Update : Infective Endocarditis Prophylaxis: Reckoning With the Evidence

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Update: Infective Endocarditis Prophylaxis: Reckoning With the Evidence

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Author Disclosure
Dr Silberbach disclosed no financial relationships relevant to this article. This commentary does not contain a discussion of an unapproved/investigative use of a commerical product/device.

Introduction

In an effort to offer clinicians reasonable guidelines for the prevention of infective endocarditis (IE), the American Heart Association (AHA) has published a landmark revision of its widely followed statement on prophylaxis. (1) This tenth version since 1955 considerably decreases the number of conditions for which antimicrobial prophylaxis should be administered prior to bacteremia-producing procedures. The guidelines continue to endorse the rationale for prophylaxis: It is better to prevent IE than to treat established cardiovascular infection; specific cardiac diseases are at greater risk for IE; certain dental, gastrointestinal (GI), and genitourinary (GU) procedures typically cause bacteremia that could lead to IE; and at least in animal models, there is evidence that antibiotics can prevent IE. However, in a major departure from the previous guidelines, it is recognized that no direct evidence in humans indicates that antibiotic prophylaxis is effective. Accordingly, the new guidelines stress the value of excellent oral health and simultaneously de-emphasize the necessity for preprocedure antibiotics.

The Rationale

Potentially IE-causing bacteremia occurs daily during food chewing, tooth brushing, and tooth flossing, yet IE rarely occurs despite the lack of antibiotic treatment. One study estimated that twice-daily tooth brushing over 1 year causes a 154,000-fold greater risk for bacteremia than a single tooth extraction. (2) Furthermore, IE is known to occur regardless of prophylaxis. (3) Therefore, it is believed that preprocedure antibiotics actually prevent few cases of IE. The risks associated with the administration of antibiotics themselves, such as microbial resistance to frequently used antibiotics, probably are greater than the potential but unproven benefit of antibiotics used to prevent IE.

Who Should Receive Prophylaxis?

The new guidelines recommend antibiotic prophylaxis for individuals who have cardiac conditions that pose the "highest risk of having an adverse outcome" from IE (Table). It is important to note that common cardiac conditions are excluded that have a high cumulative lifetime risk of IE, such as mitral valve prolapse or bicuspid aortic valve, but are not at the "highest risk" for a poor outcome from IE. This guideline represents a fundamental reversal of the AHA's previously held position. Clinicians making decisions about treatment in specific cases should remember that associated noncardiovascular conditions such as patients needing dialysis, immunocompromised individuals, or older age (geriatric individuals) predict a worse outcome from IE. These patients should have appropriate management of their underlying comorbidities.

For Those at High Risk, What Procedures Require Prophylaxis?

The AHA statement clarifies the procedures for which prophylaxis is indicated. As before, it is reasonable to provide prophylaxis for any dental procedure that involves "extensive manipulation of gingiva" or when "perforation of the oral mucosa" is likely. It is reasonable to provide antibiotics before procedures involving the "respiratory tract, infected skin, or musculoskeletal tissue." Unlike previous AHA guidelines, GU or GI tract procedures do not require preprocedure antibiotics. Finally, the list of procedures not requiring prophylaxis is extended to include vaginal delivery, hysterectomy, and tattooing. The committee discourages body piercing because it may be associated with bacteremia, while acknowledging that no data on the subject are available.

*Editorial Board.

Table. Cardiac Conditions Associated With the Highest Risk of Adverse Outcome From Endocarditis for Which Prophylaxis With Dental Procedures Is Reasonable

- Prosthetic cardiac valve 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 with prosthetic material or device, whether placed by surgery or by catheter intervention, during the first 6 mo after the procedure†
  - Repaired CHD with residual defects at the site or adjacent to the site of a prosthetic patch or prosthetic device (which inhibit endothelialization)
- Cardiac transplantation recipients who develop cardiac valvulopathy

*Except for the conditions listed, antibiotic prophylaxis no longer is recommended for any other form of CHD.
†Prophylaxis is reasonable because endothelialization of prosthetic material occurs within 6 mo after the procedure.

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