Endocarditis, including Prophylaxis

ACOI Board Review 2016
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Persistant bacteremia w/ organisms that tend to be associated w/ endovascular infections e.g. S. aureus, Strep. viridans, HACEK group

“At-risk” underlying heart disease, including IVDA

Note: TTEs and TEEs not always necessary for diagnosis or treatment of this disease
HACEK Group

- *Haemophilus* spp. (not *H. influenzae*)
- *Actinobacillus* spp. (renamed *Aggregatibacter* spp.)
- *Cardiobacterium* spp.
- *Eikenella* spp.
- *Kingella* spp.
Modified Duke Criteria for Endocarditis*

- **Major clinical criteria:**
  - Persistently + blood culture for “typical” organisms
  - + echocardiogram demonstrating valvular or endocardial involvement, including partial dehiscence of prosthetic valve, myocardial abscess
  - Evidence of endocardial damage e.g., new valvular regurgitation
  - Serological or + culture - Coxiella burnetti

*these criteria may not apply to IVDA’s*
Modified Duke Criteria for Endocarditis*

• Minor clinical criteria:
  • Predisposing condition (valvular heart dx, IVDA)
  • Fever
  • Vascular phenomena (embolic events)
  • Immunologic phenomena (Roth’s spots, glomerulonephritis, Osler nodes)
  • + blood cultures not meeting strict major criteria

Li et al. CID 2000;30:633
Modified Duke Criteria for Endocarditis

- **Definite Endocarditis:**
  - + histology
  - + Gram stain or cultures from surgery or at autopsy
  - Two major clinical criteria
  - One major + 3 minor criteria
  - Five minor criteria

- **Possible Endocarditis**
  - One major + one or two minor clinical criteria
  - Three minor clinical criteria
“Soft” signs / “peripheral stigmata” of I. E.

- Unexplained fever, weight loss, anemia of chronic disease, elevated ESR
- Roth’s spots
- Conjunctival, mucosal hemorrhages
- Splinter hemorrhages
- Osler nodes (tender; immune complexes; pads of fingers and toes)
- Janeway lesions (non-tender; embolic; culture positive; palms and soles)
- Microscopic hematuria
- Splenomegaly
Roths Spots

• Multifocal “pneumonia” in an IVDA w/ positive blood cultures (usually S. aureus) is “right-sided” endocarditis

• Strep. bovis/gallolyticus bacteremia/endocarditis is highly associated w/ GI malignancy

• A + blood culture for any of the “HACEK group of organisms is endocarditis until proven otherwise

• Most agreed upon indication for early surgery: CHF / left-sided, native-valve dysfunction, [large vegetations, invasive dx beyond cusps/leaflets? (NEJM June 28, 2012) ]

• Most common organism (acute dx) : S. aureus; Reason: Medical care

“Pearls”
Culture Negative Endocarditis

- Prior antibiotics
- Slow growing, fastidious organisms
  - NVS (nutritionally variant streptococci), now reclassified as 4 species of Abiotrophia
  - HACEK grp
  - Brucella, Coxiella (Q fever) spp., fungal (Aspergillus spp.)
Prophylaxis

Circulation. May 8, 2007
Conditions for which Prophylaxis w/ Dental Procedures Recommended

- Prosthetic valve (or prosthetic material used in valve repair)
- Prior endocarditis
- Congenital heart dx
  - Unrepaired cyanotic CHD
  - Completely repaired congenital heart defect w/ prosthetic material or device - for 6 mo following procedure
  - Repaired CHD w/residual defects at, or adjacent to, site of prosthetic patch
- Cardiac transplant recipients w/ valvulopathy
- **NOT** MVP
Procedures for which Prophylaxis Recommended

- All dental procedures that involve manipulation of gingival tissue or the periapical region of teeth, or perforation of the oral mucosa (Routine anesthetic injections through non-infected tissue do not require prophylaxis)

- Invasive procedures of the respiratory tract that involve incision or biopsy (T&A), including incision via bronchoscopy, or to treat an established infection (drainage of abscess/empyema)
Prophylaxis for Dental and Respiratory Tract Procedures (target is the “viridans” strep)

• Amoxicillin 2 gms p.o. w/in 1 hr prior to procedure
  • If unable to take p.o.:
    • ampicillin 2gm (IM or IV)
    • or…..cefazolin 1 gm (IM or IV)
    • or…..ceftriaxone 1 gm (IM or IV)
  • If allergy:
    • cephalexin 2 gms p.o. (unless anaphylaxis to PCN)
    • azithromycin/clarithromycin 500 mgs p.o.
    • or…..clindamycin 600mg p.o. (IM or IV)
    • or…..cefazolin/ceftriaxone IM or IV