found to be very low and the types of lesion not of anaesthetic importance then it might justify not waiting for an echocardiogram before surgery for

every ARM patient. In addition to this no one has studied the prevalence and incidence of the different types of ARM seen at QECH in detail.

Methods

A cross-sectional Study was conducted. The study combined retrospective and prospective arms by looking at the patients admitted to QECH from January 2016 up to January 2018. Files of the patients admitted during the above-mentioned period were reviewed. Echocardiogram reports, vaginal and uterine theatre findings, type of ARM, and genital anomalies were reviewed. The non-syndromic classification based on Penã and Krickenbeck classification were used in this study to describe the types of ARM seen. Data was analyzed using statistical package for the social science (SPSS). Epi info was used to calculate sample size. There were 83 patients admitted during the study period (2016 to 2017). All patients were recruited in the study.

Results

ARM formed 2.6% of all admitted case between 2016 to 2017. Genitourinary anomaly made up 16.7%, cardiac anomaly made up 11.8%, and GIT made up 3.0%. Rectal bulbar fistula (0%), prostatic fistula(10%), bladder fistula(3.3%), no fistula(3.3%), rectal atresia(0%), rectal stenosis(0%), vestibular fistula(46.7%), vaginal fistula(16.7%), cloaca 13.3%, perineal fistula 6.7%. In this study, females were found to be more than males at 60.2% as compared to 39.8%. The calculated incidence was 1.1 per 10,000.

Conclusions

This study showed that the prevalence of cardiac anomalies in ARM patients at QECH is lower compared to other centers in the world. The study did not successfully manage to show if most of the cardiac defects are of no anaesthetic significance due to the very small number (2) of patients with cardiac anomaly. Genitourinary anomalies were the

most common, similar to literature. Recto-vestibular ARM was the most common type. The study clearly demonstrated that most of the patients with ARM seen at QECH were female. This was in agreement with previous study done at QECH by Borgstein et al.

Abstract 103

LEFT SUBCLAVIAN ARTERY AND VEIN INJURY IN A RESOURCE LIMITED SETTING

Dr Isaie Sibomana; Christian Urimubabo; Jennifer Rickard

Keywords:

Subclavian, vascular injury, Rwanda

Background

Subclavian vascular injuries account 1% of all acute vascular trauma. Due to extensive network of collaterals around the shoulder girdle, subclavian vessels can be safely ligated with favorable outcome in settings of limited resources.

Methods

We report a case of a 26 years old male with a penetrating injury to the left subclavian vessels and discuss management in a low resource setting.

Results

A 26 years old male presented to the accident and emergency department of a tertiary referral hospital in Rwanda 4 hours after being stabbed. On primary survey, the airway was patent, respiratory rate was 23 breaths per minute. Breath sounds were present and equal bilaterally. Heart rate was 130 beat per minute and blood pressure was 50/38mmHg. He had a 2cm stab wound to the left supraclavicular area with active arterial bleeding and hematoma to the left axilla and chest wall. Glasgow coma score was 8/15 with no focal neurologic deficits.

E-FAST was negative. Compressive dressing was done. He was resuscitated with crystalloids and 4 units PRBCS. Secondary survey revealed no other injuries. He was taken to the operating theater 12 hours post injury. The subclavian vessels were approached through an infraclavicular incision. He had a laceration to both the subclavian artery and vein. Both vessels were ligated. Postoperatively, the patient recovered with good function in his left arm.

Conclusions

Subclavian vessels injuries are difficult peripheral vascular injuries to manage. In low resource settings, they can be safely ligated without serious limb compromise.

Abstract 104

COMPLEX PRIMARY TOTAL HIP ARTHROPLASTIES SECONDARY TO ACETABULAR FRACTURES: TECHNIQUES AND EARLY RESULTS

Dr Anthony Muchiri, Maina Morris; Kitua

Key words:

Complex, arthroplasty, acetabulum, Postel score

Background

The complex primary total hip arthroplasty (THA) is that where the risk of intraoperative technical difficulty, perioperative complications or risk of early failure is higher than usual. The increased risk in these cases, was secondary to neglected or inadequately managed acetabular fractures. In view of the attendant risks, adequate planning is paramount. Aim: To describe the preliminary results and techniques of complex primary THA cases (performed due to neglected or inadequately managed acetabulum fractures) at AIC Kijabe Hospital,

Methods

It's a prospective study. The complex primary THAs enrolled were 11, performed between 2013 and 2018 with a 1.75:1 male to female ratio and of an average age of 47years. The follow up period was an average of 2.7years. THAs secondary to neglected acetabulum fractures were 9 and those inadequately treated were 2. The clinical pathway entailed preoperative evaluation, surgery and then postoperative rehab with long-term follow-up. The functional Merle de Aubigne-Postel hip scoring system was used preoperatively and postoperatively.

Results

The Merle de Aubigne-Postel scores improved from an average of 4 pre-operatively to 16 post-operatively. Complications encountered were femoral nerve palsy (1).

Conclusions

THAs secondary to neglected or inadequately treated acetabular fractures, is a daunting task. With acquisition of the necessary skills to fix acetabulum fractures and perform total hip arthroplasties, such patients can be appropriately managed in our low resource set-up.

Abstract 105

DEVELOPMENT OF AN ANESTHESIA FACILITY ASSESSMENT TOOL (AFAT) FOR RESOURCE-CONSTRAINED SETTINGS

Dr Michael Lipnick; Fred Bulamba; Elise Delagnes; Tyler Law; Adam Hewitt-Smith; Adrian Gelb

Keywords:

anesthesia, capacity assessment

Background

Low-income countries (LICs) have strikingly

sub-Saharan African countries reporting rates as high as 1 death per 133 anesthetics. Literature suggest these outcomes are in part attributable to avoidable gaps in anesthetic capacity. Several assessment tools exist for surgical and anesthesia capacity though none provides comprehensive anesthesia capacity assessment. This project aimed to develop and pilot a comprehensive survey tool to evaluate anesthetic capacity at the facility level in resource-constrained settings.

Methods

We developed a survey tool in collaboration with the Association of Anaesthesiologists of Uganda (AAU) and the World Federation of Societies of Anaesthesiologists (WFSA). We reviewed published efforts that have assessed surgical or anesthesia capacity in LICs and selected questions relevant to anesthesia. We also created questions to assess key infrastructure and personnel recommendations as outlined by the 2018 World Health Organization and WFSA International Standards for the Safe Practice of Anesthesia. The survey tool was created in electronic and paper formats. The survey was piloted by WFSA in India and AAU in Uganda, and was revised based on data collected, respondent feedback, and review by multiple LMIC and HIC anesthesia providers.

Results

The final 200-item survey tool went through more than 40 revisions and was piloted in 9 facilities in Uganda and 20 facilities in India representing different hospital types and regions. Categories for survey tool included: facility, infrastructure, blood product services, information management, workforce, service delivery, medications, equipment, financing, surgical logbook, and organization. Questions regarding anesthesia care financing were ultimately

excluded due to limited availability of data. Workforce questions required the most revisions, as standard definitions for provider types do not exist, and vary widely between and within countries. This survey is now accessible worldwide with ongoing data collection in Guatemala, India and Uganda.

Conclusions

This pilot resulted in a comprehensive, Anesthesia Facility Assessment Tool (AFAT) that is feasible to implement in LMICs and is available open access online for implementation worldwide. Ongoing feedback from independent pilots in LMICs worldwide and harmonization with other ongoing surgical capacity assessment efforts is needed to expand data that can assist quality improvement and national anesthesia planning initiatives.

Abstract 106

SPLenic ABSCESS AS A COMPLICATION OF TYPHOID FEVER: CASE REPORT AND REVIEW OF THE LITERATURE

Mutabazi E, MD, Bazambanza P, MD, Kanyamihigo JC, MD, Nkundimana G, MD, Gahemba I, MD

Background:

Splenic abscess is a rare complication of typhoid fever. A few cases are reported in the literature, most of them solitary but a few had multiple abscesses. The clinical diagnosis of splenic abscess due to typhoid fever is difficult because of its rarity, insidious onset and nonspecific clinical presentation. It is often fatal if left untreated.

Case presentation:

A 9 years old male was referred to our hospital after 2 weeks history of fever chills, vomiting and diarrhea. On physical examination the

child was septic with high grade fever, tachycardia, hypotension, abdominal guarding with generalized tenderness and sparse bowel sounds. The chest x ray revealed pneumo peritoneum. Laparotomy was done for generalized peritonitis secondary to hollow organ perforation. Per operatively we found a 0.5 cm diameter ileal perforation at antemesenteric side, located 20 cm proximal to the ileocaecal valve for which a primary bowel repair was done and we took a sample for culture which reported Salmonella Typhi sensitive to Ceftriaxone, the child was put on empirical antibiotics with Ceftriaxone. The patient kept on having high grade fever, post prandial vomiting and left upper quadrant tenderness until day 7 post operative. The abdominal ultrasound reported multiple splenic hypoechoic lesions with moderate intra abdominal free fluid. He was reoperated at day 8 and we found multiple unruptured splenic abscesses and a hugely ruptured one on its lower pole. Splenectomy was done, peritoneal irrigation with saline and closure, another dose of intravenous ceftriaxone was given for a week. Postoperative period was uneventful up to discharge at day 17.

Conclusion:

Splenic abscess complicating typhoid fever is a surgical rarity. It should be considered when fever and toxicity does not subside with adequate antimicrobial treatment, and when the patient has localizing clinical features like left hypochondrial pain. Ultrasound and CT scan are non invasive and adequate diagnostic tools. The mainstay of treatment in splenic abscess is antibiotics along with surgical interventions such as percutaneous drainage or splenectomy.

ABSTRACT 107

IN DEPTH ASSESSMENT OF HOUSEHOLD FINANCIAL PROTECTION DUE TO SURGERY RELATED COST AT DISTRICT LEVEL IN RWANDA

BIRINDABAGABO Pascal, MUHAWENIMANA Emmanuel, RWAMASIRABO Emile

Keywords:

Household, financial, Surgery, District, Rwanda

Background

Surgery related out of pocket payments are among the principal causes of household impoverishment globally and specifically in developing countries. This is because there is lack of proper social protection mechanisms such as health insurances to alleviate the financial expenditure that patients bear when seeking healthcare for various health conditions such as surgery. Given the household inability to pay for such services, many of them apply different coping up alternatives among others selling household productive assets, borrowing money or simply forego to seek healthcare although needed. In Rwanda, there are different evidences of equity with regard to access to healthcare needed as well as fair financial protection as the result of the establishment and scaling up of Community based health insurances policy (CBHI). However, there is not yet evidence of the extent to which patients who use surgical services at district hospital level are protected against hazardous financial expenditure.

Objective

The objective of this study was to explore the healthcare expenditure that patients pay while using surgery related services at district hospital level and the implication of community based health insurance (CBHI) in protecting financially and socially its members who received surgery services compared to those who are not members.

Methods

This was a cross-sectional retrospective study using patient information on financial expenditure while seeking surgery services at district hospitals.

Main outcome Measure

Financial protection was estimated using two thresholds of 10% average household income as well as 40% of household income off food expenditure.

Results

115048 cases from 42 district hospital in Rwanda were analyzed. The median Out of Pocket expenditure per patient per surgery cases without CBHI was 133282Frw while for those with CBHI was 15395Frw. On average, 11% of household who sought for surgery services experienced catastrophic healthcare expenditure. When decomposing the 10% on to assess the effect of Community Based Health Insurance membership, we found that 6.2% of patient who are CBHI members experienced financial catastrophic payment while 50.3 % of patient who are non CBHI members experienced financial catastrophic.

Conclusion

The finding of this study showed that there are evidences of catastrophic expenditures in Rwanda while seeking surgery services as 11% of the total population pays above the accepted threshold. However, Community Based Health Insurances policy in Rwanda is an instrument that insures social protection given its effect on protecting financially its members while seeking for surgery services as compared to those who are not members. The result of this study supports the coherent development measure to optimize access to surgery and shrink financial burden. With regard to the impoverishment effect of surgical services, the available data could not provide proper analysis as they were collected from health facilities financial information and thus, they could not provide information on each household or patient income to estimate the impoverishment effect of surgery healthcare related payment.