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CLOTTING STUDIES AND FACTOR DEFICIENCIES OF HUMP-NOSED PIT VIPER (*HYPNALE HYPNALE*) ENVENOMING IN SRI LANKA

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Objectives: Hump-nosed pit vipers (HNPV) are considered the commonest cause of snake bite in Sri Lanka. Previous reports suggest that envenoming mainly causes local effects, and less commonly coagulopathy and renal impairment. The presence of coagulopathy has been based on an abnormal 20 minute whole blood clotting test (WBCT20) and not standard coagulation studies. The aim of this study was to characterise the coagulopathy in HNPV bites by measuring laboratory clotting times and factor studies.

Methods: Cases of hump-nosed pit viper envenoming were included from a prospective cohort study of snake bite patients presenting to Chilaw hospital in Central West Sri Lanka. Only definite bite cases where the snake was collected and identified by health care staff were included. Serial citrated plasma samples were collected from 0.5 hours until discharge, and immediately spun, separated and frozen at -80^{o}C. No patient was treated with antivenom. The WBCT20 was done at the time by the treating team. International normalised ratio [INR], prothrombin time (PT), activated partial thromboplastin time (aPTT), coagulation factors I, II, V, VII, VIII, IX, X, vWF antigen and D-dimer concentrations were measured on stored samples. The median highest or lowest test result was reported with the interquartile range (IQR).

Results: There were 91 patients with HNPV bites, median age 38 (IQR: 24.7-52.2) and 54 were male. The WBCT20 was positive in only two patients. The median highest INR in patients bitten by HNVP was 1.8 (1.5 to 2.2) and median highest aPTT was 53 seconds (46-76) which were associated with low fibrinogen [median, 1.3 g/L; 1 to 1.8 g/L], low factor VIII levels [median 22.7%; 16.2% to 37.5%] and low factor V levels [median 42.2%; 18.5% to 74.5%]. D-dimer concentrations [median 3.4 mg/L; 2 to 6.1) were slightly elevated. Factor II, VII, X and vWF concentrations were normal.

Conclusions: HNPV bites result in a mild coagulopathy which is not detected in most cases by a WBCT20. It is characterised by mild elevation of INR, low fibrinogen, factor V and VIII.