

grade,  $p=0.01$ . The mean length of anaesthesia was longer in the sepsis group (76 min) compared to the no sepsis group (65 min), this was significant,  $p=0.01$ . The patient's ASA grade and fracture type were not significant factors. The rate of infection in intracapsular fractures treated by hemiarthroplasty was significantly greater than those that had internal fixation,  $p=0.001$ . The rate of infection in extracapsular fractures fixed with an extra-medullary device was significantly greater than those fixed with an intra-medullary device,  $p=0.021$ . The presence of an infected ulcer on the same leg as the fracture was not associated with a higher rate of deep infection.

We have found that the experience (seniority) of the surgeon, the length of anaesthesia and the type of fixation used are all significant factors in the development of deep sepsis. These are all potentially modifiable risk factors and should be considered in the treatment of hip fracture patients.

doi:10.1016/j.injury.2011.06.219

### 1A.13

#### The effect of changing antibiotic prophylaxis on surgical site infection following proximal femoral fracture surgery

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Proximal femoral fracture (PFF) is the most common reason for emergency orthopaedic admission in the UK with an annual cost of £1.7 billion to the National Health Service. Surgical site infection (SSI) following PFF increases patient mortality and morbidity. *Methicillin Resistant Staphylococcus Aureus* (MRSA) poses a particular risk in this patient cohort as a large proportion of these patients are residents of long term care facilities and are therefore transient or chronic carriers of MRSA. The numbers of Gentamicin-susceptible MRSA strains are increasing. We recorded the SSI and specifically the MRSA rate following hemiarthroplasty associated with three different prophylactic antibiotic regimes over an eight-year period at the University Hospital of North Staffordshire. Data was collated from the Surgical Site Infection Surveillance Service. This data is prospectively collected, independently collated and published on a quarterly basis. The data was analysed using the Chi-squared test and the normal test for differences between two proportions. Between October 2001 and June 2009, 1830 hemiarthroplasties were carried out. A statistically significant difference in infection rate and MRSA rate between the three regimes was found following statistical analysis ( $p$  value =  $<.05$ ). The most effective antibiotic regime consisted of a single dose of intravenous Co-amoxiclav (1.2 g) and Gentamicin (240 mg) at induction and Gentamicin impregnated equine collagen implanted under the fascial layer at wound closure. Antibiotic prophylaxis for closed neck of femur fracture is an effective intervention for reducing the incidence of SSI. Single dose regimes are not inferior to multiple dose regimens and reduce the risk of *Clostridium Difficile* overgrowth. The prophylactic antibiotic regime we propose is a simple and cost effective improvement in the clinical care of this vulnerable group. It is particularly effective and well-targeted to MRSA prophylaxis.

doi:10.1016/j.injury.2011.06.220

### 1A.14

#### Is the Nottingham hip fracture score (NHFS) useful in predicting 30-day mortality in hip fractures?

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*Aim:* This study assessed whether we could use the NHFS to objectively predict our 30-day mortality in hip fractures.

*Methods:* This was a retrospective cross sectional survey of 104 patients. These patients were identified between 1st January 2009 and 31st August 2010. No patients who died at 30 days ( $n=63$ ) were excluded from the study and a random sample of patients who survived at 30 days was chosen from the national hip fracture database ( $n=41$ ). Statistical analysis of the results was carried out using the Chi squared test and a multiple regression analysis.

*Results:* Results showed our mortality rate was 12% (total admissions=528). Our mean NHFS of the combined groups was 5.2 (a 10–15% mortality rate according to the literature) (range 2–8, 2–33%). Patients who died had a mean of 5.4 (range 2–8) and those who survived had a mean of 5.0 (range 2–7). The NHFS is considered to be significant if  $\geq 5$ . For the purpose of Chi squared the NHFS was split into scores  $\geq 5$  and  $<5$ .

It was shown that 30.8% of the dead group had a NHFS  $<5$ , and 29.8% had  $\geq 5$ , But in the patients who survived the results were 27.9% and 11.5% respectively ( $p=0.044$ ). Phi test of symmetry was 0.198 showing little relationship between the two variables ( $p=0.044$ ). Multiple regression analysis was performed to assess the level to which each of the components of the NHFS contributes to the overall mortality. R squared of the regression was 0.146 ( $p=0.029$ ) and on individual breakdown showed only one of the components was deemed to significantly contribute to the mortality rates and that was sex (standardised coefficient 0.271,  $p=0.006$ ).

*Conclusion:* The NHFS does not appear to predict 30-day mortality in our patients and cannot be used as an effective mortality prediction tool.

doi:10.1016/j.injury.2011.06.221

### 1A.15

#### Occurrence of secondary fracture around intramedullary nails used for trochanteric hip fractures: A systematic review of 13,568 patients

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*Introduction:* A sliding hip screw (SHS) is currently the treatment of choice for trochanteric hip fractures, largely due to the low incidence of complications. An alternative treatment is the use of intramedullary proximal femoral nails, which have had a poor reputation to date, due to a relatively high incidence of complications. The aim of this study was to see if any improvements have been made to the current intramedullary nails, to reduce the incidence of secondary fracture around the distal tip of the nail.

*Methods:* We analyzed data related to 13,568 patients from 95 studies, focusing on the incidence of post operative secondary femoral shaft fracture following the use of intramedullary nails in the fixation of trochanteric hip fractures.

*Results:* The overall reported incidence of secondary fracture around the nail was 226/13,568 (1.7%). The incidence of fracture has reduced in the 3rd generation Gamma nails when compared to the older Gamma nails [36/2129 (1.7%) versus 131/5099 (2.6%)  $p$