Management of corrosive poisoning in Emergency Department

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Epidemiology of poisoning is changing, there is a clear shift from pesticide to corrosive poisoning in India. Caustic ingestion is a public health problem worldwide but it's exponential rise in India and Asia Pacific region are extremely concerning. Non-compliance of regulations, no educational initiatives and easy household availability of corrosive has compounded the problem. Epidemiology of corrosive ingestion is also different in Asia Pacific region compared to the western world, we have more suicidal than accidental ingestions, and acid is far more common than alkali ingestions. Damage caused by corrosive will depend on pH, amount of intake and titratable acid and alkali reserve. Acid produces coagulative necrosis and involves pre-pyloric region more often due to pylorospasm, while alkali causes liquefactive necrosis and esophageal injury is more common because of increased viscosity.

In Emergency Department (ED), patients with corrosive ingestion should be assessed for airway patency, respiratory difficulty, hemodynamic instability, oropharyngeal injuries and signs of mediastinitis and peritonitis. Drooling, vomiting, hoarseness and stridor herald significant corrosive ingestion. Airways should be secured at the earliest possible. Surgical cricothyroidotomy should be done if initial attempts of endotracheal intubation fail. Insensible fluid loss, dehydration and third space loss can produce shock. Reluctance to take food and prolong fasting can lead to fluid and electrolyte imbalance, and hence should be supplemented with adequate intravenous fluids.

Gastrointestinal decontamination does not apply to patients with caustic ingestions, attempts to empty the stomach can potentially increase the injury. Activated charcoal does not adsorb caustics, adherent charcoal particles may obscure endoscopic findings hence they are contraindicated. Dilution and neutralization produce no clinical benefit, but may cause harm by inducing emesis, gastrointestinal distension and thermal injuries. Soaked clothes with caustic should be immediately removed and contaminated skin and eyes should be thoroughly irrigated.

In patients with hemodynamics instability, suspected perforation peritonitis or mediastinitis, CECT should be performed. Stable patients should undergo Esophagogastroduodenoscopy within 48 hours to know the Zargar's grade of injury to know the risk of patient's developing esophageal or gastric stricture. Strictures are the main intermediate and long-term complication of corrosive ingestion, causing significant morbidity and even death. DROOL score has good sensitivity in predicting stricture formation.

Pharmacotherapies like Corticosteroids, Proton pump blockers, Sucralfate and Mitomycin-c has shown variable results in clinical studies in preventing stricture formation and hence their routine use cannot be recommended.

Stable patients with Zargar's grade I and IIa injuries and tolerating food orally may be discharged after 6-24 hours of observation. Patients who are unstable or having Zargar's grade IIb and above injuries should be admitted. Psychiatric evaluation should be done before discharge in suicidal ingestion.

Efforts should be made to decrease the incidence of corrosive ingestion through public health interventions such as educating the people, and implementing safe packaging and storage regulations.