

Consideration of cephalosporin as first-choice antibiotic for total joint arthroplasty; does documented penicillin-allergy matter?

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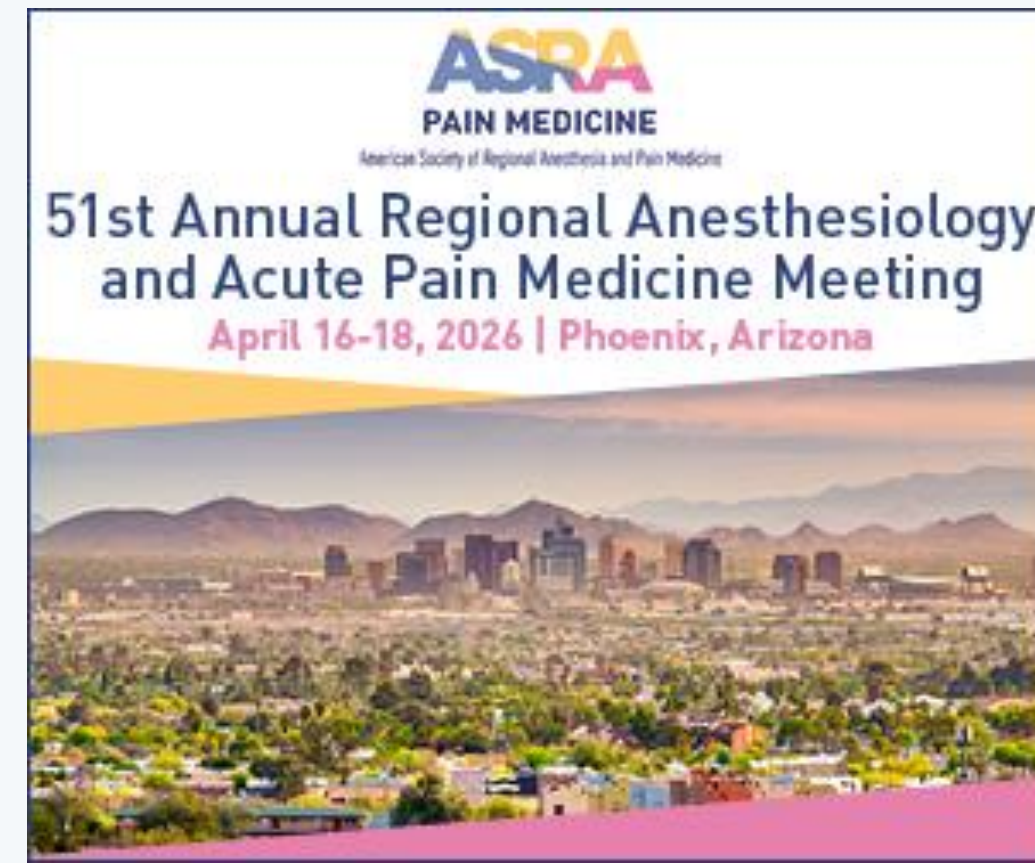
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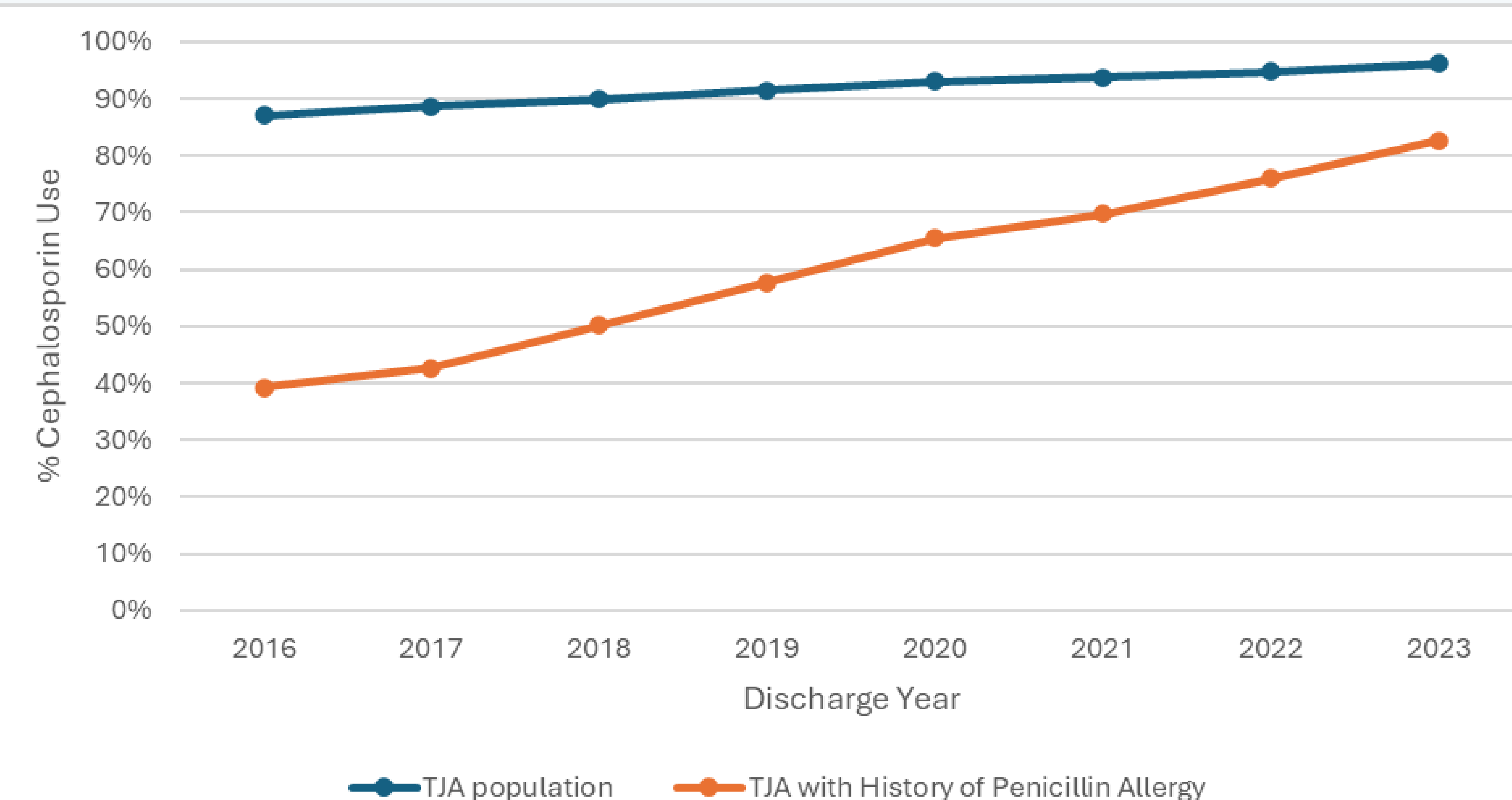
INTRODUCTION

- **Background:** Avoidance of cephalosporins in patients reporting penicillin allergy has been associated with increased infection risk after lower limb TJA
- **Rationale:** This, next to the inaccuracy of patient-reported penicillin allergy, has resulted in increased use of cephalosporins in this patient population, which raises concerns about antibiotic-related adverse effects
- **Objective:** We investigated the association between documented penicillin allergy and adverse events from cephalosporins in patients undergoing TJA

METHODS

- **Design:** Retrospective cohort study (IRB#2012-050).
- **Setting:** Premier Healthcare database, 2016-2023, hospital admission to discharge
- **Population:** All adults undergoing elective lower limb TJA (n=1,566,002)
- **Variables:** Documented penicillin allergy, cephalosporin use and adverse events due to cephalosporin or other beta-lactams.
- **Objectives:** To describe
 - (1) secular trends of documented penicillin allergy
 - (2) cephalosporin use and
 - (3) adverse events due to cephalosporin.
 Among those with penicillin allergy, we described
 - (4) secular trends of cephalosporin use and
 - (5) adverse events due to cephalosporin.
- **Statistical Methods:** Cochran-Armitage tests

In the absence of formal testing or history of severe reaction, our results suggest that increasing cephalosporin or beta-lactam use to reduce infection risk after TJA may be safe.



RESULTS

1. **Trends of documented penicillin allergy: increased over time** (2016: 4.47% versus 2023: 5.16%; p<0.001)
2. **Trends of cephalosporin use: increased over time** (2016: 87.10% versus 2023: 96.15%; p<0.001).
3. **Adverse events due to cephalosporin: increased over time** (2016: 0.04% versus 2023: 0.10%; p<0.001)
4. **Among those with documented penicillin allergy, cephalosporin use: increased over time** (2016: 39.19% versus 2023: 82.66%; p<0.001)
5. **Among those with documented penicillin allergy, adverse events due to cephalosporin use: increased over time** (2016: 0.04% versus 2023: 0.08%; p=0.011).

DISCUSSION

- Among those with documented penicillin allergy:
 - Cephalosporin use doubled
 - Adverse events increased in rate similar to the general population
- These findings suggest the substantial inaccuracy in reported penicillin allergy and highlight the importance of cost-effective preoperative testing

References →

