QUESTION 2: Does routine screening for diabetes and glycemic control reduce the risk of surgical site infection/periprosthetic joint infection (SSI/PJI)?

RECOMMENDATION: The routine screening for diabetes and glycemic control has the potential to reduce the incidence of SSI and/or PJI following total joint arthroplasty (TJA).

LEVEL OF EVIDENCE: Consensus

DELEGATE VOTE: Agree: 96%, Disagree: 3%, Abstain: 1% (Unanimous, Strongest Consensus)

RATIONALE

The burden of diabetes is rising, and it is projected that in the next 20 years the number of diabetics in the United States will reach 44 million, about two times the present prevalence [1,2]. Patients with diabetes, especially those with inadequate glycemic control, are at increased risk for both joint-related and systemic adverse outcomes following TJA [3–6], of which PJI has been the most studied. Multiple professional organizations have published screening recommendations for diabetes [7–10]. While there are slight differences between them, they all agree that patients with an increased risk for diabetes should be screened. It has been found that a large proportion of patients undergoing TJA have undiagnosed diabetes; hence, it is reasonable to provide screening recommendations for this patient population [11].

Diabetes is an established risk factor for severe osteoarthritis [12], and a higher prevalence has been reported in patients undergoing TJA [13,14]. In a recent study, the prevalence of diabetes in patients undergoing TJA was 20.7%, which is almost two times the rate within the general population [15,16]. Interestingly, 40.9% (8.4% of the total cohort) were undiagnosed. Moreover, 38.4% of the total cohort were pre-diabetic, resulting in a total of 59.1% dysglycemic patients. This could explain why numerous studies show that perioperative hyperglycemia, elevated glycated hemoglobin (HbA1c) and high glucose variability are associated with PJI even without a diagnosis of diabetes, as these patients are simply unaware of their dysglycemic status [17–19].

The fact that individuals approaching TJA undergo preadmission testing provides an ideal screening setting, for both patient and physician. Screening TJA patients for diabetes could allow early detection and rapid treatment, which may reduce the burden of diabetes and both its surgical and non-surgical complications. Furthermore, patients with inadequate glycemic control and undiagnosed diabetes may be treated and appropriately optimized in the preoperative setting which could improve their outcomes. Furthermore, lifestyle changes and pharmacologic interventions may reduce progression and delay development in undiagnosed diabetics and pre-diabetics [7,20,21].

Although no studies exist to show that tight glycemic control could reduce the rate of PJI following TJA, it is well-established that inadequately-controlled diabetes is associated with higher rates of PJI. Based on the potential link between strict glycemic control in the perioperative period and reduction in PJI rates, and due to the extremely high rate of unknown diabetics and prediabetics in patients undergoing TJA, we extrapolate that screening all patients prior to surgery could assist in reducing the incidence of SSI and PJI.

REFERENCES


