

## Free Papers C

### [O60] PROPHYLACTIC EFFECT OF AN INJECTABLE HYDROXYAPATITE / CALCIUM SULPHATE BIOCOSMOS ELUTING ANTIBIOTIC IN THE TREATMENT OF OPEN FRACTURES WITH PLATE

Damiano Papadia<sup>1</sup>, Antonio Musetti<sup>1</sup>, Luciano Bertoldi<sup>1</sup>

<sup>1</sup>Ortopedia e Traumatologia, Ospedale Santa Chiara, Trento, Italy

**Aim:** Open fractures with bone loss and skin lesions carry a high risk of infection and complication. Treatment options is usually a two-stage approach (debridement, temporary stabilization with external fixation followed by open reduction and stabilization with plate). We describe a experience for a single stage procedure with an antibiotic eluting bone graft substitute (BGS) for prophylaxis of implant-related infection.

**Method:** Between December 2014 and January 2016 were analyzed the data of twenty-six patients with open fractures (Gustilo and Anderson grade I and II) or with skin lesion and high risk of contamination and bone loss . They where treated with debridement of soft tissue, closed reduction of fracture, placement of a plate augmented with BGS eluting antibiotic (gentamicin (1) and /or Vancomycin (2)).

Ampicillin and sulbactam 3g three times daily was used as systemic antibiotic prophylaxis minimum for one week. Clinical outcome and radiographic bone defect filling were assessed by blinded observers.

**Results:** From 2014 to 2015 twelve male and fourteen female with mean age 53yrs (24-77) were treated with plate and BGS. Fracture locations were four distal femur (m:4; f: 1), four tibial plateau (m:3; f:1), one proximal humerus (f:1), seven calcaneus (m:4; f: 3), one talus (m:1), four forearm (m:3), one elbow ( f:1) and two phalanx (m: 2). Follow up was fourteen month (range: 3 – 26 months). During follow-up no implant-related infection was observed. One patient developed sterile seroma, which wastreated conservatively. The calcium sulphate phase of BS dissolved in all cases within 4-6 weeks. Bone ingrowth was assessed at 1, 2, 3, 6 and 12 months. On six patients large bone was treated with a revision surgery (autologous cancellous bone graft combined with BGS and antibiotic. No complications were reported.

**Conclusions:** We suggest the application of polytherapy for the treatment of bone defects. BGS eluting antibiotic is easy to use and offers the opportunity for a one-stage procedure and might reduce the risk of implanted-related infection and allow early joint mobilization.

Good early clinical outcomes were observed in almost all cases. More studies and larger series are necessary to confirm the potential for the prophylaxis of infection in the treatment of open fractures.

(1): CERAMENT™|G

(2): CERAMENT™|V"