

Preventive Antibiotics Out for Most Heart Patients

BY HEIDI SPLETE
Senior Writer

Most patients with heart conditions don't need to take antibiotics to reduce the risk of infection prior to a dental procedure, according to revised American Heart Association guidelines.

The previous recommendations advised that patients with any heart abnormality, from mild valve prolapse to severe birth defects, should take amoxicillin prior to a dental procedure to reduce the risk of developing infective endocarditis (IE). Many types of fungi and bacteria can cause the infection, and dental procedures had been seen as opening the door for these organisms to attack vulnerable patients.

But the guidelines writing group, led by Dr. Walter Wilson of the Mayo Clinic in Rochester, Minn., reviewed the latest research and found no significant evidence that taking antibiotics before a dental procedure prevents IE in patients who are at risk for infections (Circulation 2007 May 8 [Epub doi:10.1161/circulationaha.106.183095]).

In addition, no prospective randomized, placebo-controlled studies have shown that antibiotic use prior to a dental procedure prevents IE. And daily activities such as toothbrushing and flossing cause transient bacteremia. (See story below.)

In fact, severe adverse events resulting from IE are associated with only a small subgroup of cardiac conditions, the writing group noted, and these patients should continue to receive antibiotics prior to dental procedures.

Patients who should receive antibiotics prior to dental procedures are those with prosthetic cardiac valves or previous episodes of infective endocarditis, and heart transplant patients with abnormal cardiac valves.

In addition, patients who meet the following criteria should receive antibiotics prior to dental procedures:

- ▶ Patients with repaired congenital heart disease (CHD) who have remaining defects at or near the site of a patch or prosthetic that inhibit the healing of the inner surfaces of the heart vessels.

- ▶ Patients with unrepaired cyanotic CHD, including those with palliative shunts or conduits.

- ▶ Patients with repaired CHD with no remaining defects who are within 6 months of the procedure (because the inner vessel surfaces are still healing).

Such patients should receive antibiotics prior to any dental procedure that involves work on the gums, the apex of the tooth, or perforation of oral mucosa. The guidelines apply to children as well as adults and have been endorsed by the Infectious Diseases Society of America, Pediatric Infectious Disease Society, and American Dental Association.

The previous guidelines, last revised in 1997, called for 2 g of amoxicillin to be given orally 1 hour before a procedure. But amoxicillin use carries risks of its own, including fostering the development of amoxicillin-resistant organisms, and data have not supported any reduced risk of IE as a result of prophylactic antibiotic use prior to dental procedures.

The new guidelines emphasize that antibiotic use should be based on the odds of a heart patient having a severe adverse reaction if he or she developed IE, rather than lumping all heart patients together as being at increased risk for IE.

"In fact, maintaining good oral health and hygiene appears to be more protective than prophylactic antibiotics," Dr. Wilson said in a statement. Dr. Wilson had no financial disclosures related to his work on the guidelines.

Similarly, only cardiac patients who meet the above criteria need to receive antibiotics prior to respiratory tract, skin, or musculoskeletal procedures, according to the new guidelines.

Physicians might need to reassure patients with heart conditions other than the high-risk conditions specified in the guidelines that their risk for developing IE is low, and remind them that the ability of antibiotics to reduce the risk of IE is equally low, the writing group noted. ■

Regular Toothbrushing Causes Bacteremia Involving Pathogens Related to Endocarditis

BY BRUCE JANCIN
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NEW ORLEANS — Two minutes of toothbrushing commonly produces bacteremia involving a similar spectrum of infective endocarditis-causing pathogens as tooth extraction, Peter B. Lockhart, D.D.S., reported at the annual scientific session of the American College of Cardiology.

This new finding from a randomized, controlled trial suggests that brushing teeth may represent a far greater risk for infective endocarditis than the office dental procedures for which at-risk individuals are regularly prescribed prophylactic antibiotics. After all, people brush their teeth hundreds of times per year, resulting in far greater cumulative exposure to bacteremia, explained Dr. Lockhart of the Carolinas Medical Center, Charlotte, N.C.

He reported on 290 patients in need of a dental extraction, which is considered to

be the most invasive dental procedure and therefore the one most likely to produce bacteremia.

The subjects were randomized to extraction 1 hour following prophylactic amoxicillin, extraction with placebo, or 2 minutes brushing teeth using a new toothbrush. Six venous blood draws were obtained from each participant starting 1 hour before the oral surgery or hygienic brushing, with the final sample being drawn 60 minutes after the procedure's end. All bacterial isolates underwent genetic sequencing for species identification.

Bacteremia arising from toothbrushing was a common event, not entirely surprising given that brushing the teeth disrupts a much larger surface area of gingival tissue than a tooth extraction does, Dr. Lockhart noted.

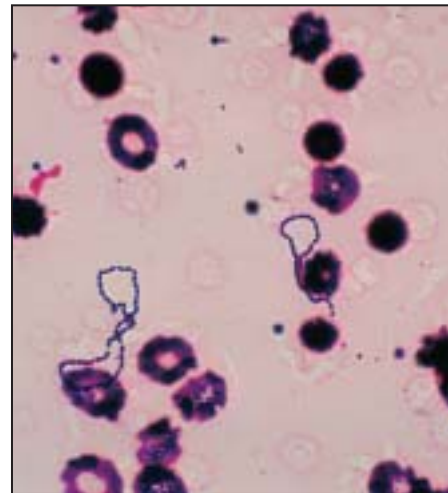
The overall incidence of bacteremia was 32% in the toothbrushing group, 56% in the extraction-plus-amoxicillin group, and 80% for extraction with placebo. Thus, amoxicillin prophylaxis was significantly more effective than placebo.

A total of 127 different bacterial species were identified, by far the most common being the viridans streptococci.

Dr. Patrick T. O'Gara commented that this study challenges traditional thinking regarding empiric antibiotic prophylaxis for dental procedures in patients at risk for infective endocarditis.

"Our thinking should change regarding the efficacy and need for antibiotic prophylaxis," he said.

"Why should prophylaxis be provided for extractions only, if the cumulative risk of toothbrushing is actually higher? It wouldn't seem feasible or appropriate that we instructed our patients to use antibiotics each time they brush their teeth," said Dr. O'Gara, director of clinical cardi-



Streptococcus viridans is responsible for half of all endocarditis cases.

ology and vice-chairman of medicine for clinical affairs at Brigham and Women's Hospital, Boston.

The study provides a mechanism that explains a phenomenon many clinicians have observed: namely, that it's far more common for patients with viridans streptococci endocarditis to not have a history of a recent trip to the dentist than to have such a history, he added.

A key implication of Dr. Lockhart's study, Dr. O'Gara continued, is the need to stress to patients who are at risk for infective endocarditis the importance of practicing meticulous dental and oral hygiene. The goal in doing so is to reduce their cumulative risk of bacteremia generated by daily home-based tooth and gum care.

Since the presentation of these results, the American Heart Association has issued revised guidelines on prophylactic antibiotics. (See story above.) Dr. Lockhart was a member of the writing committee, and Dr. O'Gara was a reviewer. ■

Venous Disease May Not Be a Result of Obesity

SAN DIEGO — Obesity does not appear to be associated with venous disease and varicose veins generally, Dr. Jean-Patrick Benigni said at the annual meeting of the American Venous Forum.

"In an obese population, evidence of an association between obesity and venous reflux is not so high," said Dr. Benigni of the unit of cardiovascular pathology at Begin Hospital, Saint-Mandé, France.

Dr. Benigni did a clinical examination and duplex ultrasound in 757 obese patients, of whom 90% were female.

The evaluation found that 22% had varicose veins, slightly less than the estimated prevalence in the general female population of 25%. The percentage with varicose veins was the same whether body mass index was above 40 mg/kg² or below 40, Dr. Benigni said.

About 5% of the subjects had lower-extremity edema. But in subjects who were CEAP (clinical, etiologic, anatomic, and pathophysiologic) classes 3 or 4, defined as the presence of edema or skin changes without ulceration, only 33% were found to have venous reflux on duplex ultrasound.

Another report also found no evidence of increased venous disease in the morbidly obese (J. Vasc. Surg. 2003;37:79-85), Dr. Benigni said.

He conjectured that venous disease is related to circulatory system problems, not directly to obesity itself.

However, Dr. Frank Padberg Jr., a professor of surgery at the New Jersey Medical School, Newark, and author of the report cited by Dr. Benigni, cautioned that "varicose veins can be hidden under the layers of adipose."

—Timothy F. Kirn

