POISONS © INFORMATION CENTRE OF IRELAND

NEWSLETTER

Winter 2011

The Staff of the Poisons Information Centre would like to extend our very best wishes to Dr Joseph Tracey who recently retired after 25 years as Clinical Director of the Centre. We are very grateful for all the support and encouragement he showed us over the years and we wish him all the best in his retirement.

Dr Edel Duggan, Consultant Anaesthetist in Beaumont Hospital has taken up the position as our new Clinical Director and we look forward to working with her as we continue to develop and improve our service.

TRAMADOL

Over the last 12 months, we saw a large increase in the number of enquiries we received about "Tramadol".

Tramadol is an opioid analgesic that also inhibits the reuptake of noradrenaline and serotonin. The half-life of tramadol is approximately 6 hours.

Therapeutic oral doses are usually 50-100mg to a daily max of 400mg. Serotonin syndrome may occur at high doses or if tramadol is given with other serotonergic drugs.

In overdose, tramadol can cause a range of neurological effects including drowsiness, agitation and tonic-clonic seizures. Long-term abuse of tramadol appears to increase the risk of seizures. Respiratory depression can occur but is less common than with other opioids. Tachycardia, hypotension, and cardiovascular collapse may occur, and several deaths have been reported. Patients with underlying renal failure are at increased risk of toxicity.

Treatment: Naloxone may be of some benefit to treat CNS depression but will not reverse the non-opioid effects. Treatment is primarily supportive, with benzodiazepines or phenytoin for seizures. Haemodialysis does not increase clearance. Extracorporeal Life Support may be useful for cardiovascular collapse (Daubin *et al,* 2007)

The Poisons Information Centre for members of the public has recently launched a new

"Public Poisons Information Line".

The new service is available from 9am-5pm, Monday to Friday and is aimed specifically at parents and those caring for young children.

The telephone number for this new service is **01- 809 2166.**

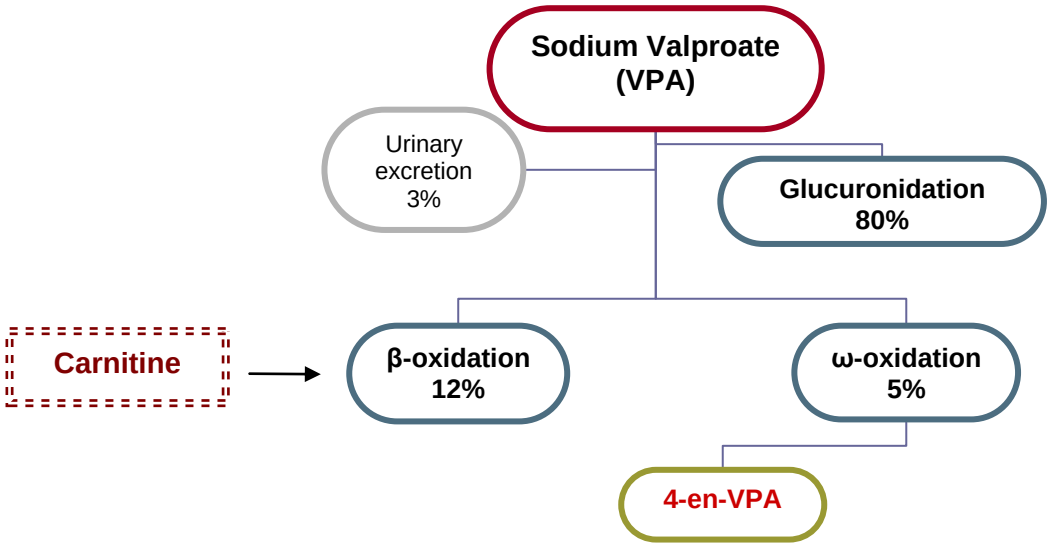
Healthcare professionals should continue to use our existing phone numbers which are still operational 24 hours a day:

01- 837 9964 OR **01- 809 2566**

SODIUM VALPROATE - CARNITINE

Sodium valproate *(valproic acid)* was one of the top 30 agents discussed with the Poisons Information Centre in 2010. Many cases of sodium valproate toxicity are mild and self-limiting, but accumulation of the toxic metabolite 4-en-VPA can contribute to hyperammonemia and possibly severe hepatotoxicity. There may be seizures, coma, respiratory failure and circulatory collapse in severe poisoning.

Carnitine in the treatment of valproic acid-induced toxicity. Clin Toxicol (2009) **47,** 101-107



- ***L-carnitine*** is an essential amino acid derivative that is involved in the metabolism of fatty acids. It is an essential co-factor in β-oxidation and ensures proper metabolism of valproic acid (VPA).
- VPA depletes carnitine stores during long-term therapy and possibly after a large acute overdose.
- Carnitine depletion shifts metabolism preferentially towards ω-oxidation with increased formation of the hepatotoxic metabolite **4-en-VPA.**
- Carnitine deficiency and accumulation of 4-en-VPA may contribute to hyperammonemia.
- Carnitine supplementation has been shown to reduce the half-life of ammonia in the setting of sodium valproate toxicity (Sztajnkrycer 2001), and early administration may improve survival in severe VPA-induced hepatotoxicity .
- There is no clinical data to suggest it improves CNS depression but it may be useful following a large acute overdose resulting in hyperammonemia and/or severe hepatotoxicity.
- Carnitine administration does not appear to be associated with severe adverse effects (LoVecchio 2005).

Suggested dose

Loading dose: 100 mg/kg IV over 30 mins (max 6 g); *maintenance dose:* 15 mg/kg IV every 4 hours.

Dilution: carnitine can be diluted in glucose 5%, glucose 10%, or sodium chloride 0.9% in concentrations ranging from 0.5 mg/mL to 8 mg/mL.

IRON POISONING

Iron is essential for haemoglobin synthesis and is obtained primarily from the diet. Dietary iron is absorbed and stored in the small intestine. It can then be released into the bloodstream as required. Iron also acts as a catalyst in the production of the reactive hydroxyl radical (•OH). This free radical can cause local injury particularly in the GI tract and liver where large amounts of iron accumulate. Ingestion of more than 20mg/kg of iron is likely to cause symptoms of toxicity; more than 200mg/kg may be fatal.

Early Symptoms

Local injury and necrosis of the gastrointestinal mucosa can cause nausea, vomiting, abdominal pain and diarrhoea in the early stages. Haematemesis and rectal bleeding may occur in severe cases.

In some patients, this early stage may be followed by a transition period during which symptoms resolve before more severe systemic features develop.

Systemic Toxicity

There may be drowsiness, coma, convulsions, metabolic acidosis, hypotension, haemolysis, and shock. If any of these symptoms are present, urgent treatment is required.

Treatment

Desferrioxamine is a specific chelator for patients with iron overload. It has a high affinity and specificity for iron, and is indicated for patients with rising plasma iron levels or symptoms of severe toxicity.

- Observe the patient until at least 6 hours post-ingestion. Patients who remain asymptomatic until 6 hours post-ingestion are unlikely to require treatment.
- Do a plasma iron level at 4 hours post-ingestion and repeat after 2 hours.
- Ensure adequate hydration and check U/E's, ABGs, FBC, LFTs and blood glucose.
- Correct metabolic acidosis with fluid resuscitation and sodium bicarbonate if necessary.
- Give desferrioxamine to patients with severe symptoms or if plasma iron levels are rising.

  Dose: 15mg/kg/hour, intravenously until there is clinical improvement.

  Do not exceed 80mg/kg in 24 hours. High doses are more likely to cause adverse effects.

Please note: desferrioxamine interferes with subsequent iron assays causing results to be misleadingly high.

Drain Cleaners

• Usually contain high concentrations of a caustic agent (e.g. sodium hydroxide).

- High viscosity or granular products tend to cause burns to the oesophagus. Low viscosity products with more rapid transit times damage the stomach and duodenum.
- Complications include airway compromise, perforation, and stricture formation.
- Dilution therapy is controversial: Small volumes of milk or water may be considered provided there is no evidence of perforation. Avoid large volumes which may cause vomiting.
- Early endoscopic evaluation (as soon as the patient is stable) to grade the severity of injury is indicated in symptomatic patients or when there is history of a large ingestion.

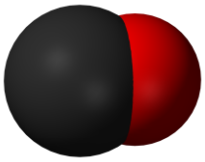
Cough & Cold Season- LOW TOXICITY PRODUCTS

Echinacea- a commonly used herbal product. There have been no reports of serious adverse effects from high doses. Mild GI upset and dizziness have been reported. Some patients have experienced anaphylaxis which can be managed conventionally.

Vitamin C- Many preparations of vitamin C are available on the market. It is considered to be relatively non-toxic in acute overdose and symptoms are not expected in most cases. Oral fluids may be given but no specific treatment is required.

Cod Liver Oil- a preparation containing vitamins A, D, and essential fatty acids. Virtually non-toxic in a single acute overdose. There may be mild nausea and diarrhoea but treatment is rarely required.

Carbon Monoxide



No doubt you are all aware of the recent focus on carbon monoxide, and the risk of accidental poisoning in the home from faulty heating systems.

The features of carbon monoxide poisoning can be difficult to recognise particularly where there is chronic exposure to low concentrations. Symptoms are non-specific and may resolve when the person is away from the home. Patients may complain of headache, nausea, dizziness, and muscle pain. Sometimes more than one member of the same family/household will have similar symptoms.

Acute exposure to high concentrations can cause loss of consciousness, cerebral oedema, and metabolic acidosis. Coma and myocardial infarction can occur in severe cases.

The primary treatments for carbon monoxide poisoning are supplemental oxygen and good supportive care. Metabolic acidosis should be corrected by fluid resuscitation and by giving sodium bicarbonate.

A carboxyhaemoglobin level may be a useful but correlation with clinical outcome is poor and low levels do not exclude toxicity. Further care will be determined by the patient's clinical condition.

A useful website outlining carbon monoxide poisoning is www.carbonmonoxide.ie

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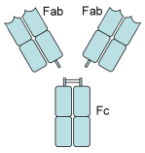
We would like to remind you that the digoxin antibody "Digibind" is being discontinued by GlaxoSmithKline from 1st March 2011. An alternative product called "DigiFab" is available on a named patient basis from Beacon Pharmaceuticals Ltd.



Further information regarding supply can be obtained from Beacon Pharmaceuticals Ltd, The Regent, The Broadway, Crowborough, East Sussex, TN6 1DA. Tel: +44-892-600930. (www.beaconpharma.co.uk).

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