

New Update on Infective Endocarditis Prophylaxis: Now a Class IIa Recommendation CME/CE

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Disclosures

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August 1, 2008 — The **American College of Cardiology** and **American Heart Association** (ACC/AHA) have issued a new focused update dealing with changes in the recommendations for antibiotic prophylaxis against infective endocarditis in patients with valvular heart disease [1].

The new guidelines are a departure from the 2006 recommendations; there is no longer a class I recommendation for prophylaxis against infective endocarditis, including among higher-risk patients undergoing dental procedures. According to the new 2008 valvular-heart-disease-focused update, prophylaxis is now a class IIa recommendation for high-risk patients undergoing dental procedures. The major changes made by the ACC/AHA writing committee in the updated recommendations include:

- The writing committee concluded that only a small number of infective endocarditis cases would be prevented with antibiotics for dental procedures, even if such prophylactic therapy were 100% effective.
- Prophylaxis for dental procedures is reasonable (class IIa recommendation) for patients with underlying cardiac conditions that have the highest risk of adverse outcomes from infective endocarditis, such as those with prosthetic cardiac valves, those with previous infective endocarditis, and those with congenital heart defects.
- For these patients, prophylaxis is reasonable for dental procedures that involve manipulation of gingival tissue or the periapical region of the teeth, or a perforation of oral mucosa.
- Prophylaxis is not recommended solely on the basis of lifetime risk.
- Administration of antibiotics to prevent endocarditis is not recommended for patients undergoing a genitourinary (GU) or gastrointestinal (GI) tract procedure.

The update writing committee, chaired by **Dr Rick Nishimura** (Mayo Clinic, Rochester, MN), conclude that infective endocarditis is more likely to result from bacteremia associated with daily activities than from dental, GU tract, or GI procedures. The consensus among experts now is that such antibiotic prophylaxis in susceptible individuals does not prevent endocarditis enough to justify the downside of using such large quantities of antibiotics.

"The risk of antibiotic-associated adverse effects exceeds the benefit, if any, from prophylactic antibiotic therapy," write Nishimura and colleagues. "Maintenance of optimal oral health and hygiene may reduce the incidence of bacteremia from daily activities and is more important than prophylactic antibiotics for a dental procedure to reduce the risk of infective endocarditis."

The authors note that the recommendations might contradict longstanding assumptions in practice patterns, but the update includes the analysis of new data by experts in infective endocarditis. "Because this may cause consternation among patients, clinicians should be available to discuss the rationale for these new changes with their patients, including the lack

of scientific evidence to demonstrate a proven benefit for infective endocarditis prophylaxis," conclude the ACC/AHA writing committee.

Dr. Nishimura has disclosed no relevant financial relationships. Dr. David Faxon, a member of the writing committee, has served as a consultant to Boston Scientific, Bristol-Myers Squibb, GlaxoSmithKline, and Johnson & Johnson. Dr. Pravin Shah, another committee member, has served as a consultant to Edwards Lifesciences.

Source

1. Nishimura RA, Carabello BA, Faxon DP, et al. ACC/AHA 2008 guideline update on valvular heart disease: focused updated on infective endocarditis. *J Am Coll Cardiol*. Published online before print July 28, 2008. DOI:10.1016/j.jacc.2008.05.008. Available at <http://www.theheart.org/viewDocument.do?document=http%3A%2F%2Fcontent.onlinejacc.org%2F>.

The complete contents of **Heartwire**, a professional news service of WebMD, can be found at <http://www.theheart.org/>, a Web site for cardiovascular healthcare professionals.

Clinical Context

Because infective endocarditis is associated with significant morbidity and mortality, prevention with prophylactic antibiotics before procedures expected to produce bacteremia should be considered. This is particularly true in patients with valvular and congenital heart abnormalities associated with high-velocity jets because these lesions may result in endothelial damage, platelet-fibrin deposition, and increased vulnerability to bacterial colonization.

This focused update of the ACC/AHA 2006 Guidelines for the Management of Patients With Valvular Heart Disease follows the 2007 AHA guidelines for infective endocarditis prophylaxis, with revision only of recommendations related to infective endocarditis. These changes were based on evidence from clinical trials presented at the 2005 and 2006 annual meetings of the ACC, AHA, and the European Society of Cardiology, along with selected other data published contemporaneously.

Study Highlights

- An expert writing group appointed by the AHA reviewed relevant literature regarding procedure-related bacteremia and infective endocarditis, in vitro susceptibility data of pathogens typically causing infective endocarditis, prophylactic studies of animal models of infective endocarditis, and both retrospective and prospective studies of infective endocarditis prevention.
- This review led to major changes in recommendations for prophylaxis against infective endocarditis.
- High-risk patients are defined as those who have underlying cardiac conditions associated with highest risk for adverse outcome from infective endocarditis and not necessarily those with increased lifetime risk for infective endocarditis.
- High-risk patients are those with
 - Prosthetic cardiac valves or prosthetic material used for cardiac valve repair
 - Previous infective endocarditis
 - Congenital heart disease (CHD); unrepaired cyanotic CHD, including palliative shunts and conduits
 - Completely repaired congenital heart defect repaired with prosthetic material or device, whether placed by surgery or by catheter intervention, during first 6 postoperative months
 - Repaired CHD with residual defects at the site or adjacent to the site of a prosthetic patch or prosthetic device (because these inhibit endothelialization)

- Valve regurgitation caused by a structurally abnormal valve in cardiac transplant recipients
- For prevention of infective endocarditis, antibiotic prophylaxis is no longer indicated in patients with aortic stenosis, mitral stenosis, or mitral valve prolapse.
- Antibiotic prophylaxis is no longer recommended in adolescents and young adults with native heart valve disease.
- Prophylaxis for infective endocarditis should not be given in patients with innocent murmurs or in patients with abnormal echocardiographic findings without audible murmur.
- Even if antibiotic prophylaxis were 100% effective, only an extremely small number of cases of infective endocarditis would be prevented by prophylactic therapy for dental procedures.
- Prophylaxis should be given only to a high-risk group of patients before dental procedures that require manipulation of either gingival tissue or the periapical region of the teeth or perforation of oral mucosa.
- Endocarditis prophylaxis for dental procedures is not recommended for routine anesthetic injections through noninfected tissue; dental radiographs; prosthodontic or orthodontic appliance placement, removal, or adjustment; shedding of deciduous teeth; or bleeding from trauma to the lips or oral mucosa.
- To reduce the risk for infective endocarditis, maintaining optimal oral health and hygiene may reduce the incidence of bacteremia from daily activities and is more important than prophylactic antibiotics for a dental procedure.
- Procedures that involve the respiratory tract no longer require prophylaxis, except for high-risk patients undergoing incision of the respiratory tract mucosa (eg, tonsillectomy and adenoidectomy).
- GI or GU procedures, including transesophageal echocardiogram, diagnostic esophagogastroduodenoscopy, or colonoscopy, no longer require prophylaxis, except for high-risk patients with infections of the GI or GU tract, in whom it is reasonable to give antibiotics to prevent wound infection or sepsis.
- In individuals who undergo a dental, GI tract, or GU procedure, except for those situations indicated before in which prophylaxis is still recommended, prophylaxis may prevent an exceedingly small number of cases of infective endocarditis, if any, and risk for antibiotic-associated adverse effects exceeds any benefit from prophylactic antibiotic therapy.

Pearls for Practice

- High-risk patients are defined as those who have underlying cardiac conditions associated with the highest risk for adverse outcome from infective endocarditis and not necessarily those with an increased lifetime risk for infective endocarditis. Antibiotic prophylaxis is no longer indicated in patients with aortic stenosis, mitral stenosis, mitral valve prolapse, and in adolescents and young adults with native heart valve disease.
- Prophylaxis should be given only to a high-risk group of patients before dental procedures that require manipulation of either gingival tissue or the periapical region of the teeth or perforation of oral mucosa.