

# EPIDEMIOLOGICAL ASPECTS RELATED TO MUSHROOM POISONING IN CHILDREN. CURRENT DATA

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**Abstract:** Although, in recent years, a series of campaigns to educate consumers on the dangers linked to the use of spontaneous growing mushroom have been taken, mushroom poisoning remains a serious public health problem, especially when it occurs in children because of the clinical and treatment features of this age group. This paper reviews the latest data from the literature related to the incidence of this disease.

**Cuvinte cheie:** intoxicație cu ciuperci, copii, epidemiologie

**Rezumat:** Deși în ultimii ani au fost duse o serie de campanii de educare a consumatorilor în ceea ce privește pericolul legat de consumul de ciuperci din flora spontană, intoxicațiile cu ciuperci reprezintă în continuare o serioasă problemă de sănătate publică, mai ales atunci când apar la copii, datorită particularităților clinice și de tratament care apar la această grupă de vârstă. Lucrarea de față trece în revistă ultimele date din literatură legate de incidența acestei afecțiuni.

To illustrate the magnitude of the problem and its high interest to the medical professionals, it is enough to note that a simple search in the database of the National Library of Medicine of the United States reported no fewer than 158 articles indexed in just the last 5 years.(1)

A study conducted in the United States for a period of 10 years (2001-2011) reports 83.140 documented cases. Of these, 77.6% were poisoning in children, of which 58.3% (48.437), in children younger than 6 years old. Among symptomatic cases, clinical symptoms were minor in 56.5% (10.953) of patients, moderate in 40.3% (7.804), and major in 2.9% (568). The evolution to death was reported in 45 cases - 0.2%.(2)

The way mushroom poisoning appears is different from adult and child, being an area where we can intervene in the prevention of such cases.

While for adults, the use in diet of fungi collected without knowledge of the morphology, confusion of the species is the most common route of poisoning; in children, more often mushroom ingestions are reported, together with the parents during common meals, and incidents related with unintentional consumption, especially in young children, of some mushrooms found incidentally during unsupervised activities. There have also been reported cases of transfer of mycotoxins in breast milk to infants, according to NAMA (North American Mycological Association).(3) A relatively new way of contact with poisonous mushrooms in our country is represented by the potential use of hallucinogenic fungi, in the dried form or in combination with other agents - so-called ethnobotanics, which have been widespread in recent years.

The 2009 Annual Report of the National Poisoning Registry (U.S.) shows that out of 5523 mushroom poisoning cases, 4083 (73.9%) of the cases were in children, of whom 3012 (54.5%) in the age group of 0-6 years old, 1071 (19.4%) in the age group of 6-19 years old, and only 1230 (26.1%) in people over 19 years old.(4)

Epidemiological data about mushroom poisonings in Europe are not collected in an integrated system, especially in non-member states of the European Union. The tradition of collecting mushrooms of spontaneous flora, much better developed in Europe and Asia, generates a larger number of poisoning cases than in North America, with approximately 50 deaths per year, compared with an average of 4 deaths in North America.(5)

Unfortunately, due to local traditions and lower living standards, in addition to the greater percentage of the population living in rural areas, it is here where the incidence of this type of accidents is higher. Minor forms of poisoning in children often remain unreported due to low medical addressability of groups at risk. Poor education and the lack of childcare are additional factors that increase the incidence of exposures and poisonings in this age group.

The cases reported in the press, especially in the period before the fall of the Iron Curtain and the next period refer to the mass poisonings, large scale accidents and therefore a greater number of victims. In the fall of 1998 in the region around Zagreb, there was a collective poisoning affecting 140 people, including 18 children, with 4 deaths (6).

A retrospective study conducted in a region of Turkey between 2000 and 2007, examined 294 cases of mushroom poisoning by ingestion.

Out of these, 90 cases (30.6%) were recorded in children. The death rate in the study group was of 1.02%, with no significant differences related to age groups.(7)

Another European study examines cases of mushroom poisoning in 10 regional centres in Portugal, between 1999 to 2008.(8) According to the specific diagnosis encoding, 93 cases were reported, out of which 16 (17.4%) in persons aged under 20 years old, 6 (6.5%) were in children under the age of 10 and 10 (10.9%) in the age group of 11-20 years old. The overall mortality rate was of 6.8%.

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In Italy, during 1988-2002, 111 cases were treated for Amanita poisoning in a single centre of Toxicology, at the University of Florence Hospital.(9)

For Romania, unfortunately currently there is no uniform system of registration of toxicological data, here including eating poisonous mushrooms, although the "Grigore Alexandrescu" Hospital has a Clinical Toxicology Unit, which gather patients from the whole region. TOXAPEL phone line is the result of the effort of the Emergency Hospital for Children "Grigore Alexandrescu" team, which is the only pediatric toxicology service in Bucharest and the largest service of this kind in Romania.

Existing data relate to aspects of local or regional studies. In our country, more than 50 species of poisonous mushrooms are known at present and eating wild mushrooms picked up from uncontrolled sources is still very common.

A study in Craiova extended on a period of 3 years (2003-2005) notes that out of the total number of admissions in a pediatric clinic, 4.1% were represented by acute poisoning with toxic substances. Of these, 12 children (3.8% of the total) were intoxicated with poisonous plants, with 9 cases of mushrooms ingestion.(10)

A group from Iasi University Hospital reported in 2003 a series of 6 children with acute liver failure due to consumption of poisonous mushrooms, successfully treated by a new method of dialysis, without including wider epidemiological data.(11)

The issues related to poisoning by toxic mushroom ingestion remains current, especially in the specific socio-economic context of our country. Creating a single database record system about mushroom poisoning can provide a good support for the study, useful for both academics and authorities involved in control and prevention activities.

In conclusion, although there is no centralized database in our country, of the reported cases published in different centres, the incidence of mushroom poisoning is comparable to other European countries. Probably the establishment of a national register of poisoning similar to that of the U.S. would be appropriate, with a chapter related to mushrooms poisoning, this solving many problems relating to information, prevention, standardized course of treatment and public and medical awareness.

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