

## RICIN

### **Background:**

Ricin is manufactured from the castor bean, and can be formed from the waste products of castor oil production or made in clandestine laboratories. It is thought that ricin works by disrupting protein synthesis at the ribosomal level. Fast growing cells will be most affected initially. It can be inhaled in a powder or mist form, ingested if it is put in food or water supply, or injected IM/SQ.

### **Signs/Symptoms:**

- 1) Inhalational Exposure: Symptoms occur a few hours after an inhalational exposure, and may include cough, chest tightness, dyspnea, nausea and myalgias. Severe exposures can develop into pulmonary edema and/or ARDS within 12 to 24 hours.
- 2) Ingestion: Severe gastroenteritis can be seen with ricin toxicity with profound vomiting, severe abdominal pain, cramping and diarrhea. GI bleeding may be noted. Death is from multi-system organ failure.
- 3) Injection: At low doses, IM injection may produce flu-like symptoms, myalgias, nausea, vomiting, and localized pain and swelling. Injection of a lethal amount of ricin will cause local tissue necrosis, massive gastroenteritis, GI bleeding and multi-system organ failure.

Death from ricin poisoning could occur within 36 to 48 hours after exposure. If the patient survives 5 days, they should survive the poisoning.

### **Laboratory and Diagnostic Testing:**

No specific hospital-based laboratory testing is available. Call the local department of health and IDPH for any suspected malicious event involving ricin.

Confirmation of ricin exposure can be made by ELISA analysis of a swab sample from nasal mucosa. Ricin can be identified for up to 24 hours after exposure. Patients may have neutrophilic leukocytosis, hypoxemia, and bilateral infiltrates on chest radiograph.

### **Treatment:**

There is no specific treatment for ricin poisoning. The cornerstone of treatment is basic supportive care including fluids for management of gastroenteritis and airway/pulmonary management for treatment of inhalational exposure. In addition, pressor support may be necessary for patients with hypotension.