JULY 2008
QUESTION 05

# Outline the pharmacology of amiodarone

Amiodarone
- benzofuran derivative which contains 37% iodine by weight
- although usually considered a class III antiarrhythmic is displays actions of all four classes
- commonly used in a critical care setting for treating many arrythmias

Pharmaceutical
- structurally resembles thyroxine
- available as tablets
- clear colourless solution for IV infusion

Pharmacodynamics
- Mechanism
  - blocks potassium channels, calcium channels, sodium channels and adrenoceptors
- Effects
  - prolongs the refractoriness of all cardiac myocytes
  - prolongs conduction through the AV node
  - prolongs the action potential duration QT interval
- Side effects
  - major side effects that worsen over time and affect most patients
  - Respiratory - it may cause pneumonitis, fibrosis or pleuritis.
  - Endocrine - it may cause hypothyroidism (6%) or hyperthroidism (1%).
  - Hepatic - it is associated with cirrhosis, hepatitis and jaundice. LFT monitoring is recommended.
  - Ophthalmic - corneal microdeposits occur commonly but usually resolve of cessation.
  - Cardiac - it is not particularly arrhythmogenic despite QT prolongation (likely because of it multiple actions) but can cause bradycardia and hypotension

Pharmacokinetics
- Absorption
  - poorly absorbed, bioavailability 40-70%
- Distribution
  - very large volume of distribution (66L/kg)
  - highly protein bound (96%)
- Metabolism
  - complex metabolism, hepatic via de-ethylation catalysed by CYP 2C8
  - active metabolite
- Excretion
  - very long half life (weeks)
  - via skin, faeces, urine and lachrymal glands

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