group. Although the prior arthroscopy group had higher rates of both complications (n = 5, 14.3%) and reoperations (n = 4, 11.4%), only the difference in total complications approached marginal significance (p = 0.054). Complications consisted of urinary tract infection, numbness around the incision, minor infection and allergic reaction to sutures.

With the current evidence available, we cannot conclude that a prior hip arthroscopy exposes patients undergoing THAs to a higher risk of infections. There is a need for studies with greater sample sizes to further explore this important question.

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Authors: Arash Aalirezaie, Nirav K. Patel, Zoran Bozinovski, Hamed Vahedi, Perica Lazarovski

QUESTION 5: Does a prior arthroscopy of the knee increase the risk of subsequent surgical site infections/periprosthetic joing infections (SSIs/PJIs) in patients undergoing elective arthroplasty?

RECOMMENDATION: There is no evidence to suggest that a prior arthroscopy of the knee increases the risk of subsequent SSIs/PJIs in patients undergoing total knee arthroplasty (TKA).

LEVEL OF EVIDENCE: Moderate

DELEGATE VOTE: Agree: 81%, Disagree: 12%, Abstain: 7% (Super Majority, Strong Consensus)

RATIONALE

Arthroscopy in the degenerate knee is not warranted, but it has been frequently performed over the years. Controversial indications have included young adults with degenerative joint disease to delay TKA [1,2] and for elderly patients for alleviating pain [3,4]. Knee arthroscopy can be appropriately used for loose body removal, meniscectomy, chondroplasty, ligamentous reconstruction and as a diagnostic tool prior to unicondylar knee arthroplasty [5]. The rate of TKA following knee arthroscopy within one year is 10-12% [6–8], and those following ligamentous knee surgery have a higher risk of earlier osteoarthritis requiring TKA [9]. Studies have shown increased risks of revisions and PJIs after TKAs in patients with previous open-knee procedures [10–12], but the evidence for knee arthroscopy is conflicting.

Piedade et al. evaluated the outcomes and complications of TKAs in two retrospective cohort studies [11,13]. The first was a cohort of 1,119 primary TKAs with no previous surgery compared to 60 primary TKAs with a prior history of arthroscopic debridement and a minimum follow-up of two years. Two patients in the arthroscopy group (3%) and 14 patients in the primary TKA group (1.25%) had subsequent PJIs. Although this finding was not statistically significant, the total complication, reoperation and revision TKA rates were higher in the prior arthroscopic group. In addition, the authors found no correlations between arthroscopy-TKA intervals (mean of four years) and complications or failures [11]. The second study did not specify the rates of infections [13]. When looking at general outcomes, Issa et al. reported no negative outcomes (function, survivorship and revision) following TKA after prior knee arthroscopy [14].

The time interval between arthroscopy and TKA is also important as was shown by Werner et al. [8], who evaluated the associations of knee arthroscopy prior to TKA with postoperative complications (infection, stiffness and venous thromboembolism) from a national database. Three cohorts were compared with each other and with an age-matched cohort. The three cohorts were: TKA within 6 months (n = 681), between 6 to 12 months (n = 1,301) and between 1 to 2 years after knee arthroscopy (n = 1,069). They reported that TKAs performed within 6 months were associated with increased rates of postoperative infection, stiffness and venous thromboembolism.

Viste et al. [6], evaluated long-term Knee Society Scores (KSS), survivorships and complications of 160 TKA patients with prior knee arthroscopy (excluding ligamentous reconstruction) to a 1:2 matched control group of 320 primary TKAs with no prior surgery. The mean follow-up was nine years and the mean interval between arthroscopy and TKA was five years. Although PJIs were found in two controls and three arthroscopy cases, these findings were not statis-

tically significant (p = 0.2). In addition, there were no significant differences between the two groups regarding complications, ranges of motion and revisions. Twenty-five patients (15.6%) had a knee arthroscopy within one year of their TKA during which time there were no increased risks of infections, other complications, reoperations or revisions.

A national registry database study of 64,566 primary TKAs found that prior ligament reconstruction (odds ratio (OR) = 1.85) was an independent risk factor for PJIs at 12 months in multivariate analysis, with no details of whether this was open or arthroscopic. Interestingly, meniscectomy was an independent protective factor (OR = 0.66) in the same study [15].

We conclude that a prior arthroscopy of the knee does not seem to increase the incidence of subsequent SSIs/PJIs following TKA. However, most studies on this subject are retrospective with small cohorts, making it difficult to accurately assess the risk of subsequent infection. Only one study showed an increased rate of infection within six months, and this has not been repeated in the literature. Further studies are required, and until then, surgeons may wish to consider delaying TKA for at least six months post-arthroscopy to minimize any risk that may exist, particularly in high-risk patients.

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Authors: Francisco Reyes, Jorge Manrique, Mojieb Manzary, Wei Huang

QUESTION 6: Do patients undergoing outpatient total joint arthroplasty (TJA) have a higher incidence of surgical site infections/periprosthetic joint infections (SSIs/PJIs)?

RECOMMENDATION: No. Patients undergoing outpatient total joint arthroplasty do not have a higher incidence of SSIs/PJIs.

LEVEL OF EVIDENCE: Moderate

DELEGATE VOTE: Agree: 83%, Disagree: 8%, Abstain: 9% (Super Majority, Strong Consensus)

RATIONALE

PJIs are a serious condition with a high impact on patients and surgeons. The leading cause of 30-day readmission after total knee arthroplasty (TKA) is deep or superficial SSIs, which accounts for 12.1% of unplanned readmissions [1]. SSIs accounted for 23.5% of unplanned readmissions in total hip arthroplasty (THA) patients, just behind hip dislocations. Lovett-Carter et al. reported that the length of hospital stay (LOS) is implicated as a risk factor for SSIs or PJIs, among other factors such as comorbidities, gender and duration of procedure [2]. Outpatient TJA has not been seen to be a concern in the literature.

In a study that evaluated 58,000 standard-stay, primary THA patients, the deep SSI rate was seen to be 0.2% [3]. In a more recent study, Lovett-Carter et al. evaluated outpatient 742 THAs and 816 TKAs and observed 0 and 3 (0.36%) SSIs, respectively [2].

Nelson et al. revised the collected data from the 2005 to 2014 American College of Surgeons National Surgical Quality Improvement Database (ACS NSQIP) of patients who underwent THA as outpatient (LOS 0 days) or inpatient (LOS 1-5 days). A total of 63,844 THA patients were identified of which 420 (0.66%) were outpatients. They concluded that patients undergoing outpatient THA were not at an increased risk of 30-day adverse events or readmissions or infections compared to inpatient procedures. Deep SSIs in patients with LOS between 1 to 5 days was 0.23% and in outpatients was zero (p = 0.319). The rate of superficial SSI was 0.64 vs. 0.48% (p = 0.821), respectively [4].

Springer et al. compared 30-day hospital readmission rates for patients undergoing outpatient and inpatient TJAs. They evaluated if LOS impacted hospital readmission rates and unplanned care