**Cycloserine**

**Antibiotic Class:**
Analog of D-alanine

**Antimicrobial Spectrum:**
Broad spectrum, *Staphylococcus aureus* and some gram-negative bacilli, such as *Escherichia coli*, although no longer used for these pathogens. Primary use is against *M. tuberculosis*.

**Mechanism of Action:**
Cycloserine disrupts D-alanine incorporation into peptidoglycan during bacterial cell wall synthesis.

**Pharmacodynamics:**
Cycloserine is generally bacteriostatic, and based on its mechanism of action being 2 steps upstream from penicillin’s, cycloserine likely is time-dependent.

**Pharmacokinetics:**
Cmax: 20-35 mg/L; Tmax: 1-2 hours; Bioavailability: not known, but likely is high; Protein binding: not known, but likely is very low

**Adverse Effects:**
Central nervous system disturbances, including lethargy, difficulty concentrating, and altered behavior

**Dosage:**
PO: 250 mg capsules
Usual dose: 250-500 mg once or twice daily, rarely exceeding 1000 mg

Disease state based dosing:
Hepatic failures: No specific recommendations
Renal failures: Adjustment required. Depending upon the degree of impairment, usual doses given once daily or every other day should initially be employed.

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

**Drug Interactions:**
No known interactions based on clearance. May exacerbate other agents that have CNS effects.

**Pregnancy:**
Category C: Risk unknown. Human studies inadequate

**Monitoring Requirements:**
Toxic: baseline serum creatinine

**Brand names/Manufacturer:** Seromycin (Lilly/Dura)