Drug Guideline  Pralidoxime

Summary: Pralidoxime is an antidote for the treatment of anticholinesterase poisoning such as organophosphate and is used in conjunction with atropine.

Approved by: ICU Medical Director
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Replaces Existing Drug Guideline: pralidoxime
Previous Review Dates: 2002, 2004

1. Introduction:
Pralidoxime is used to reactivate acetylcholinesterases inhibited by organophosphate pesticides.

Patient safety

The Aims / Expected Outcome of this drug guideline:
Pralidoxime will be administered safely and appropriately without any adverse side effects.

Related Standards or Legislation
- NSQHS Standard 1 Governance
- National Standard 4 Medication Safety

Related Policies
- LH_PD2013_C03.01 Drug Administration
- LH_PD2010_C03.00 Drug Prescribing
- LH_PD2008_C03.12 Administration of IV Medication

2. Drug Guideline: Policy Statement
- All care provided within Liverpool Hospital will be in accordance with infection control, manual handling and minimisation and management of aggression guidelines.
• Medications are to be prescribed and signed by a medical officer/authorised nurse practitioner (NP) unless required during an emergency.
• All drugs administered during an emergency (under the direction of a medical officer/authorised nurse practitioner) are to be documented during the event, then prescribed and signed following the event.
• Medications are to be given at the time prescribed (as close to the time as is possible when multiple drugs require ‘same time’ administration and, when the nurse is caring for more than one patient, recognition is given to a possible short delay to administration – antibiotics and other lifesaving drugs are to be prioritised) and are to be signed by the administering nurse.
• Parenteral medication prescriptions and the drug are to be checked with a second registered or endorsed enrolled nurse prior to administration. The “rights of drug administration” must be followed: right: patient, drug, dose, route, administration, time, reason for the drug, documentation, education and evaluation/outcome.
• Adverse drug reactions are to be documented and reported to a medical officer.
• Medication errors are to be reported using the hospital electronic reporting system: IIMS.
• Guidelines are for adult patients unless otherwise stated.

**Prescription / approval process.**

Supply of Pralidoxime is restricted under the Special Access Scheme (SAS). An emergency supply is kept in pharmacy and can be obtained by
- Completing a SAS form (available from the pharmacy department intranet site) and
- Ringing pharmacy or the after hour’s hospital manager.

3. **Guideline**

**Actions**¹²³

- Pralidoxime is a cholinesterase reactivator for treatment of anticholinesterase poisoning (e.g. - antidote for organophosphate poisoning)
- It reactivates acetylcholinesterase (AChE) that has been inactivated by the organophosphate.
- This allows acetylcholine to be broken down and the neuromuscular junction and parasympathetic nerves to re-function.
- It relieves respiratory muscle paralysis and muscarinic symptoms such as salivation and bronchospasm.
- The elimination half-life is approximately 1-2 hours, therefore a continuous infusion is best used to treat the poison (without varying the absorption /reabsorption rate).

**Indications**¹²³

- Organophosphate poisoning.
- Antagonist to anticholinesterases such as neostigmine and pyridostigmine, which are used in the treatment of myasthenia gravis.

**Contraindications**¹²³.

- Hypersensitivity to Pralidoxime or any component of the formulation where the risk of administration clearly outweighs possible benefits.

**Precautions**,¹²³

- Patients with an allergy to iodine
- Pralidoxime should be used with great caution in treating organophosphate overdose in cases of myasthenia gravis, since it may precipitate a myasthenic crisis.
• Morphine (caution required when used in the management of organophosphate poisoning).
• Not effective in poisonings due to organophosphates without anticholinesterase activity

Significant interactions\textsuperscript{1,2,3}
• Barbiturates (caution required when used in the management of organophosphate poisoning).
• Suxamethonium - Concurrent use of pralidoxime and suxamethonium may result in accelerated reversal of neuromuscular blockade.

Adverse effects\textsuperscript{1,2,3}
• Tachycardia.
• Muscle rigidity.
• Nausea
• Rash
• Hypertension – relative to the dose and rate of administration
• Dizziness, blurred vision, diplopia, seizure.
• Apnoea, Laryngeal spasm

Presentation\textsuperscript{1}
Pralidoxime 500mg in 20mL ampoule.

Administrations Guidelines\textsuperscript{1,3,4}

\textbf{NOTE}: Use in conjunction with atropine. Response to atropine should be established before Pralidoxime administration.

\textbf{Bolus dose}:
• Patients receive an initial dose of 2 grams IV over 30 minutes.
• In mild to moderate poisoning, administer 1 gram IV every 8 hours.
• In severe poisoning, an infusion is administered after the initial dose of 2 grams.

\textbf{Infusion}:
• Add 2.5g (5 ampoules) pralidoxime to a burette undiluted, to give a final concentration of 2.5g in 100ml = 25mg/mL.
• Commence the infusion at 500mg/hr (20mL/hr).
• Continue for 12 to 24 hours and then review – ICU medical team to discuss with toxicologist.
• The infusion may be weaned over 24 to 48 hours, depending on the severity of symptoms.
• Cessation of the infusion is based upon clinical testing and mixed plasma cholinesterase testing.

(For further details refer to the ICU organophosphate management guideline)
Clinical Considerations1,2,3.
- Atropine administration is a prerequisite to initiating Pralidoxime (see Organophosphate poisoning protocol)
- Observe all precautions when entering and exiting the room of a patient with organophosphate poisoning – as per the protocol on management of Organophosphate poisoning.
- Rapid administration can cause tachycardia, laryngospasm and muscle rigidity

4. Performance Measures
All incidents are documented using the hospital electronic reporting system: IIMS and managed appropriately by the NUM and staff as directed.

5. References / Links

Author: RN (S. Carbone), CNC (S. Shunker)
Endorsed by: A Prof. Michael Parr, ICU Director