1.25 SKIN AND SOFT TISSUE INFECTIONS

Introduction

Skin and soft tissue infections are infections of the skin, subcutaneous tissue, and muscle, such as cellulitis or abscess. They do not include infections of the bone, ligaments, cartilage, and fibrous tissue. Pediatric skin and soft tissue hospitalizations have increased in incidence over the previous two decades and are responsible for significant resource utilization. The most common infectious etiologies of soft tissue infections are *Streptococcus* or *Staphylococcus* species, traditionally treated with Beta-lactam antibiotics. However, infections due to methicillin-resistant *Staphylococcus aureus*, particularly community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA), and other organisms are on the rise. Pediatric hospitalists should be knowledgeable about the diagnosis and treatment of skin and soft tissue infections, including the changing epidemiology of pathogens and resistance patterns, to ensure efficient and effective treatment of these infections.

Knowledge

Pediatric hospitalists should be able to:

- Compare and contrast the key features of the history and physical examination noted in cellulitis versus deeper soft tissue infection.
- Provide indications for hospital admission and determine the appropriate level of care.
- List common bacterial organisms causing skin and soft tissues infections, including how these differ based on age and exposure histories.
- Describe risk factors for infection such as host immunity, dermatoses, environmental exposures, and others.
- Discuss the influence of community prevalence of skin pathogens and antimicrobial use on predominant organisms and resistance patterns.
- Review how patient and antibiotic characteristics and potential complications of skin and soft tissue infections may influence antibiotic and other treatment choices.
- Discuss how culture and identification of the organism and susceptibility pattern aids in treatment decisions when applicable.
- Compare and contrast emergent versus urgent complications requiring pediatric surgery consultation, such as necrotizing fasciitis and abscesses.
- Explain why early identification and surgical intervention in necrotizing fasciitis can improve outcomes.
- Compare and contrast the utility of various imaging modalities such as plain film, ultrasound, nuclear medicine scan, computed tomography, and magnetic resonance imaging, including indications for each.
- Summarize the approach toward evaluation and treatment of patients with recurrent *Staphylococcal* infections, including indications for evaluation for systemic disease, household colonization, and environmental exposures.

Skills

Pediatric hospitalists should be able to:

- Elicit a medical history to identify detailed information about onset and timing of spread of infection, history of similar infections, and specific exposures.
- Demonstrate proficiency in conducting a physical examination of skin and soft tissue infections to determine extent and severity of the infection, including the presence of a phlegmon or abscess.
- Identify and demarcate the borders of the infection to assist with assessing further spread.
- Order appropriate laboratory and radiographic tests to guide treatment and ensure proper isolation.
- Interpret radiographic studies and engage consultants when appropriate.
- Direct an evidence-based treatment plan including appropriately selected antibiotic therapy, attending to the most likely organisms and antibiotic susceptibility patterns.
- Perform careful reassessments daily and as needed, note changes in clinical status, and respond with appropriate actions.
- Adjust antibiotics according to the identification of the organism and/or antibiotic susceptibility pattern and clinical progression/improvement.
- Demonstrate proficiency in incision and drainage of simple cutaneous abscesses, including use of appropriate analgesia, anxiolysis, and/or procedural sedation, according to local practice parameters.
- Consult appropriate subspecialists, including surgeons, radiologists, and others, to assist in evaluation and treatment as appropriate.
- Identify patients requiring extended evaluation for underlying anatomic or systemic disease.
- Create a comprehensive discharge plan, including home care as appropriate.

Attitudes

Pediatric hospitalists should be able to:

- Recognize the importance of consulting with interdisciplinary teams, such as pediatric surgeons, radiologists, pharmacists, and the laboratory, early in the hospital course to facilitate rapid diagnosis, treatment, and discharge.
- Acknowledge the value of effective communication with patients, the family/caregivers, primary care provider, and subspecialists regarding the reasons for diagnostic testing and treatment choices.
- Realize the importance of educating the family/caregivers on the etiology of the infection, including the importance of hand washing and minimizing environmental exposure in the prevention of infection.
- Role model proactive, engaged behavior regarding proper isolation measures to prevent spread of the etiologic agent in the hospital.
- Realize the importance of antimicrobial stewardship and consistently modify prescribing practice to reflect best practices attending to local resistance patterns.

Systems Organization and Improvement

In order to improve efficiency and quality within their organizations, pediatric hospitalists should:

- Work with hospital administration and subspecialists to acquire local laboratory testing that is critical for evaluation and management, such as susceptibility testing.
- Incorporate knowledge of outcomes research, changing microbial epidemiology and resistance patterns, cost, and management strategies into patient care.
- Lead, coordinate, or participate in the development and implementation of cost-effective, safe, evidence-based care pathways to standardize the evaluation and management of skin and soft tissue infections.

References

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