

# Emamectin Benzoate Poisoning Causing Multi Organ Dysfunction

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## Abstract

**Background:** Emamectin is a foliar insecticide derivative of abamectin, which is isolated from fermentation of *Streptomyces avermitilis*, a naturally occurring soil actinomycete. It acts by stimulating the release of  $\gamma$ -aminobutyric acid, an inhibitory neurotransmitter, thus causing insect paralysis within hours of ingestion, and subsequent insect death 2–4 days later. On humans, there is a paucity of information regarding human toxicity associated with EB.

**Objective:** Alcohol intake along with emamectin benzoate compound can worsen outcomes.

**Methods:** This case series is about two patients, one is a 52 year old male who consumed 50 g of amnon insecticide (5% emamectin benzoate) poison under influence of alcohol, another is a 22 year old female who consumed around 200 gm of 5% emamectin benzoate. In our first case, patient developed severe symptoms from acute respiratory failure to MODS. While in second case, patient had no significant presentation, was discharged, and did not experience any sequelae.

**Results:** 52 year old male patient developed Multiorgan dysfunction within 2 days of ingestion, was kept on mechanical ventilator for 8 days and received 9 haemodialysis during his course of stay. Patient was discharged 1 month after admission without any sequelae. While 22 year old female patient did not have any complications and was discharged after 4 days of admission without any sequelae. In cases of high dose avermectin ingestion in humans, CNS toxicity, including agitation and depressed mental status, have been reported, as well as death resulting from respiratory failure. With respect to human EB toxicity, there are very few documented case, one where the patient presented with mild confusion and gastrointestinal (GI) symptoms of nausea, vomiting, and cramping discomfort. He was discharged 1 week from initial presentation and experienced no sequelae. In another documented case, the patient ingested 100 mL of 2.15% EB without dilution under effect of alcohol. He also experienced GI symptoms, but did not have any CNS depression. The metabolic acidosis rapidly worsened, and could not be corrected, even with intensive therapy.

**Conclusion:** The toxic effects of emamectin benzoate were more pronounced when it was consumed along with alcohol. Further studies are needed to know the effect of emamectin benzoate on humans.