ATROPINE

Dr LM Pinto Pereiro, The University of the West Indies

Atropine a naturally occurring alkaloid of "*atropa belladonna*", is a competitive antagonist of muscarinic cholinergic receptors. It is absorbed from the gastro-intestinal tract, and is excreted in the urine. Atropine undergoes hepatic metabolism and has a plasma half-life of 2 - 3 hours. Atropine ampoules should be stored away from light and never be frozen.

Uses: When used as premedication for anaesthesia, atropine decreases bronchial and salivary secretions, blocks the bradycardia associated with some drugs used in anaesthesia such as halothane, suxamethonium and neostigmine, and also helps prevent bradycardia from excessive vagal stimulation.

Dose and Administration: Around 500 - 600mcg are used as a premedication in adults administered intramuscularly 30 - 60 minutes before surgery. Alternatively it may be given intravenously at induction of anaesthesia. Children should receive 20mcg/kg.

When used to treat bradycardias 250 - 500mcg is generally effective in adults whilst children should receive 10-20mcg/kg.

During reversal of neuromuscular blockade in adults 1 - 1.2mg of atropine is given mixed with 2.5 - 5mg neostigmine.

Main effects: There is usually an increase in heart rate and sometimes a tachycardia as well as inhibition of secretions (causing a dry mouth) and relaxation of smooth muscle in the gut, urinary tract and biliary tree. Since atropine crosses the blood brain barrier CNS effects in the elderly may include amnesia, confusion and excitation. Pupillary dilatation and paralysis of accommodation occur, with an increase in intraocular pressure especially in patients with glaucoma. Occasionally small intravenous doses may be accompanied by slowing of the heart rate due to a central effect - this resolves with an extra increment of intravenous atropine.

Cautions: Avoid large doses of atropine in the elderly. Glycopyrrolate, which does not cross the blood brain barrier, is not associated with CNS excitability but is more expensive and less effective for treating bradycardias. Atropine should be avoided when possible in febrile children as the body temperature may be further increased, particularly in places with a high environmental temperature.

Adverse effects: Being a sympathetic cholinergic blocking agent, signs of parasympathetic block may occur such as dryness of the mouth, blurred vision, increased intraocular tension and urinary retention.