ESTABLISHING THE ROLE OF INFLAMMATORY MARKERS IN THE DIAGNOSIS AND TREATMENT OF ACUTE HAND INFECTIONS IN THE PEDIATRIC POPULATION

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Introduction: Distinguishing the severity of the diagnosis and an appropriate treatment plan in pediatric hand infections can be complex due to the variable amount of information available at the presentation. Inflammatory blood markers, including white blood cell count, erythrocyte sedimentation rate, and C-reactive protein are reported to aid in determining the severity of infection and response to treatment in adult hand infections. The purpose of this study was to identify the relevance of inflammatory marker levels in pediatric patients with hand and wrist infections and to determine their utility in diagnosis and treatment.

Methods: This multicenter, retrospective, cohort study included patients aged 0 to 18 who received treatment for an acute hand or wrist infection between 2009 and 2020. Data collected included demographics, time to presentation, diagnosis, inflammatory markers, culture results, antibiotic treatment, and surgical treatment. Infections were categorized as deep (osteomyelitis, tenosynovitis, abscess) and superficial (paronychia, felon, cellulitis). Exclusion criteria included: patients above 18 years of age, chronic infection, open fractures, and absence of any documented inflammatory markers. Statistically, t tests were used to compare mean differences in inflammatory markers between patients who did and did not receive pretreatment antibiotics and between patients who had superficial versus deep hand infections.

Results: A total of 123 patients met the inclusion criteria. Pretreatment with antibiotics before definitive management was not significantly associated with differences in laboratory markers compared with patients not pretreated with antibiotics. Deep hand infections had inflammatory markers similar to superficial

infections. Patients with deep hand infections required a bedside or operative procedure 78.9% of the time compared with superficial infections (21.2%) (P< 0.001). Patients with an isolated methicillin-resistant Staphylococcus aureus infection had inflammatory marker values that were not significantly different from patients infected with all other microbes.

Conclusions: Inflammatory markers were not significantly different between patients who received pretreatment with antibiotics and those who did not. While deep infections were often treated with bedside or surgical procedures, the inflammatory marker values were similar to those of superficial infections. The same held true for patients infected with culture-positive, isolated methicillin-resistant Staphylococcus aureus bacteria. Consequently, inflammatory markers may be useful to identify the presence of infection and monitor the response to treatment, they did not aid in determining the specific type of infection or selection of a treatment plan.