

45. Endocarditis

Symptoms:

1. Most common symptom is fever
2. Cardiac murmur occurs in >70% of patients
3. Peripheral symptoms are uncommon at presentation
 - a. Osler Nodes (small, tender, red, lymph nodes usually on pads or fingers)
 - b. Janeway Lesions (red lesion on palm or sole, nontender)
 - c. Splinter Hemorrhages (nail beds)
 - d. Roth Spots (retinal seeding)
 - e. Palpable purpura (immune complexes)

Duke Criteria for Endocarditis (Zimmerli W. 1998. JAMA.)

Two Major criteria, or One Major and Three Minor criteria, or Five Minor criteria

Major Criteria

- a. Positive blood culture for infective endocarditis
- b. Evidence for endocardial involvement as seen on echocardiogram or at surgery'autopsy
- c. New valvular regurgitation (assess by echocardiography, NOT only by clinical exam)

Minor Criteria

- a. Predisposing heart condition OR intravenous drug abuse
- b. Fever: temperature >100.3°F (>37.9°C)
- c. Vascular phenomena: septic emboli, arterial embolic disease, infarctions, others
- d. Immunologic phenomena: glomerulonephritis, rheumatoid factor, others
- e. Microbiologic evidence (not meeting major criteria) or serological evidence for infection
- f. Echocardiogram consistent with endocarditis but not meeting major criteria

Etiology:

1. Non Drug Abuse Host (usually due to abnormal valve anatomy)
 - a. Streptococcus viridans 35%, bovis 15%, faecalis 10% (enterococcus)
 - b. Staphylococcus aureus 25%
 - c. Staphylococcus epidermidis 5% (same rate as in IVDA)
 - d. Fungi 5%
 - e. HACEK Mnemonic (Haemophilus parainfluenza, H. paraphrophilus, H. aphrophilus, Actinobacillus actinomycetemcomitans Cardiobacterium hominis .Eikenella corrodens)
 - f. Culture negative ~8%
2. Intravenous Drug Abusers (Tricuspid valve >95%)
 - a. S. aureus 82% (methicillin sensitive predominant, though this depends on area)
 - b. Streptococci: viridans, enterococci, β-hemolytic
 - c. Gram negative rods, including Pseudomonas
 - d. Candida
 - e. Noninfectious causes are found in autoimmune diseases (lupus-Libman Sacks) and serotonin syndromes

Treatment:

1. Awaiting cultures Gentamicin 1.7 mg/Kg q8h & Nafcillin or Vancomycin
2. Surgical Indications: a. Fungal, b. Valve decompensation or Prosthetic valves, c. Heart failure
d. Conduction system e. Persistent bacteremia /Embolization

Antibiotics Prophylaxis:

1. Situations above the Diaphragm (Dental, Oral, Esophageal, Respiratory)
 - a. Amoxicillin 2gm po 1 hour before procedure
 - b. Pencillin Allergy: clindamycin 600 mg po, cephalexin, cephadroxil, clindamycin or azithromycin
 - c. An aminoglycoside can be added in high risk patients
2. Situations below the Diaphragm (Genitourinary, Gastrointestinal except Esophagus)
 - a. High Risk: ampicillin (2gm iv) + gentamicin (1.5mg/kg) <30 minutes pre-procedure
 - b. High Risk with Pencillin Allergy: vancomycin 1.0gm + gentamicin
 - c. Moderate Risk: ampicillin or vancomycin as above (usually without aminoglycoside)
3. Negligible risk:
 1. Ostium secundum ASD
 2. Surgically repaired ASD, VSD and PDA (beyond 6 months)
 3. Mitral valve prolapse without regurgitation or thickened leaflets
 4. Cardiac pacemakers and defibrillators.
 5. Bypass surgery, history of Kawasaki disease without valvular dysfunction