

The Underground Foe-Sewer Gas:Acute Ammonia Gas Inhalation Toxicity

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Introduction

Inhalation injury from ammonia gas is rare due to its characteristic pungent odour that serves as a good warning properties. We report a case of unintentional ammonia gas poisoning from sewage water of a patient who presented to our centre following massive exposure to ammonia gas after he was trapped in a septic tank at water treatment plant.

Case report

A young Indian male immigrant worker, 30 years of age, was trapped inside a water treatment plant, along with his 5 other colleagues after accidentally falling into a tank. He was extricated and brought in by ambulance to our centre by the Hazardous Material Emergency Response(HazMat) team.



Rescue workers retrieving victims

Upon arrival, he was completely covered in black colour sewage water and had a pungent smell. He was sent to decontamination room, clothes removed and decontaminated with copious amount of soap and water. Upon assessment following decontamination, he was restless with GCS: E1V2M5: 8/15 but normal pupil. His pulse oximetry was 99% on HFM15L/min with a respiratory rate of 22 breath/min. The heart rate was 120 beats/min and blood pressure of 150/100mmHg. In view of poor Glasgow Coma Scale(GCS), he was intubated for airway protection. A diagnosis of ammonia gas inhalation toxicity was made. He was given all supportive treatment. However, patient develop acute lung injury (ALI) and severe ARDS after 12 hours of admission. He succumbed to his injury and develop cardiorespiratory arrest.



Discussion

Septic tank in water treatment plant contains high level of ammonia gas due to natural decomposition process of organic nitrogen in domestic waste by bacteria. Ammonia gas is colourless, alkaline in nature and corrosive when react with water in human tissue forming ammonium hydroxide. Acute lung injury(ALI) and acute respiratory distress syndrome(ARDS) are common complications after a massive inhalation exposure to gaseous ammonia as it erodes respiratory epithelium. Clinician should institute all measures to prevent further lung insult.

Conclusion

Septic tank ammonia gas poisoning can be fatal if inhaled in high concentration or for prolonged period of time, and proves to be difficult to treat. Earlier decontamination at the site may save patient's life.



Early decontamination save life

References

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