CME CREDIT

ONE MINUTE CONSULT

BRIEF ANSWERS TO SPECIFIC CLINICAL QUESTIONS

Q: Do patients with total joint replacements need antibiotics before dental work?

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A: I RECOMMEND that patients with prosthetic joints who have rheumatoid arthritis or other risk factors for infection (TABLE 1) receive a single dose of an antibiotic 1 hour before any dental procedure known to induce bleeding. A single dose of cephalexin (2 g), clindamycin (600 mg), or azithromycin (500 mg) will cover the common oral flora, as well as *Staphylococcus aureus*.

These recommendations are based on clinical experience and on those of the joint statement of the American Dental Association and the American Academy of Orthopaedic Surgeons.[1]

Patients who require treatment of periodontal disease should also receive antibiotic prophylaxis both before and after treatment. The duration of antibiotic prophylaxis should depend on the extent of disease and the bleeding encountered.

TABLE 1

Patients at increased risk of hematogenous total joint infection

Immunocompromised or immunosuppressed patients
- Inflammatory arthropathy (eg, rheumatoid arthritis, systemic lupus erythematosus)
- Drug-induced immunosuppression
- Radiation-induced immunosuppression

Patients with co-morbidities
- Previous infection of a prosthetic joint
- Malnourishment
- Hemophilia
- Human immunodeficiency virus infection
- Type 1 diabetes mellitus
- Malignancy
- Periodontal disease

ADAPTED FROM THE AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS. ANTIBIOTIC PROPHYLAXIS FOR DENTAL PATIENTS WITH TOTAL JOINT REPLACEMENTS. AVAILABLE AT: WWW.AAOS.ORG/WORDHTML/PAPERS/ADVISTMT/DENTA.HTM

OPINIONS VARY

Opinions on this issue certainly vary, however. Orthopedic surgeons tend toward a more aggressive approach, whereas nonsurgeons, especially infectious disease specialists, tend to be more restrictive.

Arguments for routine prophylaxis

The chief argument for prophylaxis is that invasive procedures like dental extraction and periodontal surgery are associated with bleeding and secondary bacteremia, and that these high-risk procedures are considered indications for prophylaxis in patients at risk for endocarditis.[2]

Furthermore, patients with rheumatoid arthritis or other conditions such as diabetes mellitus (TABLE 1) are predisposed to pyogenic infections. Many orthopedic surgeons prescribe prophylaxis for all dental procedures after total joint replacement to prevent infection of the prosthetic joint. The joint advisory panel of the American Dental Association and the American Academy of Orthopaedic Surgeons[1] also recommends that all patients who undergo joint replacement may benefit from dental prophylaxis for 2 years after joint replacement, although this is without scientific basis.

Arguments against routine prophylaxis

Prosthetic joint infection is rare. It occurs in less than 0.1% of joint replacements and is more often caused by microorganisms other than members of the oral flora, such as viridans streptococci.[3]

Published studies of patients with late infection of a prosthetic joint (defined as at least 6 months after surgery) clearly show S

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aureus as the dominant pathogen. In 1980, Mulligan[4] reported a series of patients who had undergone hip replacement and who developed late blood-borne infections. The infections were due to *S aureus*, beta-hemolytic streptococci, *S epidermidis*, or gram-negative bacilli, but not one case of viridans streptococcal infection was reported.

Of nine cases of late hematogenous infection reported by Stinchfield and associates,[5] only two had an oral source: one was caused by *S aureus* and the other by group G streptococci.

Cases associated with dental procedures are rare: of 21 cases of late infections noted by Jacobsen and Murray,[6] only one was associated with a dental procedure, and this was due to *S aureus*.

Furthermore, routine prophylaxis is inefficient and risky. Norden[7] concluded that the cost of antibiotic prophylaxis to prevent prosthetic joint infection is significantly higher than the cost of treating infections that rarely occur. Moreover, prescribing antibiotics needlessly may result in hypersensitivity reactions and even death from anaphylaxis. Routine prophylaxis also contributes to the growing problem of antibiotic resistance.

Routine prophylaxis promotes antibiotic resistance

LET CAUTION BE THE GUIDE

Unfortunately, this question can never be answered definitively because it appears impossible to conduct a well-designed, large-scale, randomized trial with years of follow-up observation when the estimated infection rate is less than 0.1%. Furthermore, some would argue that such a trial would be unethical. Our best recourse is to weigh the benefits vs the risks of prophylaxis for the individual patient and to proceed accordingly.

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