

ENDOCARDITIS - TREATMENT

Always consult a Microbiologist if endocarditis is suspected.

- Alpha-haemolytic streptococci are the most common causes of **native valve** endocarditis.
- *S. aureus* is more likely if the disease is rapidly progressive with high fever.
- *S. aureus*, and *S. epidermidis* are common on **prosthetic valves**.
- **Three separate sets of blood cultures** should be taken **before** starting treatment.

EMPIRICAL TREATMENT

Native valve	Benzylpenicillin 1.2g IV 4 hourly plus Gentamicin 80mg IV 8 hourly (low dose for synergy) in divided doses, NOT as a single daily dose
Known IV drug abusers	Flucloxacillin 2g IV 4 - 6 hourly plus Gentamicin 80mg IV 8 hourly (low dose for synergy) in divided doses, NOT as a single daily dose
Penicillin allergy OR If patient has prosthetic valve	Teicoplanin 400mg IV 12 hourly for 3 doses, then 400mg IV daily plus Gentamicin 80mg IV 8 hourly (low dose for synergy) in divided doses, NOT as a single daily dose

- At any stage, treatment may have to be modified according to detailed antibiotic sensitivity tests, adverse reactions, allergy or failing to respond.
- Endocarditis leading to significant cardiac failure or failure to respond to antibiotics may well require cardiac surgery.

Gentamicin assays (see Gentamicin dosing guidelines)

- It is essential to assay serum gentamicin levels every 1 – 2 days to maintain adequate trough levels and avoid potentially toxic concentrations.
- For streptococcal endocarditis a trough ≤ 1 mg/L and peak levels (1 hours post dose) of 3 – 5 mg/L is sufficient.
- For all other causes, the trough should be ≤ 2 mg/L and peak 4 – 8 mg/L.

TREATMENT OF BACTERIAL SPECIES ISOLATED	
<i>Streptococcus</i> endocarditis – penicillin sensitive (MIC < 1 mg/L)	Benzylpenicillin 1.2 g IV 4 hourly plus Gentamicin dose reduced to 80 mg IV 12 hourly (or dependent on renal function) for maximum of 2 weeks. If patient responds well after two weeks, it is possible to change to an oral regimen for another 2 to 4 weeks. Discuss with Microbiology.
<i>Enterococcal</i> endocarditis	Benzylpenicillin 1.2 g IV 6 hourly or Amoxicillin 500 mg to 1 g IV 8 hourly for 4 weeks plus Gentamicin 80 mg IV 8 hourly for the first 2 weeks
<i>S. aureus</i> endocarditis	Flucloxacillin 2 g IV 4 – 6 hourly for 4 to 6 weeks plus Gentamicin 80 mg IV 8 hourly for the first 5 –14 days. Sodium fusidate can be substituted for gentamicin if patient improving. Discuss with Microbiology.
<i>Coagulase negative staphylococcus</i> endocarditis	Teicoplanin 400 mg (6 mg/kg) IV 12 hourly for 3 doses then 400 mg daily for 6 weeks plus Gentamicin 80 mg IV 8 hourly for first 2 weeks
If no organism isolated	Benzylpenicillin 1.2 g IV 6 hourly or Teicoplanin 400 mg (6 mg/kg) IV 12 hourly for 3 doses then 400 mg daily for 6 weeks plus Gentamicin 80 mg IV 8 hourly for first 2 weeks
<i>Streptococcus</i> endocarditis – penicillin sensitive (MIC < 1 mg/L)	Benzylpenicillin 1.2 g IV 4 hourly plus Gentamicin dose reduced to 80 mg IV 12 hourly (or dependent on renal function) for maximum of 2 weeks. If patient responds well after two weeks, it is possible to change to an oral regimen for another 2 to 4 weeks. Discuss with Microbiology.
<i>Enterococcal</i> endocarditis	Benzylpenicillin 1.2 g IV 6 hourly or Amoxicillin 500 mg to 1 g IV 8 hourly for 4 weeks plus Gentamicin 80 mg IV 8 hourly for the first 2 weeks
<ul style="list-style-type: none"> • Teicoplanin plasma levels can be measured if renal function is poor, if the patient is a drug abuser or if there is failure of response. Assay will confirm therapeutic concentrations are present but are not required for avoidance of toxicity. Contact Microbiology if levels are contemplated. • Rifampicin 600 mg PO 12 hourly may be recommended instead of Gentamicin according to <i>in vitro</i> sensitivity pattern or clinical response. 	