



RICIN TOXIN

- Agent Information:** Ricin is a potent cytotoxin derived from the beans of the castor plant. Castor beans are abundant and the toxin is relatively easy to extract. It can be prepared in liquid or crystalline forms, or lyophilized to create dry powder. Routes of exposure include inhalation, ingestion, and injection.
- Transmission:** No person-to-person transmission. Routes of exposure include inhalation, ingestion, and parenteral.
- Signs and Symptoms:** **Inhalation** (Incubation 18-24 hours): Limited data indicate that symptoms would present as acute onset of fever, chest tightness, cough, dyspnea, nausea and arthralgias in 4-8 hours. The aerosol route can produce necrosis of the upper and lower respiratory system. Other effects would include cyanosis, respiratory inflammation, and pulmonary edema.
Ingestion: Severe gastrointestinal lesions with irritation of the oropharynx, esophagus, or stomach when directly exposed. Although clinically similar to alkaline caustic burns, lesions are usually delayed two or more hours after exposure. Ingestion may cause abdominal pain, nausea/vomiting, and profuse bloody diarrhea. In severe cases, shock develops. Late phase complications include cytotoxic effects on the liver, central nervous system, kidney, and adrenal glands, typically 2-5 days after exposure. The patient may be asymptomatic during the preceding 1-5 days.
Parenteral: Local tissue and muscle necrosis with eventual multi-system organ failure.
- Protective Measures:** Follow appropriate Body Substance Isolation (BSI) precautions, with use of Personal Protective Equipment (PPE) as necessary.
Standard Precautions: Hand washing before and after all patient contacts and contact with patient care equipment.
Contact Precautions: Use of gloves, gown, and eye protection.
Airborne Precautions: Initiate inhalation precautions in the event of a release, including wearing masks (fit-tested, NIOSH-approved N-95 respirator). Victims presenting immediately after aerosolized exposure require decontamination.
- Decontamination of PPE and Equipment:** Decontaminate exposed areas with soap and water. A 1 percent hypochlorite solution can inactivate ricin. Decontamination sequences currently used for hazardous material emergencies should be used as appropriate for the level of protection employed. Equipment can be decontaminated using 1 percent hypochlorite solution as appropriate or if gear had any visible contamination. Note that bleach may damage some types of firefighter turnout gear. After taking off gear, response workers should shower using copious quantities of soap and water.

24/7 Emergency Contact Number: 1-888-295-5156

Revised: 04/2018

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Emergency Medical Services

- Prophylaxis:** No vaccine or antitoxin available.
- Treatment:** Treatment is based on the route of exposure. Respiratory support includes oxygen, intubation, and mechanical ventilation as needed. Supportive treatment includes monitoring of fluid and electrolyte status and fluid replacement.
- Reporting:** Immediately report any suspect cases to the Division of Public Health, Office of Infectious Disease Epidemiology: 1-888-295-5156. For additional information, view the CDC website: www.emergency.cdc.gov/agent/ricin/.