

ACUTE FORMIC ACID POISONING IN SOUTH INDIA

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Introduction: Complications of ingestion of formic acid, the diluted form of which is used in coagulation of rubber latex, are not described in literature. Kerala, a state in south-western India, is well known for its rubber plantations. Easy accessibility to formic acid makes it susceptible to be used for deliberate self harm in this region. This retrospective study was conducted to study the patterns of presentation and identify the predictors of morbidity and mortality of acute formic acid poisoning. **Methods:** Data regarding patients admitted to the medical wards from January 2007 to December 2008 (2 years) with formic acid ingestion were retrieved and analysed for symptoms at presentation, clinical parameters and complications. **Results:** Of the 302 patients (181 males), with a mean age of 42.78 years (13-85 years), accidental ingestion was reported in 23 patients (7.6%). The mean time taken for presentation to our centre after consumption was 2.5 hours. Formic acid was mixed in alcohol for consumption by 24.2% patients. Common symptoms at presentation were vomiting (78.1%), respiratory distress (44%), hematemesis (42.1%) and hematuria (30.1%). Complications of the poisoning were oral cavity burns (87.7%), metabolic acidosis (70.2%), septicaemia (51.3%), dysphagia (51%), esophageal stricture (ES) (32.5%), gastro-intestinal perforation (GIP) (12.9%), aspiration pneumonia (47.4%), ARDS (33.8%), acute renal failure (38.7%), chemical pneumonitis (25.5%) and shock (24.2%). Rare complications were tracheo-esophageal fistula (4), pneumomediastinum (2) and chemical injury to the cornea (1). Of the 33 patients who underwent hemodialysis 9 developed deep vein thrombosis. Logistic regression was employed to predict morbidity (ES). Metabolic acidosis with pH < 7.3 (OR 27.78, 95% CI 3.5-223.2), hematemesis (OR 5.5, 95% CI 2.7 – 11.1) and age > 40 years (OR 0.976, 95% CI 0.95-0.99) were independent predictors of morbidity. Hematemesis (p=0.000) and melena (p=0.000) had significant associations with ES. Hematuria (p<0.001), respiratory distress (p<0.001), hematemesis (p<0.001) and GIP (p=0.000) at presentation were significantly associated with mortality. **Conclusion:** Easy availability of formic acid should be curtailed by enforcing statutory limitations in its distribution. Metabolic acidosis, if taken care of by administration of sodium bicarbonate intravenously at the local medical centres, before referring the patient to a tertiary setup, may reduce mortality and morbidity in acute formic acid poisoning. Patients with hematemesis or melena, if they survive, should be followed up with serial esophageogastroduodenal scopy for diagnosis and early treatment of strictures.