        - Native valve endocarditis
            - **Vancomycin**: 15-20 mg/kg IV q12h (max: 2 g/dose)
            - **Gentamicin**: 1 mg/kg/dose IV q8h
        - Prosthetic valve endocarditis
            - **Vancomycin**: 15-20 mg/kg IV q12h (max: 2 g/dose)
            - **Gentamicin**: 1 mg/kg/dose IV q8h
            - **Rifampin**: 300 mg IV or PO q8h
    - If there is concern for gram negative endocarditis (uncommon) ceftriaxone can be added.
- Most patients will not be ill-appearing or septic.
    - Can either start vancomycin after cultures are obtained or consult infectious diseases regarding when it is appropriate to start antibiotics.
- Consult cardiology and cardiothoracic surgery.
    - About 25% of patients will require surgery.

Related content
CorePendium chapter- Endocarditis:
https://www.emrap.org/corependium/chapter/recs5Nu9Ir0EmDVG0/Endocarditis

Drugs in Atrial Fibrillation with RVR

Gita Pensa and Bryan Hayes

- Rate control is as equally safe and effective as rhythm control in the immediate treatment of atrial fibrillation with rapid ventricular response (RVR).
- The first line drug of choice for management of atrial fibrillation with rapid ventricular rate is typically a calcium channel blocker (CCB) or beta-blocker (BB).
    - Either of these drugs are an acceptable choice.
    - In the ED, most physicians have tended to utilize calcium channel blocker as the first-line option
    - If the patient is on one of these drug classes at home, consider using the same class of drug.
    - The manufacturer insert for diltiazem recommends that the first dose should be 0.25 mg/kg; however, there is literature to suggest that a starting dose of 10mg is just as effective as weight-based dosing.
    - Once the desired effect (rate control) is obtained after a bolus dose, clinicians should give an oral dose of the same medication.

- If the patient's blood pressure is low, the following options should be considered:
  - An IV dose of calcium can help offset the effect of the drug on blood pressure.
    - 2g of IV calcium gluconate is a recommended dose to be given prior to the administration of the calcium channel blocker.
  - IV magnesium
    - Give 2g-4g IV, not as a rapid push.
    - The Mag "HiLo" study was discussed (reference below).
  - A short acting titratable agent like esmolol
- Digoxin is listed in the guidelines as a second line agent along with amiodarone.
  - Be mindful to adjust dosing in renal failure if necessary and consider the potential for drug-drug interactions.

Related content
CorePendium chapter- Atrial Fibrillation:
https://www.emrap.org/corependium/chapter/recdIAvPWi4VYLwc2/Atrial-Fibrillation

References:
EMA September 2020- https://www.emrap.org/episode/ema2020/abstract9

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CCB vs. BB: https://www.aliem.com/atrial-fibrillation-rate-control-calcium-channel-blockers-or-beta-blockers/

Calcium to reduce risk of hypotension: https://www.aliem.com/calcium-before-diltiazem-may-reduce-hypotension/

Magnesium: https://www.aliem.com/magnesium-for-rapid-atrial-fibrillation-rate-control/

Dilt dosing: https://pharmertoxguy.com/2019/06/21/iv-diltiazem-dosing-in-atrial-fibrillation/

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Demircan C et al. Comparison of the effectiveness of intravenous diltiazem and metoprolol in the management of rapid ventricular rate in atrial fibrillation. Emerg Med J 2005;22:411–4. PMID: 15911947