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What dentists need to know about new guidelines for the treatment of patients with prosthetic joints

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The American Academy of Orthopedic Surgeons (AAOS) and American Association of Hip and Knee Surgeons (AAHKS) have released a clinical practice guideline, "The Prevention of Total Hip and Knee Arthroplasty Periprosthetic Joint Infection in Patients Undergoing Dental Procedures" (the AAOS-AAHKS guideline).[1] The scope of the guideline includes use of antibiotic prophylaxis (AP) before dental procedures, dental screening before hip and knee arthroplasty, use of an antiseptic mouthrinse before dental procedures, the timing of arthroplasty surgery after any dental procedure, and the timing of any dental procedure after total joint arthroplasty. This guidance is therefore highly pertinent to dentists, but many may be unaware of these new recommendations. The guideline gives a series of statements related to these topics but provides no direct clinical recommendations. We summarize and comment on them below.

The American Academy of Orthopedic Surgeons–American Association of Hip and Knee Surgeons guideline is now in agreement with the American Dental Association 2015 clinical practice guideline stating there is no association between invasive dental procedures and late prosthetic joint infections, and that antibiotic prophylaxis is of no benefit in preventing late prosthetic joint infections.

USE OF ANTIBIOTIC PROPHYLAXIS BEFORE DENTAL PROCEDURES

The AAOS-AAHKS guideline is now in agreement with the American Dental Association 2015 clinical practice guideline stating there is no association between invasive dental procedures and late prosthetic joint infections (LPJIs), and that AP is of no benefit in preventing LPJIs.[2] The AAOS-AAHKS guideline states, "Routine use of a systemic prophylactic antibiotic prior to a dental procedure in patients with a hip or knee replacement may not reduce the risk of a subsequent periprosthetic joint infection."[1]

The guideline acknowledges that orthopedic surgeons who have routinely recommended AP may find it difficult to change their practice regardless of this new guideline. However, the advice for dentists and orthopedists is clear: AP provides no significant benefit for patients with prosthetic joints. It does not reduce their risk of developing prosthetic joint infections (PJIs) but may result in adverse drug reactions (eg, *Clostridioides difficile* infection) and promote the development of antibiotic resistance.[3,4]

Commentaries represent the opinions of the authors and not necessarily those of the American Dental Association.

DENTAL SCREENING BEFORE HIP OR KNEE ARTHROPLASTY

The AAOS-AAHKS guideline acknowledges there is no evidence that dental screening or clearance before arthroplasty reduces the risk of PJIs.

USE OF AN ANTISEPTIC MOUTHRINSE BEFORE DENTAL PROCEDURES

The AAOS-AAHKS guideline acknowledges there is no evidence to support the use of an antiseptic mouthrinse before invasive dental procedures.

TIMING OF ARTHROPLASTY SURGERY AFTER ANY DENTAL PROCEDURE

There is controversy regarding the timing of arthroplasty surgery after dental procedures. The AAOS-AAHKS guideline recommends delaying arthroplasty surgery for 1 week after scaling and root planing, and for 3 weeks after an extraction, oral surgical procedure, or treatment of an acute dental infection, despite the lack of any supporting evidence for this recommendation. Multiple studies report that bacteremia from dental extractions, even in highly septic gingival and alveolar disease conditions, rarely lasts longer than 1 hour.[5]

TIMING OF ANY DENTAL PROCEDURE AFTER TOTAL JOINT ARTHROPLASTY

There is controversy regarding the timing of any dental procedure after total joint arthroplasty. The area with the greatest impact on patients is the consensus-based opinion recommendation to delay any dental treatment, other than examinations without probing or the treatment of an acute dental infection, for 3 months after joint replacement surgery. The premise to support this recommendation is that the newly placed joint has increased perfusion and blood flow and therefore may theoretically be more susceptible to infection from bacteremia caused by an invasive dental procedure. However, there is no evidence to support this opinion.

Multiple prospective clinical studies have shown that routine daily activities such as toothbrushing can cause bacteremia similar to that produced by invasive dental procedures, particularly in people with poor oral hygiene.[6] Considering the frequency of bacteremia from toothbrushing and the absence of an increased risk of PJI from this or invasive dental procedures, it is illogical to recommend delaying dental care for 3 months without any evidence of benefit.

Delaying dental care could lead to adverse patient outcomes including acute dental infections and the need for more invasive procedures. Most PJIs that occur in the 3 months immediately after joint replacement are caused by staphylococci, mainly from the skin, yet there is no recommendation to delay dermatologic procedures after joint replacement. Enterococcus-related PJIs also occur at greater rates than oral viridans group streptococcal PJIs (which likely account for $< 5\%$ of all PJIs),[7,8] yet there is no recommendation to delay endoscopies or colonoscopies. It is illogical, therefore, to single out dental procedures for delay.

Many other countries, including Australia, Brazil, Canada, Denmark, France, Norway, Portugal, and the United Kingdom, also do not recommend AP for patients with prosthetic joints who are undergoing invasive dental procedures, nor do they recommend a delay in dental care after arthroplasty. The incidence of LPJI or early hematogenous spread–related oral viridans group streptococcal PJI is no higher in those countries than in the United States.[9]

We appreciate the need to minimize the risk of PJIs, but there should be credible evidence for recommending a delay in treatment of other health care needs. Patients and health care providers should be confident that the data suggest that receiving dental care in the first 3 months after arthroplasty is unlikely to increase the risk of developing a PJI. Dentists should feel comfortable discussing this with patients who seek nonemergency care in the first 3 months postarthroplasty if their surgeon advises a delay in treatment. The final decision to receive treatment should be made, however, by the patient with informed consent and documented in the patient record. Patients should have timely treatment for preventive and emergency dental care, because good oral health is the most important factor in reducing the risk of bacteremia from the oral cavity.

CONCLUSIONS

We applaud the AAOS and AAHKS for their new guideline and particularly their recognition that the use of AP for invasive dental procedures is unnecessary for patients with prosthetic joints. However, we hope that they will consider a revision of their final 2 opinion-based recommendations concerning the timing of arthroplasty surgery after any dental procedure and the delaying of dental

procedures after joint replacement surgery since these lack supporting evidence, seem illogical, and could adversely affect patient care. ■

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