



## Pyridoxine

Pyridoxine, better known as vitamin B6, may serve as an effective antidote for the treatment of isoniazid (INH) and monomethylhydrazine (MMH) poisonings. Once administered, pyridoxine hydrochloride is readily converted to its active ester form pyridoxal-5'-phosphate (PLP). PLP is a cofactor in over 100 enzymatic reactions, most notably the synthesis of gamma-aminobutyric acid (GABA).

INH and MMH interfere with utilization of pyridoxine and produce a syndrome resembling cerebral vitamin B6 deficiency. Seizures, one of the prominent manifestations of INH and MMH toxicity, occur secondary to a decrease in pyridoxine-related GABA synthesis. Timely administration of pyridoxine to patients suffering from INH toxicity is associated with rapid seizure control, normalization of mental status and resolution of metabolic acidosis.

Pyridoxine is available in both oral and parenteral forms. The simple rule of thumb is to administer an intravenous dose of pyridoxine equal to the amount of INH ingested by history or 5 grams (70 mg/kg in children) if the amount of INH ingested is unknown. If the patient is not seizing, the total dose should be infused over 4-6 hours. It should be infused at a rate of 0.5 g/min if the patient is actively seizing. When seizures have stopped, the remainder of the dose should be administered over 4-6 hours. This strategy makes pyridoxine continuously available while INH is being eliminated. (Note: The quantity of pyridoxine needed to treat an INH overdose might exceed the amount stocked in the hospital pharmacy). Co-administration of a benzodiazepine is recommended. The same guidelines apply to MMH poisonings.

Pyridoxine is not without adverse effects at chronic high doses. However, few adverse effects are reported with large antidotal doses used short-term.

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### ***DID YOU KNOW THAT..... American mistletoe, sold in Christmas decorations in the U.S., is unlikely to cause more than mild gastrointestinal symptoms when ingested?***

For years it was thought that mistletoe was highly toxic; however, this applies only to European mistletoe (*Viscum sp*) and not American mistletoe (*Phoradendron sp*). Although it is not impossible to find European mistletoe in the U.S., it is very unlikely that children who ingest a few berries from a decoration would be at risk.

