

# The Effects of Symptomatic Benign Prostatic Hyperplasia on complications After Primary Total Joint Arthroplasty: A Systematic Review and meta-analysis

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## INTRODUCTION:

Total joint arthroplasty (TJA) is increasing in the United States, with estimates indicating over four million cases annually by 2030. While primary total hip arthroplasty (THA) and total knee arthroplasty (TKA) are generally successful procedures, periprosthetic joint infection (PJI) poses a significant risk, often resulting in severe complications and being a leading cause of TJA failure. Recent research has suggested that symptomatic benign prostatic hyperplasia (BPH) could be a potential risk factor for PJI, as it may contribute to urinary tract infections (UTIs) and asymptomatic bacteriuria due to urinary stasis in the bladder and urinary tract. However, the precise relationship between UTIs and PJI remains unclear, with conflicting results reported in the literature.

Given the conflicting evidence on the link between symptomatic BPH and PJI, in this systematic review, we aim to address this gap by examining whether there is a significant association between symptomatic BPH and PJI A. By analyzing data from an all-payer claims database, this review will contribute to a better understanding of the relationship between symptomatic BPH and PJI, providing valuable insights for clinical practice and future research efforts.

**METHODS:** We performed a systematic review using Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines, including studies comparing complications after TJA between patients with or without BPH. An extensive search was conducted using proper keywords in Medline, Embase, Scopus, and Web of Science databases. The outcome measure of interest was any failure, PJI, and complications after TJA. This research evaluated the quality of the cohort studies using the Newcastle-Ottawa Scale (NOS). R 4.4 was used for the statistical analysis.

## RESULTS:

This review includes four studies with a group of 75222 patients. Of these, 17183 patients were considered BPH group, while 58039 were healthy control. All studies were retrospective and followed patients for at least 2 years after TJA. A detailed summary of the studies' characteristics is provided in Table 1.

Three of four studies reported total hip and knee arthroplasties (TKA and THA). After pooling data and analysis, the meta-analysis showed that there is not any significant difference between the two groups regarding PJI (P value=0.14) (Figure 2). Nevertheless, the BPH group's sepsis rate was significantly higher (P value=0.003) (Figure 3). Further evaluation showed a significant increase in the UTI rate (P value < 0.0001) (Figure 4), which may be the reason for higher sepsis in this group. Sub-group analysis between hip and knee did not show any significant difference between hip and knee regarding PJI, UTI, and sepsis between these two groups.

**DISCUSSION AND CONCLUSION:** Our results show that having symptomatic BPH is not a risk factor fr PJI after TJA. Although is can increase the UTI and sepsis rate in these patients. Prospective studies with large sample sizes and controlling other cofactors are required to confirm the findings.

