Current Practice in the Management of Type I Open Fractures in Children
Robert Wetzel, MD; Shobhit Vishnoi Minhas, BS; Brittany Patrick, MPH; Joseph A. Janicki, MD
Ann & Robert H. Lurie Children’s Hospital of Chicago, Northwestern University, Chicago, IL

Purpose: Pediatric type I open fractures are common but the treatment is often controversial. While there is little debate regarding the need for operating room (OR) irrigation and débridement (I&D) of type II and III open fractures, centers have reported good success with emergency room (ER) treatment of low-energy (type I) open pediatric fractures. The purpose of this study was to ascertain the attitudes and preferences of pediatric orthopaedic surgeons in the treatment of type I open fractures. We hypothesize that surgeons will have different management protocols of these fractures and that there will not be a consensus of the preferred treatment location (OR vs. ER).

Methods: A paper questionnaire was given to POSNA members at the 2012 annual meeting. Demographic questions inquired about surgeon’s practice environment and experience while clinical questions queried opinions regarding the typical treatments and past experiences with open fractures. Clinical scenarios questioned preferred management of open fractures.

Results: One hundred eighty one surveys were collected from the 503 POSNA members in attendance (36%). Years in practice were well represented with 34% <10 yrs, 37% 10-19 yrs, and 29% >20 yrs. Most respondents’ practices comprised over 80% pediatric patients (86%), were academic (68%), and worked with residents (77%).

After initial treatment for an open fracture, 86% of respondents admitted patients for IV antibiotics and 57% will give home antibiotics. There was no consensus regarding the amount or type of irrigation preferred, use of antibiotics in the irrigation, or whether the bone ends are delivered during I&D. Soft tissue infections and delayed union were noted respectively by 13% and 8% of respondents in type I open fractures treated in the ER and in 16% and 30% treated in the OR.

While 100% of respondents would choose OR management of type II open fractures, 19-31% of respondents chose an ER treatment scenario for type I open fractures. When queried if Level 1 evidence existed that demonstrated equivalent results between ER and OR management, 92% of respondents would change their practice. Furthermore, 75% of surgeons would be interested in participating in a prospective, randomized trial on pediatric type I open fracture management.

Conclusion: In this survey representative of POSNA membership, the treatment of type I open fractures has some variability. A significant portion of surgeons prefer to treat type I open fractures in the ER as opposed to the classically utilized OR I&D. Moreover, there is considerable interest in membership participation in a randomized clinical trial.

Significance: Based on this survey, either children are going to the OR when ER treatment would be adequate or they may be receiving inadequate care when they avoid operating room management. This survey establishes the equipoise necessary for a randomized, prospective trial comparing ER and OR management in the treatment of pediatric type I open fractures.