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Acute poisoning in northern Vietnam: epidemiologic, diagnostic and therapeutic aspects

AKADEMISK AVHANDLING

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ABSTRACT

Poisoning is a major health problem in northern Vietnam. The aims of these studies were to improve prevention, differential diagnosis and treatment of this threat to the public.

A hospital-based retrospective study of poisoning emergencies admitted to the first Poison Control Center (PCC) in Vietnam during the years 1999 and 2003 (Paper I) revealed that a vast majority of the poisoning emergencies occurred at home.

Pesticides, hypnotic pharmaceuticals and heroin were among the most commonly involved toxic agents and entailed an increased risk of a fatal outcome. The frequently recorded severe toxic symptoms, including coma, respiratory failure, hypotension and seizures, indicate a need for more specialized clinical poisoning units with intensive care facilities in Vietnam.

A cross-sectional community-based study from a rural part of Vietnam (Paper IV) pointed out that the availability and accessibility of pesticides constitute the main risk factor for poisoning among ordinary people in Vietnam. A second important source of toxins in the rural area of Vietnam is its poisonous flora and fauna. Other common risk factors for poisoning were the availability and inadequate storage of hazardous household products and self-medication of pharmaceuticals purchased at retail pharmacies without professional consultation.

A retrospective study of 60 consecutive patients envenomed by *Bungarus multicinctus* treated at the intensive care unit (ICU) of the PCC during the 4-year period 2000-2003 (Paper II) demonstrated that bites by this particular krait species commonly occur in rural areas and during night-time. The first symptoms developed within a wide time-range of 0.5 to 24 hours. The dilatation of the pupils was often maximal and extremely persistent in some cases. A majority of the patients developed generalized muscle paralysis and 87% of the study population needed mechanical ventilation. The new and surprising finding of a high rate of significant hyponatremia makes frequent laboratory monitoring and sometimes prompt sodium replacement imperative, and the severe clinical features recorded indicate an urgent need for a specific antivenom.

A controlled clinical trial of a novel antivenom against *B. multicinctus* during a three-year period (2004-2006) at the ICU of the PCC (Paper III) clearly demonstrated its favourable efficacy and acceptable safety. The prospective study also confirmed the new finding in paper II of a high risk for development of significant hyponatremia after snakebite by this particular species.

In conclusion, the epidemiological hospital- and community-based studies provided fundamental information needed for improved poisoning prevention in Vietnam. The retrospective study identified important clinical information regarding envenoming by *B. multicinctus*. The new finding of a high rate of clinically significant hyponatremia makes repeated monitoring of electrolytes and in some cases prompt sodium replacement imperative. The controlled clinical trial demonstrated the efficacy and safety of the novel specific antivenom against *B. multicinctus* and thereby set up a principal treatment routine for patients envenomed by *B. multicinctus*.

Keywords: acute poisoning, epidemiology, risk factor, antivenom, snakebite, *Bungarus multicinctus*, Vietnam