

Short acting IV acetylcholinesterase inhibitor useful in Rx of anticholinergic delirium. Avoid in patients with seizures or evidence of cardiac toxicity.

Physostigmine is the only IV acetylcholinesterase inhibitor that crosses the blood-brain barrier

Indications

- Patients with anticholinergic delirium, where urinary retention has been excluded, and behavioural disturbance is not controlled with benzodiazepines
- In cases where anticholinergic poisoning is suspected, administration of physostigmine with resolution of delirium may negate the need for further investigations (e.g., including CT brain / lumbar puncture)

Contraindications

- Seizures occurring as part of presentation
- Heart rate < 60 bpm
- QRS duration > 120 milliseconds
- Any evidence of AV block on ECG
- Bronchospasm / history of brittle asthma

Presentation

- 1 vial of 5 mL = 2mg

Dose and Administration (discuss use with a clinical toxicologist)

- Administration requires cardiac monitoring and access to full resuscitative care
 - dilute 2 mg ampoule in 100 mL of normal saline
 - infuse at 100 mL / hour
 - cease infusion once therapeutic endpoint (resolution of delirium and / or control of behavioural disturbance) is achieved to avoid cholinergic toxicity
- Maximum dose over an hour = 2 mg (child: 0.02 mg/kg up to 0.5 mg)
- Further dosing may be required after 2 hours as physostigmine is short-acting
- Consider alternative diagnosis if no clinical effect is observed after 2 mg has been administered

Therapeutic Endpoint:

- desired clinical effect is achieved i.e., resolution of delirium and / or control of behavioural disturbance

Adverse effects: (usually occur if doses are given too frequently or rapidly)

- Cholinergic toxicity: peripheral muscarinic effects (hypersecretion, **bronchospasm, bradycardia**, nausea, vomiting), peripheral nicotinic effects (neuromuscular weakness) and CNS effects (**seizures**)