1124. Sequential Intravenous High Dose Oral Antibiotics in the Treatment of Osteoarticular Infections in Children: A Randomized Controlled Trial

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Background. Children in New Zealand have a high burden of acute osteomyelitis (OM). Prolonged intravenous (IV) antibiotics is an effective treatment; however, it is associated with treatment-related complications and costs. Safety and effectiveness of an early switch from IV to oral antibiotics have not been examined in a randomized controlled trial in this population.

Methods. From 2009 to 2016, children from 6 months to 14 years with acute hematogenous OM were randomized at the point of improvement of acute signs and symptoms and decreasing C-reactive protein (CRP), to receive high dose oral cephalexin (with blood levels measured) or continue IV flucloxacillin. Children with a resistant organism, immunodeficiency, multifocal or vertebral OM were excluded. A minimum of 3 weeks of antibiotics was given with weekly clinical, CRP and compliance monitoring, and until resolution of infection. Children were followed for 12 months post treatment.

Results. Seventy eligible children aged 11 months to 14 years were recruited. Thirty-nine children were randomized to the oral group. *Staphylococcus aureus* was identified as the causative organism from bone and/or blood culture in 55.7% of patients. Nineteen surgeries were performed in 16 of the 38 children in the oral group, and 25 surgeries in 15 of 31 children in the IV group. Median peak CRP in the oral group was 78 and in the IV group 63. Median number of days to clinical improvement was 5 days in both groups and duration of hospitalization was 8 days (range 5–22 days) in the oral group and 12 days (range 5–44 days) in the IV group. Median antibiotic duration from time of clinical improvement was 26 days and 29 days in the oral and IV group, respectively. Treatment failure occurred in 2 children in the oral group and 4 children in the IV group. No relapse later than 6 weeks post treatment or chronic OM were found. 29% of patients in the IV group developed a peripheral inserted central catheter or antibiotic-related adverse event (AE); no AEs were detected in the oral group.

Conclusion. Sequential intravenous high dose oral antibiotics appears to be a well-tolerated, safe and efficacious treatment in this population of children with OM with exclusions as outlined. In our population treatment failure occurred irrespective of antibiotic delivery route. Clinical progress and antimicrobial adherence should be monitored regularly during treatment.

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