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146. Castor Bean Daiquiri: Unsuccessful Suicide Attempt

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Background: Categorized as a Category B biothreat agent, ricin toxicity can occur via inhalation, injection or ingestion due to endothelial cell damage, inhibition of protein synthesis and cellular death. When ingested, toxicity depends on the amount and level of mastication of the seeds. Significant gastrointestinal (GI) symptoms, including nausea, vomiting, abdominal pain and diarrhea, can present within 6 hours. Electrolyte imbalance, shock and multi-organ failure may occur. Recipes for potentially lethal preparations and purchasing sites are readily available on the internet.

Case Report: A 40-year-old male with a history of severe depression and alcohol abuse presented to an emergency department via EMS. He admitted to his ex-wife that he had attempted suicide 2-3 hours prior to arrival. A self-purported "botany student", he purchased castor beans on the internet and ingested 50 seeds ground in a blender, mixed with ethanol and strawberries. On presentation, he had severe abdominal pain and diarrhea and was given activated charcoal. His abdomen was soft but tender to palpation. Vital signs were normal. Laboratory analysis was remarkable for an anion gap of 19, lactic acid: 3.9 mEq/L and ethanol: 0.272 g%. Electrolytes, renal function and transaminases were normal. Admitted to the ICU, the patient continued to have profuse diarrhea and fluid and electrolyte abnormalities; he was anuric by day 2. Supportive care included aggressive IV fluid replacement, sodium bicarbonate, electrolyte replacement and IV hydromorphone. On day 3, the patient developed frank bloody bowel movements (BMs) with mucosal sloughing. CT scan of the abdomen and pelvis revealed diffuse bowel wall thickening of the entire small bowel with associated mesenteric venous engorgement. Pneumatosis and free intraperitoneal air were absent. At this point, 1 liter of normal saline was administered whenever the patient had a BM >500cc. The patient's blood count remained stable and his bloody BMs resolved by day 5. He remained in the ICU for 7 days and was transferred to a medical floor for an additional 6 days. Repeat CT showed significant improvement in bowel wall thickening and he was eventually admitted to Psychiatry. Serial urine ricinine measurements revealed a peak of 4,030 mcg/L on day 1 declining to <0.3 mcg/L by day 16. The poison center provided consultation throughout his hospitalization.

Case Discussion: To our knowledge, this is the first case report of a deliberate ingestion of 50 castor bean seeds. Consistent with published data, GI symptoms predominated. It is hypothesized that the quantity as well as alcohol extraction of ricin may have contributed to early symptom onset. Early presentation and aggressive supportive care likely contributed to survival.

Conclusions: Ingestion of macerated castor bean seeds caused significant morbidity with survival, as documented by history, symptomatology and toxicological analysis. Castor beans are readily available as ornamental or native plants, and can be obtained via the internet, as are recipes for liberating ricin, a biothreat agent. Ricin should be considered in the differential diagnosis of unknown exposures in patients with excruciating abdominal pain and gastroenteritis. With aggressive supportive care, a favorable outcome is likely.

KEYWORDS Ricin; Suicide; Biothreat Agent

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147. Hydrogen cyanamide poisoning; rare but serious, case study

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Background: Although suicidal poisoning by pesticides is very common, it was the first time to face this type of toxicity in our national toxicology center; it was a very serious case. Hydrogen cyanamide poisoning is one of the agricultural pesticides that may be used in our country with no reported cases of acute or chronic toxicities. Hydrogen cyanamide causes severe irritation the eyes, skin, and respiratory tract. Also it causes severe vomiting, dyspnea, hypotension, and confusion. Some studies reported that chronic toxicity of hydrogen cyanamide in rodents causes cellular degeneration in the testes and tissue changes in the ovaries, urinary bladder, kidneys and liver.

Case Report: 34 years male patient presented to our national toxicology center in 31 Jan. 2015 at 6:30pm with history of suicidal ingestion of unknown amount of DORMEX (hydrogen cyanamide) since 2 hours. There was history of repeated vomiting and diarrhea. On examination, the patient wasn't conscious with Glasgow Coma Scale GCS 8, blood pressure was 100/60, pulse 110bpm regular, respiratory rate 30/min, oxygen saturation was 86% (97% on T-tube), pupils were bilaterally constricted (looks like pin point). CVP was average chest examination shows bilateral coarse crackles. The remaining physical examination did not reveal any significant findings. His laboratory parameters on admission were; random blood sugar: 183mg/dl, SGOT: 22U/L, SGPT: 28U/L, serum urea: 42mg/dl, serum creatinine: 1.2mg/dl, HB: 14g%, TLC: 13000, PLT: 268000, PT 13.8, INR: 1.24. ABG shows metabolic acidosis (PH 7.24, PCO₂ 38, HCO₃-14) serum sodium 136 mmol/l, potassium 4.1mmol/l. pseudocholine esterase enzyme level was normal. As the patient was drowsy, he was intubated and connected to T-tube which was connected to oxygen source (10L), IV fluids were given to correct hypovolemia. Atropine was given. Gastric lavage was done, activated charcoal (80g) was given via rye tube. Sodium bicarbonate (25 mEq/h intravenously) was given to correct the metabolic acidosis then ABG was repeated showed slight improvement, so bicarbonate was given accordingly and adjusted by repeated blood gas analysis. At 3 am, the patient was shocked and CVP dropped. Dopamine was started at 5 µg/kg/min, and noradrenaline 5 µg/kg/min, then he was stabilized. Suddenly at 8 am patient was arrested. Cardio pulmonary resuscitation was started, adrenaline (1 mg IV) and atropine (1mg IV) were given, followed by intravenous sodium bicarbonate (50 mEq) adrenaline and atropine were repeated again twice. In spite of all these measures, the patient died.

Case Discussion: Although insecticide poisoning is frequent in our country, it's the first time to admit a case of hydrogen cyanamide poisoning. The clinical presentation of the patient was similar to organophosphate poisoning, so atropine was given on admission till pseudo-choline esterase level was done. Although these cases are rare, this poison is very dangerous and the patient deteriorated very rapidly in spite of supportive measures.

Conclusions: This case may be the first reporting hydrogen cyanamide ingestion with a suicidal intent, leading to persistent metabolic acidosis, refractory shock and death. So more studies are needed to know the cause of rapid deterioration and how to save life as hydrogen cyanamide has no antidote yet.

KEYWORDS Hydrogen cyanamide; agricultural pesticides; suicidal poisoning

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