

CAT – Block 12  
Joshua Burkhardt

**Question:** Do NSAIDs delay bone healing in pediatric fractures?

DePeter KC, Blumberg SM, Becker SD, Meltzer JA. **Does the Use of Ibuprofen in Children with Extremity Fractures Increase their Risk for Bone Healing Complications?** *JEM*. 2017;52(4):426-432.

**Background:** Despite being an effective analgesic for children with fractures, some clinicians may avoid prescribing ibuprofen due to its potentially harmful effect on bone healing. The objective of this study was to determine if exposure to ibuprofen is associated with an increased risk of bone healing complications in children with fractures.

**Methods:** The study group performed a retrospective study of children aged 6 months to 17 years who presented to the pediatric emergency department (PED) with a fracture of the tibia, femur, humerus, scaphoid, or fifth metatarsus and who followed up with the orthopedic service. These fractures were chosen due to their higher risk for complications. Patients were classified as exposed if they received ibuprofen in the PED or during hospitalization or were prescribed ibuprofen at discharge. The main outcome was a bone healing complication as evidenced by nonunion, delayed union, or re-displacement on follow-up radiographs.

**Results:** Of the 808 patients included in the final analysis, 338 (42%) were exposed to ibuprofen. Overall, 27 (3%) patients had a bone healing complication; 8 (1%) developed nonunion, 3 (0.4%) developed delayed union, and 16 (2%) developed re-displacement. Ten (3%) patients who were exposed to ibuprofen, and 17 (4%) who were not, developed a bone healing complication (OR 0.8, 95% CI 0.4-1.8;  $p=0.61$ ). There was no significant association between ibuprofen exposure and the development of a bone healing complication despite adjustment for potential confounders.

**Discussion:** Children with extremity fractures who are exposed to ibuprofen do not seem to be at increased risk for clinically important bone healing complications. This study refutes the long-held belief that NSAIDs should not be prescribed for pain in setting of fractures. As discussed in recent lectures, NSAIDs provide equal or superior pain control to most other regimens, including opiates. Those findings in addition to this study, would support use of NSAIDs as the initial treatment of pain in the setting of pediatric fractures.

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