

## RICIN

- Ricin is a toxalbumin extracted from the beans of the castor oil plant. It inhibits protein synthesis causing cell death.
- Accidental poisoning with ricin has occurred following ingestion of castor oil seeds. Although ricin is poorly absorbed following ingestion, one to three beans chewed by a child, or as few as eight seeds chewed by an adult may be fatal.
- Ricin has been considered as a potential chemical warfare agent. Although non-volatile, aerosols may be inhaled.
- Ricin is particularly toxic if injected. The fatal dose by injection is thought to be around one microgram per kilogram body weight.

### Summary of Human Toxicology

- Onset of symptoms may be **delayed** after absorption via **any** route. Fever is common. Death may be due to multi-organ failure.
- Ingestion typically causes irritation of the oropharynx and oesophagus, and gastroenteritis.
- Irritation and conjunctivitis may occur. Miosis, mydriasis and optic nerve damage have been reported.
- Bloody diarrhoea, vomiting and abdominal pain.
- Pulmonary oedema, pneumonia and ARDS.
- Seizures and CNS depression.
- Fluid loss may cause tachycardia.
- Allergic responses have been reported following exposure to castor oil beans.
- Abnormal liver function tests, including raised transaminases occur.
- Haematuria, proteinuria and elevated creatinine.

**Personnel must not enter a contaminated area without full personal protective equipment including respiratory protection.**

### **Triage**

- Primary (first look) triage should be carried out using the standard triage sieve. **As symptoms may be delayed few additional discriminating factors are likely to be present.**

### **Mass Decontamination**

- Patients should be removed from the source of exposure. All the patients' clothing and personal effects should be removed. Skin decontamination should be carried out using a rinse-wipe-rinse regime with dilute detergent (10ml washing up liquid to a 10 litre bucket of water).
- Contaminated clothing should be placed in clear, labelled, sealed bags to prevent further contamination
- Casualties should subsequently don clean clothing e.g. paper suits.
- If eyes are exposed, remove contact lenses and irrigate thoroughly with running water or saline for 15 minutes.
- Casualties exposed only via ingestion do not require whole body decontamination.

### **Treatment**

- Treatment is symptomatic and supportive. No antidote is available for the treatment of ricin poisoning.
- Allergic reactions should be treated conventionally.

### **Admission Criteria**

- Symptomatic patients should be admitted.
- Patients who are thought to have ingested ricin should be admitted for observation.
- Patients who are thought to have ingested ricin and remain asymptomatic after eight hours may be discharged.
- Patients who are thought to have been exposed by aerosol should be admitted for observation, even if asymptomatic.
- Patients who are thought to have been exposed by aerosol and remain asymptomatic after 24 hours should be discharged.

## National Specialists

<b>Agency</b>	<b>Contact numbers</b>	<b>Area served</b>
National Poisons Information Service	0870 600 6266	UK
<b>Chemical Incident Provider Units</b>		
CHaPD (Chemical Hazards And Poisons Division)	0870 606 4444	UK
Scottish Centre for Infection and Environmental Health	0141 300 1100 (ask for on call consultant) 0141 211 3600 (24 hr)	Scotland
<b>Other</b>		
Emergency Response Division	01980 612100 (24hr via HPA Porton)	UK