Case report: Poisoning of *Amanita Phalloides*

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Introduction

A family of five enjoyed a meal made of *Amanita phalloides*. The mushrooms were mistaken for other edible species (*Macrolepiota procera*).

Amanita phalloides contains 15-20 cyclopeptides, including the amatoxins, phallotoxins and virotoxins. The amatoxins appear to be the most toxic of the cyclopeptides, leading to hepatic, renal, and central nervous system damage. The amatoxins are taken up by hepatocytes and interfere with messenger RNA synthesis, suppressing protein synthesis and resulting in severe acute hepatitis and possible liver failure. Unfortunately, early differentiation of cyclopeptide poisonings from other types of mushroom poisoning is very difficult. These patients may present to an ED with seemingly innocuous picture of nausea, vomiting, abdominal pain, and diarrhea, which is often attributed to other causes. Such patients may be sent home, only to return moribund on subsequent day. Because of the hepatotoxicity of *Amanita phalloides* the treatment must focus on the protection and on the supportive treatment of liver functions. Liver assistance method for the selective removal of albumin-bound substances by Molecular Adsorbent Recirculation System (MARS) is currently the most widespread extracorporeal liver support system, and using MARS seems beneficial in management of *Amanita phalloides* poisonings. Forced diuresis, hemodialysis, plasmapheresis, hemofiltration and hemoperfusion may be effective, but most studies offer no clinical evidence of benefit nor supportive pharmakinetic data for any of these therapies. (Goldfrank, L. R. *et all* 2002). In a comparative research was found that liver regeneration rate was higher in patients who received alongside MARS compared with patients who had only penicillin, hydrocortisone, N-acetylcysteine and silibinin as standard-therapy (Wisniewski, M., *et all* 2008).

Because of the absence of prospective controlled studies of exposure to amatoxin in addition to the extreme variability of success with many regimens, multiple-dose activated charcoal and supportive care with fluid and electrolyte repletion, high-dose penicillin G, and dexamethasone remain the standard therapy. (Flomenbaum, N. E. *et all* 2006).

Aim

To describe retrospectively the clinical findings, treatment and outcome of an accidental ingestion of Amanita phalloides mushroom by a family of five.

Method

Symptoms (nausea, vomiting, diarrhoea, chills) began 11-12 hours later. They were admitted to a local area hospital where all initial laboratory results were unremarkable. At first *Amanita phalloides* poisoning was not suspected and the patients received intravenous infusion, one patient (F33) got activated charcoal already in local hospital while dosage of charcoal remains unknown. By approximately 40 hours after ingestion all patients had developed laboratory evidence of toxic hepatitis and they were transferred to intensive care unit in Tartu University Hospital.

Silibinin is not available in Estonia and thus all patients were treated with multiple dose activated charcoal, plasmapheresis, hyperbaric oxygen therapy (HBO) and high-doses intravenous penicillin.

Albumin dialysis using a MARS was not used. Activated charcoal adsorbs the amanitins and penicillin acts possibly hepatoprotectively.

It is considered that plasmapheresis may be effective shortly after ingestion, within 48 hours following intoxication (Lapiński, T.W., 1998) because of the absence of prospective controlled studies the method is not recommended as a standard therapy. The mechanism of action and efficacy of HBO in toxicology continue to be investigated.

Results

An 57 year old woman (co-morbidities; diabetes, hypertonia) developed profound hepatotoxicity and renal failure). Renal failure improved after 4 procedures of conventional haemodialysis. Patient was discharged after 20 days of treatment with moderate renal failure with an ALT of 93, AST of 20. Four other patients developed moderate hepatotoxicity with following laboratory results – 33 year old woman ALT 3862, AST 4628; 13 year old boy ALT 2184, AST 2823, two 14 year old boys ALT 3079/1744, AST 3062/1346. They were discharged after 10 days with moderately elevated hepatic markers (33 year old woman ALT 109, AST 28; 13 year old boy ALT 101, AST 51; two 14 year old boys ALT 114/96 AST 45/35).

Conclusion

When intravenous silibinin is not available a combination therapy of high-dose intravenous penicillin, plasmapheresis and multiple dose activated charcoals is effective in the treatment of *Amanita phalloides* poisoning. The role of HBO remains questionable.

Aknowledgements

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References

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