

ANTIBIOTIC PREMEDICATION FOR PATIENTS: CONSIDERATIONS FOR ARTIFICIAL JOINTS

According to information received from the American Association of Orthopedic Surgeons, more than 1 million total joint replacements are performed annually in the U.S. Deep infections developing in conjunction with these replacements usually result in failure of the initial surgery and the necessity for extensive revision and treatment which comes with additional costs.

Bacteremia from a variety of sources can cause seeding of bacteria onto joint implants, both in the early postoperative period and for many years following implantation, according to an article in the Journal of Oral Surgery. According to the AAOS, a comparison of late prosthetic joint infections with infective endocarditis is invalid because the anatomy, blood supply, microorganisms and mechanisms of infection are different. Therefore, antibiotic regimens recommended by the American Heart Association may not be considered to be automatically valid in dealing with prosthetic joints.

Therefore, patients with joint replacements who are undergoing potentially invasive dental procedures or who have other infections are at increased risk of bacterial seeding via blood supply to the tissues involved with the prosthesis. Thus, antibiotic prophylaxis may be considered for those patients who have had previous prosthetic joint infections and for those with other conditions that may predispose the patient to infection.

Patients with pins, plates, screws, or other orthopedic hardware that is not within a synovial joint are not at increased risk for hematogenous seeding by microorganisms and are thus not candidates for antibiotic prophylaxis.

The latest guidelines from the AAOS suggest that all patients with any type of total joint replacement be premedicated with antibiotics, no matter how many years the joint has been in place. This is particularly important with one or more of the following risk factors:

1. Immunocompromised or immunosuppressed patients.
2. Inflammatory arthropathies such as rheumatoid arthritis, systemic lupus, etc.
3. Drug induced immunosuppression
4. Radiation induced immunosuppression
5. Patients with co-morbidities, eg. combinations of diabetes, obesity, HIV, smoking, etc.
6. History of previous prosthetic joint infections
7. Malnourishment
8. HIV Infection
9. Hemophilia
10. Insulin-dependent (Type 1) diabetes
11. Malignancy.

The antibiotics recommended have been chosen based on their activity against endogenous flora that would likely be encountered from any secondary other source of bacteremia, their toxicity and cost. The dosage is important as well as a sufficient tissue concentration is essential at the time of instrumentation.

The drugs of choice for dental procedures are either Cephalexin, Cephradine or Amoxicillin. Although Clindamycin is a common recommendation by the AHA for endocarditis prophylaxis, its only usage in total joint premedication recommended has to do with head and neck surgery. The recommended dosage of any of the three drugs recommended for dental procedures is 2 grams by mouth one hour prior to the procedure.

The guidelines recommend that in cases where the patient's own orthopedic surgeon has recommendations that are not consistent with those made by the AAOS, the dentist is encouraged to consult with the orthopedic surgeon to determine if there are any special considerations that might affect the dentist's decision on whether or not to premedicate.

Those dental procedures that have been determined to be most likely to cause bacteremia and thus dictate antibiotic premedication include:

1. Dental extractions
2. Periodontal procedures that include surgery, scaling, root planing, probing and recall maintenance.
3. Implant placement and replantation of avulsed teeth
4. Conventional endodontic procedures involving instrumentation beyond the apex or apical surgery.
5. Subgingival placement of antibiotic fibers or strips.
6. Initial placement of orthodontic bands but not brackets.
7. Intraligamentary local anesthetic injections.
8. Prophylactic cleaning of teeth or implants where bleeding is anticipated.
9. Crown and bridge procedures where bleeding is expected during preparation or cord placement.

In summary, all patients with total joint replacements should be premedicated with 2.0 grams of amoxicillin or cephalexin or cephradine one hour before the appointment for any procedures with the potential to cause a bacteremia. To download information directly from the AAOS to give to patients, if necessary you can go to their web site www.aaos.org and navigate or you can google **aaos antibiotic prophylaxis** to obtain the official statement.