

Free Papers C

[O59] ANTIBIOTIC RESISTANCE PROFILES OF SURGICAL SITE INFECTIONS IN HIP HEMIARTHROPLASTY; COMPARING LOW DOSE SINGLE ANTIBIOTIC VERSUS HIGH DOSE DUAL ANTIBIOTIC IMPREGNATED CEMENT

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Aim: The incidence of fractured neck of femur (FNOF) is increasing yearly. Many of these patients undergo hip hemiarthroplasty. High dose dual-antibiotic cement (HDDAC) has been shown to reduce rates of deep surgical site infection (SSI) when compared to the current standard low dose single-antibiotic cement (LDSAC) in a quasi-randomised controlled trial. Some concerns exist regarding the use of HDDAC and the development of resistance. We reviewed cases of infection in LDSAC and HDDAC bone cement with regard to causative organism and resistance profile.

Method: A retrospective analysis was undertaken of all hemiarthroplasties within our trust from April 2008 to December 2014. We identified all patients in this time period who acquired a deep SSI from the trust SSI surveillance database. The infecting organisms and susceptibility patterns were collated for each cement.

Results: We identified 1941 hemiarthroplasties. There were 36 deep surgical site infections representing an infection rate of 3.1% in LDSAC patients and 1.2% in HDDAC patients. A wider variety of organisms were seen in the LDSAC compared to HDDAC. *Staphylococcus epidermidis* accounted for the majority of infections in both LDSAC and HDDAC patients. Infection with *Corynebacterium* species and *Staphylococcus aureus* was eliminated completely in HDDAC. There was minimal change in the proportion of Gram-negative and Gram-positive bacteria. A change in resistance was not demonstrated amongst infections caused by Gram-negative bacteria. In Gram-positive bacteria, resistance to a number of antibiotics increased using HDDAC compared to LDSAC, most notably to clindamycin and gentamicin within the coagulase negative staphylococci. However, levels of resistance remained low to teicoplanin, vancomycin, daptomycin, linezolid and rifampicin.

Conclusions: A lower infection rate was seen in HDDAC. Direct comparison demonstrated changes in resistance profiles caused by Gram-positive organisms. 24,000 patients undergo hip hemiarthroplasty annually. Extrapolating our results to this cohort would demonstrate 744 infections in LDSAC and 288 infections in HDDAC. Of these, resistance to both clindamycin and gentamicin would be seen in 180 patients with LDSAC and 177 patients with HDDAC. Overall, this review supports the continued use of HDDAC in FNOF patients.

High dose dual antibiotic cement = Copal G+C, Heraeus Medical, UK

Low dose single antibiotic cement = Palacos R+G, Heraeus Medical, UK