

# *HYDROCARBON POISONING*

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PGY-1

# CASE 1:

A previously healthy 2 year old boy is brought to the ER coughing and choking by parents 30 mins after accidental ingestion of the mother's hairspray. His vitals are T- 38.5, RR of 65, HR of 100 and BP of 90/62, O2 sat of 90% on room air. Physical examination is significant for nasal flaring, intercostal retractions and diffuse rales bilaterally. He is started on O2 via a non-rebreather which improved the O2 sat up to 92 %. Minutes later his respiratory effort becomes depressed and he becomes unresponsive. His vitals now are T 38.5, RR 18, HR 100, BP 90/62, O2 sat 88% on a non-rebreather; bilateral decreased breath sounds with diffuse rales. What is the next most appropriate step in the management of this patient?

- A. Get a stat CXR.
- B. Stat dose of IV antibiotics.
- C. Start PPV with bag and mask as you prepare to intubate.
- D. Obtain a blood gas.
- E. Stat dose of corticosteroids.

- A. Get a stat CXR.
- B. Stat dose of IV antibiotics.
- C. Start PPV with bag and mask as you prepare to intubate.
- D. Stat iv bolus of normal saline.
- E. Start chest compressions.

# DIAGNOSIS?

- HYDROCARBON ASPIRATION .
- Common sources of hydrocarbon ingestion include kerosene, lamp oil, furniture polish, household cleansers etc.
- Hydrocarbon ingestion accounts for one to two percent of non pharmaceutical exposures in children < 6 years of age. Children commonly present with symptoms of aspiration following ingestion.
- Pulmonary toxicity from aspiration occurs due to direct injury to the lung parenchyma and disruption of the surfactant layer. Pulmonary complications include chemical pneumonitis, hemorrhagic pulmonary edema, respiratory failure.
- CNS effects : somnolence, headache, seizures, stupor, coma etc.

- Pulmonary manifestations secondary to aspiration generally occur within 30 mins but may be delayed up to 12-24 hours.
- Immediate signs include coughing, choking, gagging, vomiting.
- Patients who develop symptoms soon after ingestion rapidly progress to respiratory failure.
- Initial management of hydrocarbon aspiration is rapid initiation of supportive care.
- As in the case of our patient, who developed severe respiratory distress, unresponsive to oxygen and altered mental status within a few minutes of hydrocarbon aspiration, **endotracheal intubation** is the most appropriate next step in management.

- Stat CXR is not indicated until the initial stabilization of this patient. Radiologic findings are evident within 2 hours of aspiration. Initial findings consist of multiple patchy densities with ill defined margins.
- Antibiotics: Patients presenting with hydrocarbon aspiration may present with a fever due to the body's response to a foreign substance but antibiotics are not indicated in the treatment of chemical pneumonitis unless signs of secondary superinfection develop.
- Blood gas: Blood gas is not indicated prior to stabilization of the patient.
- Corticosteroids have not proved to be beneficial in chemical pneumonitis and can be harmful.

## CASE 2:

A 3 year old previously healthy girl is brought to the ER by her mother because she accidentally ingested the kitchen cleansing solutions about an hour ago. She immediately spit it out and no emesis is not reported. Her vitals in the ER are T-37 ,HR – 102,RR 24 ,BP 98/58, O2 sat of 98 % on room air. Her lungs are CTAB. What would be the next step in management of this patient?



- A. Discharge the patient home.
- B. Get a CXR and discharge if WNL.
- C. CXR within 2-4 hours after the ingestion and discharge if asymptomatic after 4 hours.
- D. Observe in the ER for 2 hours before discharge.
- E. Admit to inpatient for observation.

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# Outlines on management

- If patient is asymptomatic, chest film in 2-4 hours is recommended. If the chest film is normal, then patient can be discharged after 4 hours of observation.
- If chest film is abnormal, then patient needs admission for observation and further management of aspiration pneumonia.
- On initial evaluation in the ER, if patient is symptomatic with cough, tachypnea, positive physical findings like rales, decreased air entry, then get a CXR; if abnormal admit to inpatient for management.



# REFERENCES:

1. Textbook of Pediatric Emergency Medicine.
2. Online resources: Medscape, pubmed.
3. Haddad and Winchester's Clinical Management of Poisoning and Drug overdose.
4. Journals: "Pediatrics" : May 2011 case report

***THANK YOU!!***