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The Australian Snakebite Project (ASP): Defining clinical syndromes and influencing clinical practice

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Australian snake envenoming is rare but can occur in almost any part of Australia, often presenting to rural/regional hospitals. Limited clinical exposure and lack of large studies or controlled trials has resulted in treatment being based on anecdotal experience.

The Australian Snakebite Project (ASP) is a continuing prospective multicentre observational study of snakebite patients throughout Australia. It uses predefined data collection, laboratory investigations and venom assays to describe envenoming, antivenom effectiveness and dose. Data collection sheets and laboratory protocols are faxed to clinicians who return them by fax. Blood samples are transported to a central laboratory for venom enzyme immunoassays.

From January 2005 to September 2016 there have been 1715 patients recruited to ASP. There were 939 envenomed patients with median age, 40y (1-88y), 693 (74%) were males. Brown snakes were the most common, then tiger snake, red-bellied black snake and rough-scale snakes. Coagulopathy was the commonest clinical effect, then neurotoxicity, renal toxicity and myotoxicity. There were 24 deaths but no change in case-fatality. Antivenom was administered in 804 envenomed patients (86%), and 57 non-envenomed patients. 181 patients (21%) administered antivenom had an immediate hypersensitivity reaction. Nine publications over 5y showed that one vial of antivenom was sufficient and repeat doses not required based measuring venom concentration measurement pre- and post-antivenom. Based on a study of 10 years of snakebite there was a reduction in median antivenom dose from 4 to 1 vial and decreased repeat dosing.

A national multicentre collaboration systematically described clinical syndromes and antivenom use in snake envenoming. Laboratory support was critical, providing objective evidence based on venom concentrations. The collaborative nature allowed immediate dissemination of research results into clinical practice, rapidly influencing the diagnosis of snakebite and improving treatment. Reduced antivenom use means decreased cost and potentially less risk of anaphylaxis.