The Etiology of Childhood Limp Presenting to a Tertiary Care Pediatric Emergency Department

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Purpose: The purpose of this study is to identify the etiologies of childhood limp presenting to a tertiary care pediatric emergency department; and to isolate patient factors that predict need for hospital admission and/or urgent orthopedic care.

Methods: Electronic medical records of all patients presenting to a tertiary care pediatric emergency department from 1/1/2010 to 4/1/2010 were reviewed. The search identified 16,056 patients of which 1,776 had a musculoskeletal complaint; of those patients investigation isolated individuals with a lower extremity injury, limp, and/or inability to bear weight. These patients underwent a full chart enquire to determine the exact etiology. Univariate analysis and multiple logistic regression were used to compare groups.

Results: Respiratory complaints were the most common reason for presentation to the emergency department (4173 patients, 26%), followed by gastrointestinal/abdominal (2538 patients, 16%), ear, nose, and throat (2345 patients, 15%), musculoskeletal (1776 patients, 11%) and dermatological (1104 patients, 7%). Of the musculoskeletal complaints, 779 patients had a lower extremity injury, limp and/or inability to bear weight. The most common diagnosis was sprain/strain (205 patients, 26%); followed by contusion (148 patients, 19%), fracture (110 patients, 14%), cellulitis/abscess (73 patients, 9%), and abrasion/laceration/puncture (61 patients, 8%). Transient synovitis was discovered in 15 patients (1.9%) and septic arthritis in 2 patients (0.3%). Other notable causes of limp included animal bite, sickle cell crisis, apophysitis, burn injury, frostbite, slipped capital femoral epiphysis (SCFE), psoas abscess, deep venous thrombosis, rhabdomyolysis, and testicular torsion.

Admitted patients were younger, more likely to be febrile, had elevated laboratory values (WBC and CRP), and were more likely to undergo advanced imaging. Multiple logistic regression revealed positive clinical predictors of admission to be inability to bear weight, presence of a fever, younger age, and atraumatic mechanism of injury. Decreased probability of admission was significantly associated with increasing age, and a traumatic mechanism of injury.

Conclusion: While many etiologies of limp do not require emergency evaluation and treatment, some causes of limping may have life- or limb-threatening consequences if not expediently diagnosed and treated. In the emergency department, traumatic etiologies dominate. A thorough history and physical exam, coupled with radiographs, is sufficient to diagnose limp in most cases. Resources such as laboratory studies and advanced imaging (CT, MRI, US) are best utilized for younger children with an atraumatic onset/mechanism of injury, inability to bear weight, or with a fever upon presentation to assist in establishment of diagnoses that may require hospital admission and/or urgent treatment.