Title:
Association of Rheumatoid Arthritis Pharmacologic Therapy With Infection, Revision, and Stiffness After Total Knee Arthroplasty: A 2-Year Retrospective Cohort Study

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Abstract:

Introduction:
Rheumatoid arthritis (RA) patients undergoing total knee arthroplasty (TKA) present unique perioperative challenges due to chronic inflammation and immunosuppressive treatment. The effects of disease-modifying antirheumatic drugs (DMARDs), glucocorticoids, NSAIDs, and their combinations on postoperative outcomes remain poorly defined. This study evaluates the association between RA medication regimens and the risk of revision, joint stiffness, and infection following TKA.

Methods:
A retrospective cohort study was conducted using a national electronic health record database to identify patients with RA undergoing TKA. Patients were stratified by perioperative RA medication use: DMARDs, glucocorticoids, NSAIDs, and combination therapy. Those not using any of the studied medications served as the control group. Outcomes assessed over a 2-year follow-up included TKA revision, postoperative joint stiffness, and surgical site infection. Risk ratios (RR) with 95% confidence intervals (CI) were calculated. Statistical significance was set at $p < 0.05$.

Results:
Use of DMARDs was associated with a higher risk of infection (RR 1.26, 95% CI 1.01–1.58, p=0.045), while revision and stiffness were not significantly different. Glucocorticoid use was associated with a modestly increased risk of revision (RR 1.13, 95% CI 1.00–1.28, p=0.044), with no significant difference in infection or stiffness. Patients taking NSAIDs had an increased risk of postoperative stiffness (RR 1.32, 95% CI 1.08–1.61, p=0.006), though revision and infection were not significantly different. Combination therapy with any two or more RA drug classes was associated with increased risk of TKA revision (RR 1.32, 95% CI 1.05–1.67, p=0.019) and postoperative stiffness (RR 1.50, 95% CI 1.03–2.18, p=0.032), while infection risk was not significantly elevated.

Conclusion:
Among RA patients undergoing TKA, different pharmacologic regimens are associated with varying postoperative risks. DMARDs were linked to higher infection rates, glucocorticoids with increased revision risk, and NSAIDs with greater stiffness. Combination therapy conferred the highest risk of both revision and stiffness. These findings highlight the importance of individualized perioperative medication management to optimize TKA outcomes in patients with RA.