Oral Presentations

OP - 01

In vivo efficacy and pharmacokinetics of a new Sri Lankan antivenom for Hump-nosed Viper (*Hypnale* spp) bites – A preliminary dosing study

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Objective: This study aimed to investigate the in vivo efficacy of a new antivenom for hump-nosed viper (*Hypnale*) envenomation at two different doses. In addition, it aimed to determine the pharmacokinetics and safety of the antivenom.

Methods: Twenty suspected hump-nosed viper bites were recruited from patients presenting to Peradeniya Hospital. The first ten patients were administered 2 vials and the second ten 5 vials of antivenom. Demographic information, identification of the snake and clinical effects were recorded. Blood was collected before antivenom administration, then 2h, 4h, 6h, 12h, 18h, 24h, 2d, 3d, 4d, 5-6d and 2 weeks post-antivenom. Venom and antivenom concentrations were measured in blood with venom specific enzyme immunoassay as previously described. The primary outcome was the in vivo efficacy of the antivenom defined as binding all free venom detected in blood, after antivenom administration. Adverse effects to antivenom were defined according to the Brown Grading system.

Results: Of the 20 patients (median age 54y [16-70y]; 16 males) only ten patients had hump-nosed viper venom detected prior to antivenom administration. All patients had local effects of envenomation, but no coagulopathy or acute kidney injury occurred. The median venom concentration in the ten patients was 5.1ng/ml (0.8 to 30.4ng/ml). No free venom was detected post-antivenom in any patient up to two weeks post-administration. Antivenom was detected in all 20 patients and the timed antivenom concentration data best fitted a one-compartment model with a median elimination half-life of 22h (interquartile range: 13 to 36h). 13 patients (65%) developed systemic hypersensitivity reactions which resulted in severe anaphylaxis in six cases (30%).

Conclusion: The new Sri Lankan antivenom appeared to bind all free antivenom at both doses in patients with confirmed hump-nosed viper bites. Adverse reactions occurred in over half and severe anaphylaxis in almost a third. The pharmacokinetics were consistent with other snake antivenoms with a long elimination half-life.