Validating the Severity of Illness Score for Children with Acute Hematogenous Osteomyelitis

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INTRODUCTION:
Acute hematogenous osteomyelitis (AHO) has a reported incidence of 1:1000 to 1:20,000 children affected yearly. While many cases of AHO are simply treated with antibiotics, there are cases associated with severe disease, potentially requiring ICU admission, intubation, and multiple surgeries. Copley et al. devised a scoring system that uses objective, clinical, radiographic, and laboratory parameters within the first 4-5 days of hospitalization to determine the severity of illness (SOI) in children with AHO. To our knowledge, no additional studies to date have examined the validity of the SOI score outside of the institution where it was developed. This study evaluates the performance of the SOI score in a retrospective cohort of cases at our institution.
METHODS: Patients admitted to our institution over the past 5 years with AHO who met inclusion and exclusion criteria were analyzed. Parameters including CRP over the first 96 hours of hospitalization, febrile days on antibiotics, ICU admission, and presence of disseminated disease were used to calculate the SOI score for each patient. Additional parameters were assessed for further analyses. Pearson and Spearman correlations were used when appropriate. SOI score comparison between groups was achieved with the Kruskal-Wallis and Wilcoxon two-sample tests.
RESULTS: 74 patients were analyzed. Significantly higher SOI scores were noted for patients with bacteremia, ICU admission, fever for 2 or more days on presentation, any complication, and multiple surgeries. Markers of disease severity significantly correlated with SOI score were total length of stay (TLOS), LOS, duration of antibiotic course, number of surgical procedures, and case mix index. Respiratory rate did not have a strong correlation with SOI.
DISCUSSION AND CONCLUSION: The SOI score as described by Copley et al. functioned well as higher scores were associated with sicker patients. The SOI score is helpful for determining which patients will require longer hospitalizations and more intense treatment in a setting other than the institution of origin.