**Abstract**

Brazilian scientific publications on osteomyelitis following trauma have been few. The bone implants must be colonized due to capability of bacterial adherence to implants. The aim of study was to evaluate the predictors of polimycrobial infections associated with osteomyelitis after bone fractures and to determine the outcome and the predictors of polimycrobial infections related to surgical treatment of infected fractures. It’s a prospective cohort study conducted by Service of Orthopaedics and Traumatology, Hospital de Base, a teaching hospital, with 716 beds, in São José do Rio Preto, São Paulo. The patients with osteomyelitis after bone fractures were identified from January 2005 to December 2009, in order to get the perspective of bone infections related to trauma. The outcome was determined with different forms of osteomyelitis. The baseline characteristics of patients were determined from hospital records. The patients with infection were divided into two groups: patients with osteomyelitis and patients with bone fractures without osteomyelitis. The patients with osteomyelitis were prospectively followed to analyze the outcome and the predictors of polimycrobial infections. The predictors of polimycrobial infections related to surgical treatment of infected fractures were added in the multivariate model. The predictors of polimycrobial infections were associated to osteomyelitis and to guide antibiotic treatment. The predictors of polimycrobial infections related to posttraumatic osteomyelitis provide important information in the literature regarding risk factors associated to osteomyelitis caused by polymicrobial infections.

**Results**

- Among 193 bone infections, 53% were caused by only one type of microorganisms and 47% were negative culture cases.
- Of 300 isolated strains in the post-traumatic osteomyelitis, Staphylococcus aureus, Pseudomonas aeruginosa, Acinetobacter baumannii and Enterococcus sp were more common.
- In multivariate analysis for mortality, being a farmer, with open fracture type III, being submitted to two or more surgical debridements and lower limb infection were independent predictors of polymicrobial infection (P <0.05).

**References**