

Unintentional Hydrocarbon Ingestions

Hydrocarbons are organic compounds derived from sources such as animal fats, plant oils, petroleum and natural gas. They are found in a wide variety of household products. Toxicity depends on their physical (viscosity, volatility) and chemical (aliphatic, aromatic, halogenated) properties. Aliphatic hydrocarbons (i.e. petroleum distillates) such as lamp oil, gasoline, kerosene and furniture polish are not readily absorbed from the GI tract and do not cause serious systemic toxicity unless aspirated. Aspiration risk increases as viscosity decreases. As little as one milliliter can penetrate deep into the bronchopulmonary tree when aspirated and directly destroy the lung tissue leading to inflammation, shock, cardiopulmonary collapse and death. Aromatic and halogenated hydrocarbons (e.g. benzene, toluene, xylene, tetrachloroethane) can pose significant risk of systemic toxicity resulting in neurological, cardiac, gastrointestinal, hepatic and renal toxicity.

Following unintentional ingestion of aliphatic hydrocarbons, the majority of patients remain asymptomatic. These patients can be closely observed at home for 6 hours post ingestion. All patients with initial symptoms suggesting aspiration (e.g. vomiting or persistent coughing and choking) should be referred to an ED. Tachypnea, rales, rhonchi, bronchospasm, and signs of respiratory distress may quickly follow. CNS depression can occur secondary to hypoxia.

Gastric emptying should be avoided for aliphatic hydrocarbons as it increases the risk of aspiration. GI decontamination may be recommended for other hydrocarbons or if the hydrocarbon contains a toxic substance (e.g. insecticides, heavy metal). A chest x-ray should be obtained at 6 hours after ingestion; earlier x-rays may be negative as it takes time for changes to evolve. Patients who are asymptomatic at 6 hours and have normal radiographs can be discharged home. If, at 6 hours, symptoms continue and/or the chest X-ray is abnormal, consider admission for further observation and treatment. Monitor ABGs, pulse oximetry and pulmonary function tests in symptomatic patients. Therapy with oxygen, bronchodilators, intubation and ventilation should be provided as needed. There is no basis for prophylactic antibiotic and/or steroid treatment for hydrocarbon pneumonitis.

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DID YOU KNOW THAT... more than 50,000 unintentional hydrocarbon exposures are reported to poison centers each year?

Pediatric exposures are common because hydrocarbons are in a wide variety of household products and many have bright colors and scented odors. Parents should take proper precautions by buying products in child resistant containers, keeping lamp oil and similar products in their original bottles (never transferring them into cups or other food containers) and storing them out of reach of children. Adult ingestions often occur as a result of gasoline siphoning or the product being transferred to an unlabeled container.



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