

Biomarkers of Exposure in OP poisoning

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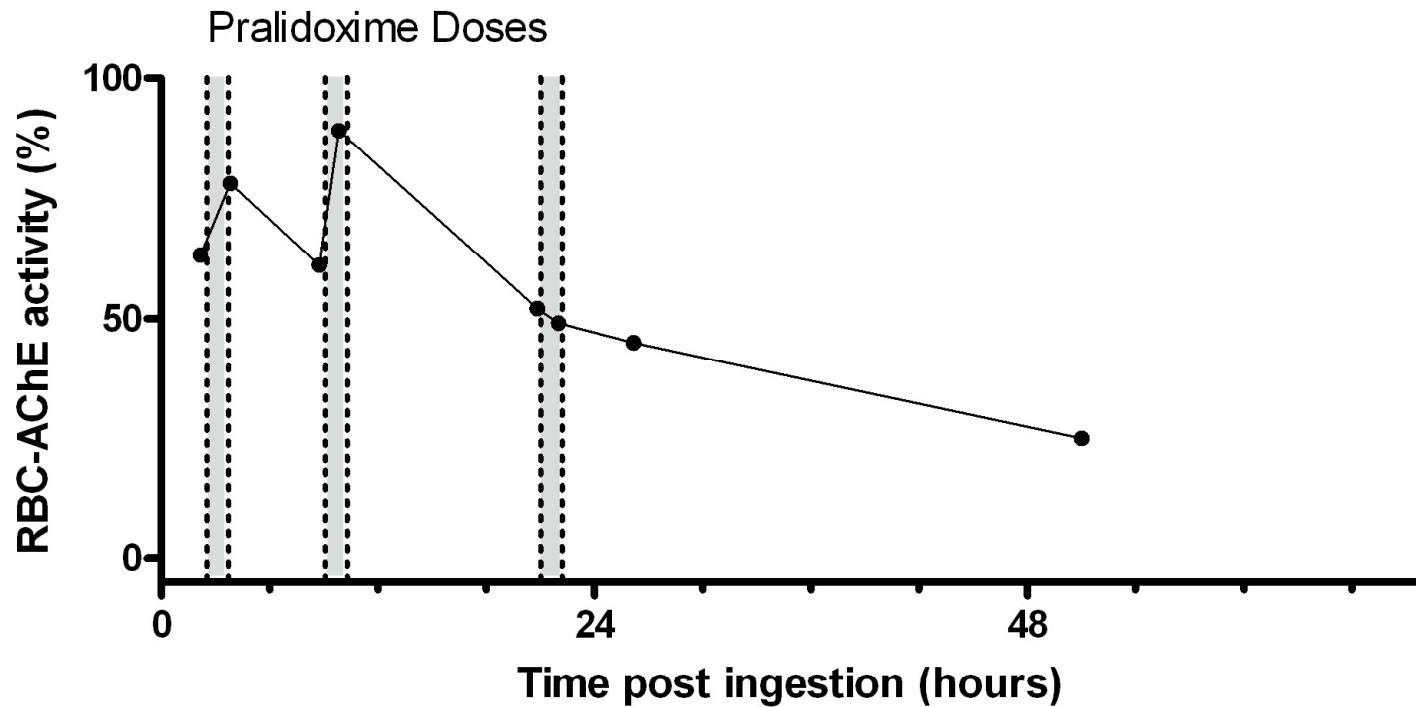
Biomarkers of Exposure

- Red blood cell acetylcholinesterase (RBC-AChE)
- Butyrylcholinesterase, or Plasma cholinesterase (PChE)
- Both biomarkers of exposure for anticholinesterase pesticides and nerve agents

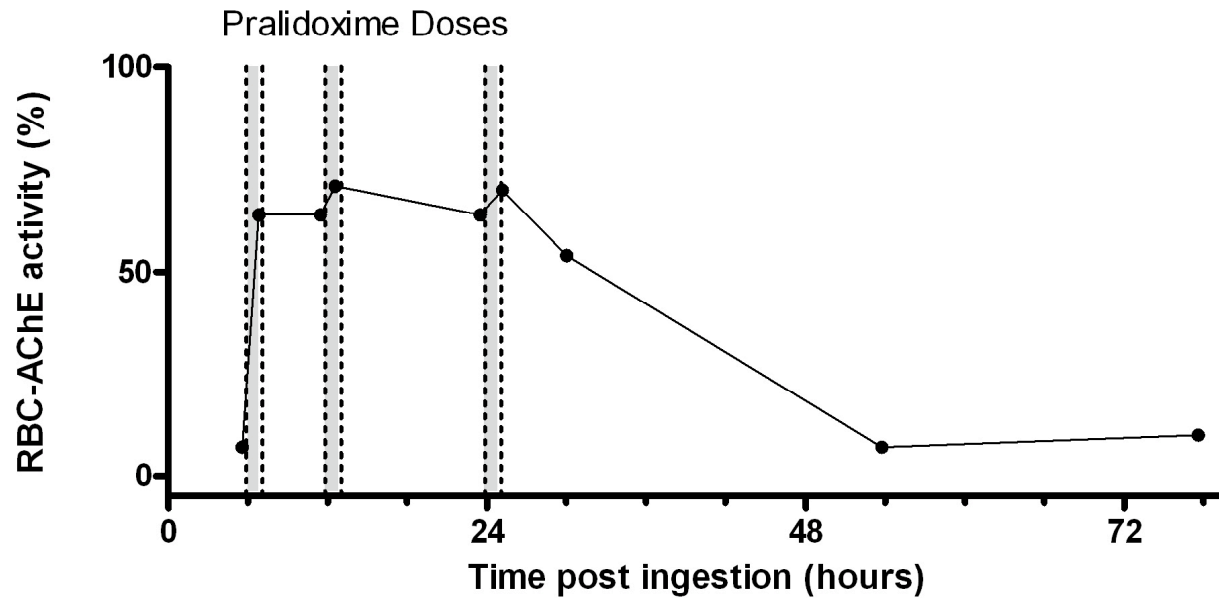
Normal Range

- Wide normal range
- PChE varies according to other features such as liver failure and infection
- Approximately 1:2000 people have no PChE

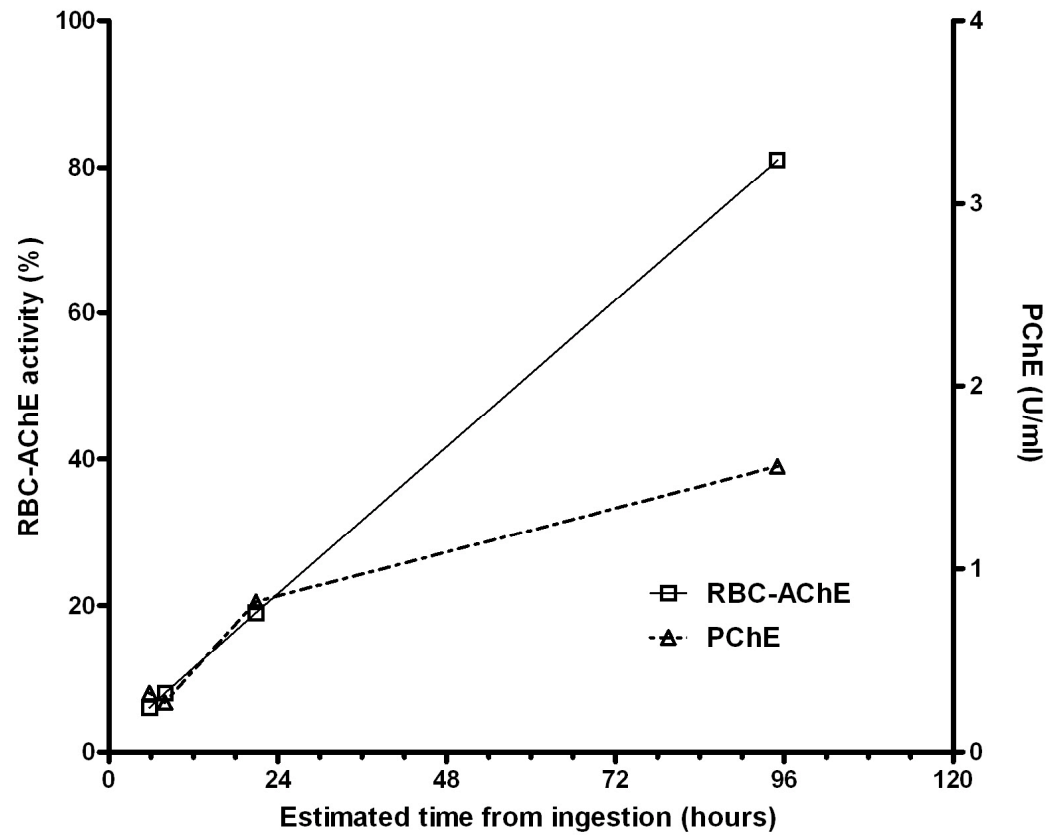
	<i>Red blood cell acetylcholinesterase (RBC-AChE)</i>	<i>Plasma cholinesterase or butyrylcholinesterase (PChE)</i>
Description	Biomarkers of exposure for anticholinesterase agents eg OP pesticides, nerve agents, carbamates.	
Features	Good marker of inhibition of synaptic AChE and severity of poisoning	Poor info about clinical severity but can be used confirm exposure.
Function	No physiological function known	Breaks down suxamethonium - (depolarising muscle blocker)
Effect of oximes	Reactivation occurs with oximes	Limited reactivation with oximes
Normal range	31.4 U/g Hb taken as normal limit - Normal > 75%, mild inhibition (30-75%), mod inhibition (10-29%), severe inhibition (<10%)	Wide normal range - infection and liver disease can affect levels. Also about 1:2000 have absence of the enzyme



- Increase in RBC-AChE after bolus dose of pralidoxime
- Decreasing response after 4th dose (at 24 hours)
- Oximes stopped thereafter



- RBC-AChE increases after Pralidoxime
- Response continues even at 4th dose (24hours)
- Further ongoing oxime therapy may be of benefit



- Rapid spontaneous reactivation of RBC-AChE and PChE indicates acute carbamate poisoning
- No pralidoxime given