Endocarditis Prophylaxis

Prevention of Endocarditis

The guidelines for the prevention of infective endocarditis (IE) issued by the American Heart Association underwent a major revision in 2007, with minor updates in 2017. Key changes include the following:

- Dental procedures have been found to be associated with a very small number of cases of IE. Prophylaxis, even if 100% effective, would thus prevent only an extremely small number of cases.
- The emphasis has shifted from use of antibiotic prophylaxis to good oral hygiene and increased access to dental care.
- Prophylactic antibiotics based on a patient's lifetime risk for acquiring IE are no longer recommended. Instead, prophylaxis focuses on patients with the highest risk for adverse outcomes from endocarditis.

Candidates for Prophylaxis

Only those patients with conditions associated with the highest risk for adverse outcomes from IE should receive prophylaxis. These high-risk conditions include:

- Prosthetic cardiac valves, including transcatheter-implanted prostheses and homografts
- Prosthetic material used for cardiac valve repair, such as annuloplasty rings and cords
- Previous infective endocarditis
- Congenital heart disease (CHD) only for the following specific conditions:
    - Unrepaired cyanotic CHD, including palliative shunts and conduits
    - Completely repaired congenital heart defect with prosthetic material or a prosthetic device (placed either during surgery or by catheter intervention) during the first 6 months post-procedure
    - CHD repair with residual defects at the site or adjacent to the site of a prosthetic patch or prosthetic device
- Cardiac transplant with valve regurgitation due to structurally abnormal valve

Dental Procedures

Prophylaxis is directed against viridans-group streptococci.

- Procedures for which dental prophylaxis should be given to appropriate candidates include any procedures that involve manipulation of gingival tissue or the periapical region of the teeth or perforation of the oral mucosa.
- Procedures that do not require prophylaxis include routine anesthetic injections through non-infected tissues, dental radiographs, placement of removable prosthodontic or orthodontic appliances, adjustment of orthodontic appliances, and placement of orthodontic brackets. Prophylaxis is also not necessary after the shedding of deciduous teeth or for bleeding from trauma to the lips or oral mucosa.

Prophylactic Regimens Prior to Dental Procedures

Situation	Agent*	Adults	Children
Oral regimen	Amoxicillin	2 gm	50 mg/kg
Unable to take oral medication	Ampicillin **or** Cefazolin **or** Ceftriaxone	2 gm IM or IV 1 gm IM or IV	50 mg/kg IM or IV 50 mg/kg IM or IV
Allergy to PCNs (oral regimen)	Cephalexin **or** Clindamycin **or** Azithromycin **or** Clarithromycin	2 gm 600 mg 500 mg	50 mg/kg 20 mg/kg 15mg/kg
Allergy to PCNs (unable to take oral regimen)	Cefazolin **or** Ceftriaxone **or** Clindamycin	1 gm IM or IV 600 mg IM or IV	50 mg/kg IM or IV 20 mg/kg IM or IV

*Single dose 30-60 minutes prior to procedure. If the dose is missed, it may be administered up to 2 hours after the procedure. Cephalosporins should not be used in an individual with a history of anaphylaxis, angioedema, or urticarial with Penicillins or Ampicillin. If a patient is already on long-term antibiotic therapy, an antibiotic from a different class should be used for IE prophylaxis (due to possible resistance).

Respiratory Procedures

For candidates for prophylaxis as listed above.

- It may be reasonable to give one of the above prophylactic regimens recommended for dental procedures before an invasive procedure (e.g., tonsillectomy) involving the respiratory tract that necessitates incision or biopsy of the respiratory mucosa.
- Prophylaxis is not recommended for bronchoscopy unless the procedure involves incision of the respiratory tract mucosa.

Gastrointestinal or Genitourinary Procedures

For candidates for prophylaxis as listed above.

- Prophylaxis solely to prevent IE is no longer recommended.
- For patients scheduled for an elective urinary tract manipulation who also have an enterococcal urinary tract infection or colonization, it may be reasonable to administer antibiotic therapy to eradicate enteroccci from the urine before the procedure.
- If the urinary tract procedure is not elective, it may be reasonable to administer an antimicrobial regimen to the patient that contains an agent active against enterococci.
- Amoxillin or Ampicillin is the preferred agent for enterococcal coverage; Vancomycin may be administered to patients unable to tolerate ampicillin.

Procedures Involving Infected Skin or Soft Tissue

For candidates for prophylaxis as listed above.

- It is reasonable that the regimen administered for treatment of the infection contain an agent active against staphylococci and beta-hemolytic streptococci.
- An anti-staphylococcal penicillin or cephalosporin is preferable; Vancomyin or clindamycin may be administered to patients unable to tolerate a beta-lactam or who are known or suspected to have an infection cause by MRSA.

REFERENCES

1. Wilson et al. Prevention of infective endocarditis: guidelines from the American Heart Association. *Circulation* 2007; 116:1736-1754.
2. Nishimura et al. 2017 AHA/ACC focused update of the 2014 AHA/ACC guidelines for the management of patients with valvular heart disease. *JACC* 2017; 70:252-289.