

CHALLENGES OF GERIATRIC CARE IN SUB-SAHARAN AFRICA: THE ANAESTHETIST'S VIEW

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Objective: The purpose of this study was to analyze the capability of the existing health care systems in sub-Saharan Africa in responding to the growing number of geriatric patients presenting for surgery.

Methods: The author presents an analytical account of the current situation in sub-Saharan Africa premised on in-depth literature review.

Results: The global economic boom of the late 20th and the early 21st centuries has had a telling effect on the global health challenge. The proliferation of medical inventions has been met by newer and challenging health problems. The surgico-anaesthetic dilemma posed by the world's growing geriatric population is especially worrying in sub-Saharan Africa where health systems are weak and facilities are sparsely distributed.

Conclusions: The ever growing population of geriatric patients presenting for surgery calls for immediate mainstreaming of geriatric care within the general health care delivery systems of sub-Saharan African countries.

SURGERY IN THE ELDERLY: IDENTIFYING RISK USING THE IRIS SCORE

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Objective: Assessment of risk in surgical patients is essential to optimize patient management, even more so in the elderly. The Identification of Risk In Surgical patients Score (IRIS Score) is a simple risk model to stratify surgical patients into risk groups.

Methods: During 15 years (1990-2005), all patients that had a surgical operation in a teaching hospital were collected in a database. Based on the database, a logistic regression model was made to predict mortality. This model was simplified to the IRIS Score to enhance practicality. The area under the receiver operating characteristics score (AUC) was calculated. Age was divided into quartiles. Patients in the fourth quartile were considered elderly. Risk for this group of patients was assessed.

Results: The database contained a consecutive series of 33224 patients. Logistic regression gave the following formula: $P(\text{mortality}) = A / (1+A)$, where $A = \exp(-4.58 + 0.26 * \text{acute admission} + 0.63 * \text{acute operation} + 0.044 * \text{age} + 0.34 * \text{severity of surgery})$. The area under the receiver operating characteristics curve (AUC) was 0.92. For the IRIS Score six points could be scored in total. Age was divided into quartiles (0-3 points). Severity of surgery (1-7) was defined by the Dutch Surgical Society classification of surgical procedures¹. Acute admission, acute operation and severe surgery (severity of surgery score more than 3) received 1 point. The AUC was 0.90. An age of 70 or more was considered elderly (n= 8088). An IRIS Score of more than 4 was considered high risk. Of the elderly patients 35.4% were high risk. Mortality in this group was 15.6%, morbidity was 16.7%

Conclusions: The IRIS Score is a simple and easy method to identify risk in elderly surgical patients.

¹ Concilium Chirurgicum. Nederlandse Vereniging van Heelkunde. Lijst operaties heelkunde, 2007 <http://www.cbv.nl/classificatie/concilium.php> (last accessed March 29, 2009)

WHY DO ELDERLY PATIENTS WAIT FOR HIP FRACTURE SURGERY?

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Objective: To determine why elderly patients with proximal femur fractures experience delay in undergoing surgery and how long this delay is.

Methods: We carried out retrospective review of hospital records.

Results: 641 patients aged 65 years or older with proximal femur fracture were admitted to our hospital in years 2005 – 2008. 588 of these patients had surgery. Average time of delay was 4 days. 118 (20%) patients were operated on within 48 h from admission. 470 (80%) patients experienced delay of more than 48 h.

Among patients of latter group, reason for delay was: in 58 cases (12%) – chronic antiplatelet or anticoagulant medication; in 174 cases (38%) – co-existing medical conditions or additional consultations; in 238 cases (50%) – organizational factors, mainly lack of theatre capacity.

Conclusions: 1) Organizational factors are leading reason for delay.

2) Widespread use of antiplatelet and anticoagulant medications prolongs life-span, but moderately hinders surgical management.

3) Number of specialist consultations has increased, mainly because of medico-legal reasons, but it do not extend significantly average time of delay.

ANALYSIS OF RISK FACTORS RELATED TO POSTOPERATIVE MORTALITY IN THE ELDERLY AGED OVER 80 YEARS AFTER HIP FRACTURES SURGERY IN A CHINESE TEACHING HOSPITAL

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Objective: This study was carried to analyze factors between influencing postoperative in-hospital mortality and preoperative medical conditions in elderly patients aged over 80 years operated for hip fracture.

Methods: 74 patients aged over 80 years with hip fracture were treated by surgery in a teaching hospital in Kunming, China between 2003 and 2008. According to Risk Factor Assessment Scale (RFAS) in Ozturk et al's study (*Acta Orthop Traumatol Turc* 2008;42:16-21), the patients were divided into three risk groups, low (RFAS 0-5, n=18, 24.3%), moderate (RFAS 6-10, n=37, 50.0%), and high (RFAS 11-15 or high, n=19, 25.7%). Hospital records and death registrations were analyzed. Relationships were examined between postoperative in-hospital mortality and preoperative medical conditions, including sex, preinjury ambulation level, cognitive functions, comorbidity in important organ, obesity, cancer and delay to surgery and type of anesthesia in each risk group.

Results: The study included 74 patients (54 females, 26 males) who were operated on for hip fractures. The mean age was 84 years (range 80 to 95 years) for women, and 83 years (range 80 to 94 years) for men. The overall mortality for surgically treated patients was 10.81% in-hospital. The mortality rates were 0, 8.1%, and 26.3% in low-, moderate-, and high-risk groups, respectively. The risk scores were significantly correlated with mortality rates. The gender, time to surgery, length of hospital stay and type of anesthesia had minimal impact on mortality.

Conclusions: Our results confirm the persistently high mortality in this group of patients and suggest that preoperative medical conditions in elderly patients aged over 80 is the main determinant of outcome. A risk assessment system covering all risk factors to estimate postoperative mortality following surgery for hip fractures would be helpful in planning treatment

THE HAEMODYNAMIC RESPONSE TO DIFFERENT TYPES OF ANAESTHESIA FOR PROXIMAL FEMUR FRACTURE OSTEOSYNTHESIS IN GERIATRIC PATIENTS

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Objective: The aim of this study was to compare haemodynamic response to different types of anaesthesia for proximal femur fracture osteosynthesis in geriatric patients.

Methods: Three groups (A-C) were compared in our study. Group A: Unilateral spinal anaesthesia with low dose hyperbaric bupivacaine 0.5% and spinal morphin 0.1 mg. Group B: Spinal anaesthesia with standard dose of isobaric bupivacaine 0.5% and spinal morphin 0.1 mg. Group C: Balanced general anaesthesia. Invasive arterial pressure and central venous pressure, arterial and venous blood gases, electrolytes and lactate levels were monitored during surgical procedure and following 24 hours in all groups. Postoperative analgesia requirement, mobilization and cognitive dysfunction were furthermore observed.

Results: The best haemodynamic stability was observed in Group A. The minimal blood pressure changes were in accordance to minimal arterial and venous blood gases changes. The haemodynamic changes in Group B and Group C were comparable.

Conclusions: With respect to haemodynamic stability unilateral spinal anaesthesia with low dose hyperbaric bupivacaine 0.5% and spinal morphin 0.1 mg seems to be the anaesthetic method of choice for proximal femur fracture osteosynthesis in geriatric patients.

ACUTE REVERSAL OF ORAL ANTICOAGULATION IN GERIATRIC PATIENTS WITH PROXIMAL FEMUR FRACTURE: COMPARATION OF CASE REPORTS (PROTHROMPLEX VS. FFP)

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Objective: The objective of our study was to compare the length of interval between admission and surgery in warfarin anticoagulated geriatric patients with proximal femur fracture. The concentrate of clotting factors or fresh frozen plasma and vitamin K were used to reverse the effects of oral anticoagulation.

Methods: Common pre-operative examinations and extended clotting screen were performed on admission or after indication for surgical intervention. According to the randomization protocol the effect of warfarin was reversed either with administration of vitamin K (10 mg) and FFP (10 - 15ml/kg) or with prothrombin concentrate complex (INR 2.0 – 3.9, 25 IU/kg, INR 4.0 -5.9, 35 IU/kg, INR > 6.0, 50 IU/kg). Surgical intervention was performed after normalization of INR (1.2 – 1.5). Time-to-surgery, re-interventions to INR normalization, plasma clotting factors levels changes, intra- and post-operative management were monitored.

Results: Acute reversal of warfarin effects with concentrate of clotting factors is more effective than the reversal with the combination of FFP and vitamin K but there is greater instability in clotting system for 3 days after surgery.

Conclusions: It is believed that one of the factors affecting post-operative morbidity and mortality is the time period between admission and surgery. According to our case reports administration of concentrated clotting factors or administration of combination of FFP and vitamin K can reduce the time-to-surgery interval in warfarin anticoagulated geriatric patients with proximal femur fracture. Further study monitoring long-term mortality and morbidity will follow presented pilot cases.

PERIOPERATIVE INTRAVENOUS IRON AND RECOMBINANT ERYTHROPOIETIN FOR THE PREVENTION OF POSTOPERATIVE ANEMIA AND REDUCTION OF TRANSFUSION IN BILATERAL TOTAL KNEE REPLACEMENT ARTHROPLASTY

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Objective: Bilateral total knee replacement arthroplasty (TKRA) in severe osteoarthritis usually requires extensive soft tissue and bone dissection associated with considerable bleeding. This can be one cause of iron deficiency anaemia postoperatively. In this prospective trial, we examined the impact of intravenous iron sucrose therapy in combination with recombinant erythropoietin (Epo) on the prevention of anaemia and reduction of transfusion in the patients undergoing the bilateral TKRA.

Methods: Forty four patients undergoing bilateral TKRA were randomly assigned to two groups: control (group C, n = 19) or iron with Epo (group IE, n = 25). The patients of group IE received intraoperative iron sucrose (200 mg intravenously over 1 hour) and Epo (2000 IU subcutaneously) during performing the second TKRA after finishing one side. This protocol was applied postoperatively if postoperative Hb level was more than 7 g/dl and less than 8 g/dl. One or two RBC units were transfused if postoperative Hb \leq 7 g/dl or Hb \leq 6 g/dl respectively. The laboratory (Hb, Hct, iron, TIBC and ferritin) and clinical data (amount of bleeding through the closed suction drainage and RBC transfusion unit) were investigated from the operation day to POD 5.

Results: There was no between-group difference in patients' characteristics. The preoperative Hb, Hct and the amount of postoperative bleeding had no difference, however, Hb and Hct on POD 1 and 2 were significantly higher in group IE (POD 1, Hb: 9.4 ± 1.2 vs. 8.3 ± 0.8 , Hct: 28.3 ± 3.4 vs. 25.2 ± 2.4 ; POD 2, Hb: 8.2 ± 1.0 vs. 7.3 ± 0.9 , Hct: 24.6 ± 2.9 vs. 22.1 ± 2.6 , $p < 0.05$). Although there was no difference in transfusion rate, the average unit of transfused RBC was less in group IE (0.32 ± 0.5 vs. 0.72 ± 0.7 , $p < 0.05$). Postoperative iron and ferritin were significantly higher in group IE (iron: 80.6 vs. 39.4, ferritin: 192.9 vs. 127.5, $p < 0.05$) and TIBC had no difference.

Conclusions: Perioperative intravenous iron with recombinant erythropoietin can lessen the postoperative anaemia and reduce the transfusion unit in bilateral TKRA.