Lower Limb Cellulitis in the 3 Months before Total Knee Arthroplasty Increases Risk of Infection

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INTRODUCTION:

While surgeons typically defer total knee arthroplasty (TKA) during active lower limb infections such as cellulitis, evidence regarding infection risk in patients with recent cellulitis remains sparse. Therefore, this study evaluated the association between cellulitis within three months before TKA and the risk of periprosthetic joint infection (PJI) and postoperative complications.

METHODS:

Using an all-payer administrative database (PearlDiver), we identified all patients who underwent unilateral primary TKA for osteoarthritis between 2010-2022 with ≥90-day follow-up. Patients who experienced lower limb cellulitis within 3 months before TKA (n=1781, 0.2%) were matched using 1:3 propensity score matching to those without cellulitis (n=4340) for age, gender, obesity, Elixhauser Comorbidity Index (ECI), smoking, diabetes, hypertension, and heart failure. Outcomes analyzed included risk of PJI at 90 days, 1 year, and 2 years postoperatively, as well as the rate of surgical site infections (SSI), sepsis, reoperations, readmissions, and emergency department (ED) visits within 90 days postoperatively. Multivariate analyses using odds ratio (OR) and 95% confidence interval (CI) were controlled for age, gender, and ECI.

RESULTS:

Cellulitis within three months before primary TKA was significantly associated with increased odds of 90-day PJI (OR=2.4, 95% CI 1.7–3.4; p<0.001), 1-year PJI (OR=2.4, 95% CI 1.8–3.2; p<0.001), and 2-year PJI (OR=2.3, 95% CI 1.8–2.9; p<0.001). Additionally, recent cellulitis was linked to significantly higher odds of SSI (OR=2.7, 95% CI 1.9–3.8; p<0.001), sepsis (OR=3.9, 95% CI 2.3-6.4, p<0.001), reoperations (OR 1.6, 95% CI 1.3–2.1; p<0.001), readmissions (OR=1.6, 95% CI 1.3–1.9; p<0.001), and ED visits (OR=1.32, 95% CI 1.1–1.5; p<0.001) within 90 days of surgery.

DISCUSSION AND CONCLUSION:

One in 500 patients undergoing primary TKA experienced cellulitis in the 3 months before surgery. Lower limb cellulitis in the 3 months before TKA substantially increases the risk of PJI, SSI, reoperations, readmissions, and ED visits postoperatively. These findings highlight the importance of thorough patient examination and history taking to allow for optimized multidisciplinary management strategies. Additional research exploring cellulitis resolution timing and its influence on postoperative outcomes is needed.