OP-24
A mechanistic study to assess the efficacy of gastric lavage in acute organophosphate poisoning

Asisha Janeela[1], Anand Zachariah[2], Joe Fleming[3]
[1,2]Department of Medicine, Christian Medical College, Vellore, India. [3] Department of Clinical Biochemistry, Christian Medical College, Vellore, India

Objective: Gastric lavage is the standard of care for pesticide poisoning in India although its efficacy is unclear. This study aimed to assess the efficacy of gastric lavage in acute organophosphate poisoning (OPP) by measuring the amount of organophosphate (OP) removed from the stomach by gastric lavage.

Methods: Patients who came to Christian Medical College, Vellore within 6 hours of OPP were included in the study. The clinical details documented included compound consumed and prior gastric lavage. After stabilization, a nasogastric tube was inserted and stomach contents aspirated, following which gastric lavage was performed and samples from each cycle were sent for HPLC testing to determine the amount of OP in the lavage fluid. HPLC was performed using standardized assays for 10 OP compounds.

Results: 42 consecutive OPP patients underwent gastric lavage. 7.1% of patients had minor complications of gastric lavage. In 8 patients, gastric lavage samples could not be analyzed due to lack of standards for specific compounds. In the remaining 34 patients, 24 (70.6%) had detectable OP in the gastric lavage samples. While 88.5% of lipophilic OPs were detected in the gastric aspirate none of the hydrophilic compounds (such as monocrotophos and dimethoate) could be detected in the stomach. OP detected in the stomach at presentation was not dependent on prior gastric lavage (p-value = 0.321) or time to presentation to our hospital after OP consumption (p-value = 0.628).

The mean amount of OP removed by gastric lavage was 3946.7 (±7786.3) micrograms among patients who had an initial gastric aspirate and 2619.3 (±7178.8) micrograms in those who did not have an initial gastric aspirate. The mean proportion of OP removed by the initial gastric aspirate was 91.3% and subsequent 3 cycles removed 5.3%, 2.4% and 1% of OP. In patients who did not have an initial gastric aspirate the respective 3 cycles removed 88.1%, 11.5% and 0.4 % of OP. Despite this 50% of patients had detectable OP in the stomach even after 3 cycles of gastric lavage. The amount of OP consumed based on history varied from 2000 mg to 40,000 mg. Therefore, we estimate that <1 % of total OP ingested was removed by gastric lavage.

Conclusion: The amount of OP removed from the stomach is very small when compared to the amount ingested and therefore the potential clinical benefit of this therapeutic procedure is likely to be low.