MUSHROOM POISONING: A PROPOSED NEW CLINICAL CLASSIFICATION

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Objectives: To review and revise the clinical classification of mushroom poisoning.

Methods: The scientific and medical literature was searched using the term "mushroom poisoning" and variations thereof with further searches based on terms describing types of mushroom poisoning located through the main searches. Papers were selected if they described a type/types of mushroom poisoning, rather than discussion of treatment choices. Papers documenting apparently new types of mushroom poisoning received most attention. The latter group were examined to determine if there was a clearly defined syndrome of mushroom poisoning and if there were a significant number of cases, or a significant poisoning outcome. This information was entered into a clinical features matrix which was used to devise a new classification system for mushroom poisoning and a diagnostic algorithm.

Results: Over 2,000 papers were located and from these less than 100 contained reports suitable for classifying new syndromes of mushroom poisoning. From these, using the matrix, we identified 21 distinct syndromes of mushroom poisoning which we classified into the following groups: We propose 6 broad groups, most with subgroups. Group 1 - Cytotoxic mushroom poisoning; specific major internal organ pathology, causing either primary hepatotoxicity, or primary nephrotoxicity. 1A, primary hepatotoxicity (amatoxins); 1B, early primary nephrotoxicity (amino hexadienoic acid; AHDA); 1C, delayed primary nephrotoxicity (orellanines). Group 2 - Neurotoxic mushroom poisoning; poisoning causing primary neurotoxicity. 2A, hallucinogenic mushrooms (psilocybins and related toxins); 2B, autonomic-toxicity mushrooms (muscarines); 2C, CNS-toxicity mushrooms (ibotenic acid/muscimol); 2D, morel neurologic syndrome (Morchella spp.). Group 3 - Myotoxic mushroom poisoning. 3A, rapid onset (Russula spp.); 3B, delayed onset (Tricholoma spp.). Group 4 - Metabolic-toxicity mushroom poisoning; includes a wide variety of poisoning syndromes and clinical presentations. 4A, GABA-blocking mushroom poisoning (gyromitrins); 4B, disulfiram-like (coprines); 4C, polyporic mushroom poisoning (polyporic acid); 4D, trichothecene mushroom poisoning (Podostroma spp.); 4E, hypoglycaemic mushroom poisoning (Trogia venenata); 4F, hyperprocalcitoninemia mushroom poisoning (Boletus satanas); 4G, pancytopenic mushroom poisoning (Ganoderma neojaponicum). Group 5 - Gastrointestinal irritant mushroom poisoning. Group 6 - Miscellaneous adverse reactions to mushrooms. 6A, Shiitake mushroom dermatitis; 6B, erythromelagic mushrooms (Clitocybe acromelagia); 6C, Paxillus syndrome (Paxillus involutus); 6D, encephalopathy syndrome (Pleurocybella porrigens). The diagnostic algorithm consists of 6 linked sections covering all 6 groups and 21 poisoning syndromes.

Conclusions: This new classification provides a template for understanding mushroom poisoning, but the diagnostic algorithm will require clinical evaluation. As new types of mushroom poisoning emerge both the classification and algorithm will need revision.