Antimonials (Meglimine antimoniate, Sodium stibogluconate)

Class:
Organometallic pentavalent antimonials (SbV; Figure 1).

Antiparasitic Activity:
Pentavalent antimonials are effective \textit{in vitro} against all \textit{Leishmania} species.

Mechanism of Action:
Pentavalent antimonials bind to polypeptides, inhibit DNA topoisomerase glycolytic enzymes and fatty acid beta-oxidation. Electron microscopy studies show antimonial-induced changes in parasite cell membranes.

Mechanism of Resistance:
The mechanism of resistance to the antimonials is unknown

Pharmacokinetics:
Sodium stibogluconate and meglumine antimoniate are not absorbed orally. In humans, an injection of 10 mg/kg i.m. achieves peak levels of ~10 mg/L 2 hours after injection. Most of the antimony is eliminated rapidly, mainly via the urine.

Dosage:
The recommended daily dose is 20 mg/kg/day but resistance may warrant higher doses which may lead to toxicity. This regime may be insufficient for children.

Pregnancy:
Data on the safety of pentavalent antimonials in pregnancy are confined to case reports, which indicate antimonials to be safe.

Adverse Effects:
Serious antimonial toxicity is usually reversible and includes elevation of serum amylase and liver enzymes, arthralgia and myalgia, thrombocytopenia, leukopenia, anorexia and thrombophlebitis. Patients may complain of lethargy, headache, nausea, vomiting, metallic taste, or pruritus.

Drug Interactions:
No interactions are known, but drugs which may impair renal function or prolong the QT interval should be used with caution.

Brand names/Manufacturer:
Sodium stibogluconate: Pentostam™ (Glaxo SmithKline).
Meglumine antimoniate: Glucantime™.