

General Versus Neuraxial Anesthesia and Infection Risk in Total Knee and Hip Arthroplasty: A Systematic Review and Meta-Analysis

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Introduction

- Surgical site infection (SSI) and periprosthetic joint infection (PJI) are debilitating complications of TKA and THA.
- General anesthesia (GA) has been implicated as a risk factor for SSI/PJI.
- **Objective: to examine the association between anesthesia type and the risk of SSI and PJI on patients undergoing TKA and THA.**

Methods

- PRISMA-guided systematic review and meta-analysis.
- Comparative studies of adult THA/TKA patients receiving GA vs. neuraxial anesthesia, reporting SSI and/or PJI.

Results

- **25 studies met inclusion criteria (24 SSI datasets; 3 PJI datasets).**
- SSI: directionally higher, statistically non-significant odds with GA; substantial heterogeneity.
- PJI: no significant difference between anesthesia types; negligible heterogeneity.



Discussion

- **No significant infection difference: GA showed higher SSI odds than neuraxial, but not statistically significant.**
- PJI data too sparse for firm conclusions.
- **High heterogeneity limits certainty:** Inconsistent SSI/PJI definitions, short follow-up (30–90 days), and confounding by indication (GA often used in higher-risk patients) weaken the signal.
- **Implications:** Anesthetic choice should stay individualized, not infection-driven.
- Future studies need standardized endpoints, longer follow-up, and better confounder adjustment.

