Long Term Outcome of Total Hip Arthroplasty in Hemodialysis Patients: A Systematic Review and Meta-Analysis

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INTRODUCTION:

Chronic renal failure (CRF) patients require prolonged hemodialysis. They frequently end up with osteoarthritis and osteonecrosis for different reasons, including steroid or immunosuppressive medication use, renal osteodystrophy, or amyloid deposition, which makes these people eligible for early arthroplasty or revision after primary surgery. Although, over the last two decades, significant advances have been made in total hip arthroplasty (THA) surgical techniques, one of the high-risk groups for this surgery are CRF patients treated with hemodialysis. There is some evidence of the increased likelihood of postoperative adverse events following THA surgery in these patients; however, there is some evidence to the contrary. The present study aimed to systematically review and analyze the consequences of THA in CRF patients undergoing hemodialysis.

METHODS:

Following PRISMA guidelines, this systematic review and meta-analysis evaluated the outcome of THA in patients suffering from chronic renal failure who were undergoing hemodialysis. The databanks for manuscripts, including PubMed, Web Of Science, Scopus, Embase, and Google Scholar, were deeply searched by blinded reviewers using the related keywords. After considering the inclusion and exclusion criteria and eliminating duplicate articles in the foreword databases, the intended variables were extracted. The risk of bias for each study was assessed using the criteria according to the QUADAS-2 tool. Statistical analysis was performed using the Comprehensive Meta-Analysis software.

RESULTS:

Twenty-seven articles were initially collected by database searching (figure 1). After removing duplications and evaluating the articles' titles and abstracts, 11 records were excluded, and the remaining 16 citations were assessed for further eligibility. After full text reviewing the articles, one study was excluded due to exclusion criteria. In the final, 15 articles (including 256 patients) were eligible for the final analysis (table 1). According to our risk of bias assessment, all 15 studies yielded good quality, and none of the citations was determined to have a high risk of bias; therefore, the pooled results should be persuasive. There was no significant publication bias, as evidenced by either funnel plot asymmetry or the Egger test. The overall average age of the patients was 57.8 ranged 39 to 75 years. The total follow-up time was also 4.8 years, ranged 2 to 8.4 years. The overall prevalence of requiring postoperative revision was 20.7% (95%CI: 15.5% to 27.0%) (figure 4). Also, regarding complications, hip dislocation was found to be 8.4% (95%CI: 5.2% to 13.5%), and the infection was also 12.2% (95%CI: 8.2% to 17.7%) (figure 5,6). Other infrequent postoperative complications reported in the studies are summarized in (Table 2).

DISCUSSION AND CONCLUSION:

Reviewing the literature indicates an increased risk of postoperative morbidity following total hip arthroplasty in hemodialysis patients. In other words, some unpredictable side effects such as infection, hip dislocation, or required revision surgery may be frequent in those undergoing prolonged hemodialysis.