Infection Risk Following Orthopaedic Sports Knee Surgery Is Greater in Pediatric Patients with Allergic Disease History

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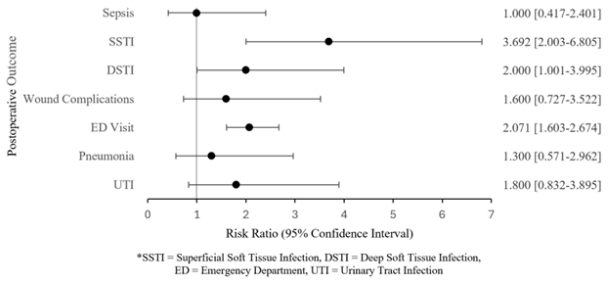
INTRODUCTION: Allergic diseases are common in children and have been demonstrated to be risk factors for infections following orthopaedic surgery. However, their association with infection risk following knee surgery in pediatric populations is unknown. This study sought to compare the risks of postoperative infection in children with and without a history of atopic dermatitis, allergic rhinitis, or asthma who underwent common orthopaedic sports knee surgeries.

METHODS: A retrospective cohort study was conducted using the TriNetX database. Patients aged 10–18 years with and without a history of allergic diseases who underwent anterior cruciate ligament (ACL) reconstruction (ACLR) or meniscal surgery, including meniscectomy, meniscal repair, and meniscal transplant, were matched based on demographics and comorbidities. Primary outcomes were 90-day postoperative superficial soft tissue infection (SSTI), deep soft tissue infection (DSTI), sepsis, and wound complications; secondary outcomes were 90-day pneumonia, urinary tract infection (UTI), and emergency services usage. Tests of significance (alpha = 0.05) were performed and risk ratios (RRs) with 95% confidence intervals were calculated.

RESULTS: Upon matching, 4677 ACLR patients and 5493 meniscus surgery patients were identified in each cohort. ACLR patients with allergic diseases had significantly greater risks of SSTI (1.03% vs 0.28%; RR = 3.692; P < 0.0001) and DSTI (0.51% vs 0.26%; RR = 2.000; P = 0.045) than ACLR patients without allergic diseases. Similarly elevated risks of SSTI (0.66% vs 0.24%; RR = 2.769; P = 0.001) and DSTI (0.53% vs 0.26%; RR = 2.071; P = 0.02) were noted in meniscal surgery patients with allergic diseases versus those without. No significant differences in rates of other outcomes were noted between cohorts.

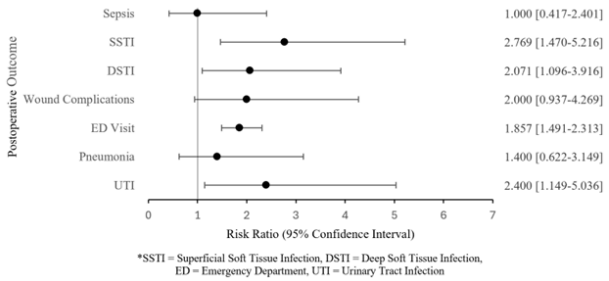
DISCUSSION AND CONCLUSION: Although the overall risks were low, there were significantly greater risks of infection, including both SSTI and DSTI, following common knee sports surgeries in pediatric patients with a history of allergic disease than in those without. Therefore, there may be benefit in physicians optimizing their surgical and postoperative care through thorough screening and careful monitoring of patients with a history of allergic diseases.

Figure 1: 90-day Risk Comparison of Postoperative Outcomes in ACL Reconstruction Pediatric Patients with and without Allergic Disease History



*SSTI = Superficial Soft Tissue Infection, DSTI = Deep Soft Tissue Infection, ED = Emergency Department, UTI = Urinary Tract Infection

Figure 2: 90-day Risk Comparison of Postoperative Outcomes in Meniscal Surgery Pediatric Patients with and without Allergic Disease History



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