Angiotensin Receptor Blocker Use Following Total Knee Arthroplasty is Associated With Reduced Rates of Hospitalizations and Arthroscopic Lysis of Adhesions

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INTRODUCTION:
Arthrofibrosis poses a significant risk for long-term complications following total knee arthroplasty (TKA), potentially necessitating follow-up hospitalizations and surgeries to restore full range of motion. The mechanisms underlying scar formation inhibition via TGF-β1 have been well described in the literature, with some studies suggesting perioperative angiotensin receptor blockers (ARBs) as a potential option for mitigating arthrofibrosis. However, few large cohort studies have accurately characterized this potential clinical benefit. This population-based cohort study analyzes the short-term and long-term outcomes following ARB prescription in patients with primary TKA.
METHODS:
TriNetX was used to identify patients who underwent primary TKA and received a prescription of either losartan, valsartan, or olmesartan within three months post-TKA. Through a 1:1 ratio propensity-matching based on predetermined preoperative criteria, these patients were matched with a cohort of individuals who did not receive any ARB prescription. Postoperative outcomes, including emergency department (ED) visits and hospitalizations, were assessed up to 90 days following surgery. Complications and revision rates were examined within 1- and 2-year periods.
RESULTS: A total of 124,087 patients undergoing primary TKA were identified after applying exclusion criteria. Ultimately, 17,974 patients with ARB prescriptions were propensity-matched to a cohort of 17,974 patients without any ARB prescriptions. ARB prescription was associated with reduced rates of hospital readmissions at 30 days (OR: 0.787, CI: 0.691-0.896, p = 0.0003) and 90 days (OR: 0.829, CI: 0.735-0.934, p = 0.002) post-operatively. Patients with ARB prescriptions also had lower rates of arthroscopic lysis of adhesions (LOA) at 1 year (OR: 0.574, CI: 0.357-0.921, p = 0.0464) but not at 2 years. Within 1 and 2 years post-operatively, rates of manipulation under anesthesia, mechanical complications of the prosthesis, prosthetic joint infection, and revision were comparable between cohorts. A subanalysis of each individual ARB prescription versus no ARB prescription revealed reduced rates of arthroscopic LOA following losartan at 1 year (OR: 0.499, CI: 0.284-0.88, p = 0.0143) and 2 years.
DISCUSSION AND CONCLUSION:
Prescription of ARBs within 3 months of TKA is associated with reduced hospitalizations at 30 days and 90 days post-operatively, in addition to reduced rates of arthroscopic lysis of adhesions at 1 and 2 years post-operatively. These findings suggest a role for ARBs in rehabilitation following TKA to prevent adverse outcomes and improve overall patient satisfaction.