toxtidbits
the maryland poison center's monthly update. news. advances. information.
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Mushroom Poisoning—Amatoxins

Many species of mushrooms are often mistaken for safe, edible mushrooms found in the wild. Some of the most dangerous toxins, amatoxins, are produced by certain mushroom species including *Amanita phalloides*, *A. ocreata*, *A. bisporigera*, *A. tenuifolia*, *A. virosa*, *Galerina* spp, and *Lepiota* spp. Amatoxins cause toxicity by inactivating RNA polymerase II and inhibiting protein synthesis, which ultimately leads to cell death. Due to its cytotoxicity, amatoxins target organs with the highest rate of cell turnover, such as the gastrointestinal tract, liver, and kidneys. Ingestion of one Amanita cap or 15 to 20 Galerina caps can provide the amount of amatoxin that is considered to be lethal in a healthy adult human.

Symptoms usually do not develop until at least 6 hours after ingestion. During the first phase, occurring 6-24 hours after ingestion, amatoxin poisoning resembles severe gastroenteritis with profuse watery diarrhea and severe vomiting. Often, supportive fluid and electrolyte replacement leads to a transient improvement between 12 and 48 hours after ingestion. Despite such supportive care, hepatic and renal toxicity may occur 2-6 days after ingestion, depending on the amount ingested and degree of dehydration present. Death can occur 6 days or longer after ingestion due to hepatic and/or renal failure.

If it is suspected that one of these amatoxin-producing mushrooms has been ingested, activated charcoal should be administered to limit amatoxin absorption if within one hour of the ingestion. Multiple doses of activated charcoal may be given to interrupt enteroheptic recirculation of the amatoxins. Fluid (normal saline and/or dextrose) and electrolyte repletion and treatment of hepatic compromise are essential. Liver transplantation may be required. Several treatment options with limited evidence of efficacy include high-dose penicillin G, thioctic acid, high dose steroids, N-acetylcysteine, and cimetidine. Due to the significantly high mortality after amatoxin ingestion, new antidotes are currently being investigated, including an intravenous form of milk thistle, silibinin (Legalon® SIL), that is approved for use in many European countries and is now available in the U.S. Preliminary studies have shown that this antidote may be effective for the prevention and treatment of amatoxin-induced hepatic failure. See below for more information on Legalon® SIL.

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DID YOU KNOW THAT… *Legalon® SIL (silibinin) is now available in the USA for treatment of amatoxin mushroom poisoning?*

Silibinin (Legalon® SIL), an intravenous form of milk thistle, blocks the hepatocyte uptake of amatoxin when initiated promptly, allowing the poison to be eliminated more quickly from the body. It is well tolerated with documented adverse effects of flushing and benign rashes. Legalon® SIL is now available in the USA via an Open Treatment IND clinical trial, which allows for same day shipping. More information may be found at www.LegalonSIL.com. If mushroom poisoning is suspected, contact the Maryland Poison Center for assistance.

Maryland Poison Center
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