**Vancomycin**

**Antibiotic Class:**
Glycopeptide

**Antimicrobial Spectrum:**
*Staphylococcus aureus* (vancomycin susceptible), Coagulase negative Staphylococci, *Streptococcus pneumoniae, Streptococcus spp., Enterococcus spp.* (Vancomycin-susceptible), *C. jeikeium, Clostridium spp., L. monocytogenes, Actinomyces*

**Mechanism of Action:**
Vancomycin inhibits transpeptidation by binding to D-alanyl-D-alanine residues of the bacterial cell wall.

**Pharmacodynamics**
Vancomycin commonly thought of as a time-dependant killer (T>MIC), however additional data suggests may also follow AUC:MIC

**Pharmacokinetics:**
- Cmax: 18-26mg/L (after 15mg/kg dose)
- Half-life: 3-11 hours
- Volume of distribution: 0.3L/kg

**Adverse Reactions:**
Infusion related: Red man’s syndrome, pruritus, (histamine release)
Kidneys: Nephrotoxicity
Hematologic: Neutropenia
Other: Drug fever

**Dosage:**
- IV: 1g, 2g, 5g, 10g, 500mg
- PO: 125mg, 250mg capsules

Dosing in adults:
- Endocarditis: 30mg/kg/day divided q12h x 4-6 weeks; add gentimicin initial 3-5 days for synergy against Staphylococcus and 4-6 weeks for synergy against Enterococcus
- Pseudomembranous enterocolitis: 500mg-2g PO divided daily q6-8h x 7-10 days
- Bacterial infection by susceptible strains: 2 grams/day divided IV q6-12h

Dosing in pediatrics:
- Bacterial infection by susceptible strains: 10-15 mg/kg IV every 6-8h
- Meningitis: 60 mg/kg/day divided IV q6h
**Disease state based dosing:**
Renal failure: CrCl > 50mL/min: Standard dosing  
CrCl 10-50mL/min: dose q24-48h  
CrCl < 10 mL/min: dose q48-96h  
Hepatic failure: No dosing changes recommended at this time.

**Dosing during Continuous Renal Replacement Therapy**
CVVH (Continuous venovenous hemofiltration): 1g IV q48h  
CVVHDF (Continuous venovenous hemodiafiltration): 1g IV q24h

Note: CVVH is mainly for fluid removal alone. Many institutions will employ more CVVHD or CVVHDF which combine dialysis with fluid removal.

Note: Recommended loading dose is 15-20mg/kg

**Contraindications/Warnings/Precautions:**
Precautions: Renal impairment

**Drug Interactions:**
Warfarin: Increased risk of bleeding

**Pregnancy Risk Factor:**
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**Monitoring parameters:**
Therapeutic: Culture and sensitivities, serum levels, signs and symptoms of infection, white blood cell count  
Toxic: Serum trough concentrations typically between 5-15mg/L (Higher for severe infections i.e. MRSA pneumonia – 15-20mg/L) Urinalysis, BUN, SCr, skin rash, Neutropenia

**Brand names/Manufacturer:**
Vancomycin (Various generic manufacturers worldwide)  
Biovancomin - Biosintetica, Brazil  
Copovan - Biologici Italia  
Diatracin - Dista, Spain  
Edicin – Lek, Hungary Thailand, and Czech Republic  
Estavam - Precimex, Mexico  
Farmaciclin Uno, Italy  
Ifavic Andromaco, Mexico  
Levovanox Levofarma, Italy  
Lyphocin APP, Hong Kong  
Maxivanil Max Farma, Italy  
Orivan, Orion, Finland  
Vagran - Dollder, Venezuela  
Vamistol Demo, Greece  
Vanaurus Pisa, Mexico  
Vancam Abbott, Mexico
Vanclomin Teuto, Brazil
Vancoabbott Abbott, Brazil
Vancoehr Behrens, Venez.
Vancocid Biochimico, Brazil