

## 2-Chloroethanol Intoxication: Analysis of Cases

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Objective: 2-Chloroethanol (ethylene chlorhydrin, CAS 107-07-3) is a solvent commonly used in industry and noted to be highly toxic in animals and human. In Taiwan, farmers applied 2-chloroethanol on grapevines to accelerate sprouting, and put themselves at risk of accidental intoxication. Severe intoxication presenting with hypotension, respiratory failure, seizure, coma or mortality can occur even after only skin or inhalational exposure (1).

Case Series: We reviewed the medical charts of 2-chloroethanol intoxication cases from four hospitals in the region of grape cultivation. Chronological data, exposure histories and clinical presentations were recorded and analyzed.

Results: From 1993 to 2010, 36 cases in total with more complete records were analyzed. There were 17 lethal cases (mortality rate 47.2%) with older age (average age  $60.7 \pm 10$  years vs.  $45 \pm 15.6$  of survivors), 82% (14 cases) of oral exposure who only survived by  $13.6 \pm 7.9$  hours. Most of the patients presented initially with GI symptoms and mild somnolence, but deteriorated rapidly to refractory hypotension in lethal cases. Fomepizole had been used in 9 cases for 1-6 days with seven survivals.

Conclusion: 2-Chloroethanol is highly toxic to farmers. 2-Chloroethanol is a halide alcohol and might be metabolized to more toxic metabolites by alcohol dehydrogenase, and, therefore, the enzyme antagonist fomepizole might play a potential and crucial role in 2-chloroethanol intoxication (2).

References: 1. Deng JF, et al. Acute ethylene chlorhydrin poisoning: experience of a poison control center. *Clin Toxicol* 2001;39:587-93. 2. Chen YT, Liao JW, Hung DZ. Protective effects of fomepizole on 2-chloroethanol toxicity. *Hum Exp Toxicol* 2010;29:507-12.