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Epidemiology and haematological manifestations following Hump-nosed Pit Viper (Genus: *Hypnale*) envenoming in Sri Lanka

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Objective: To identify epidemiological features and haematological manifestations following Hump-nosed pit viper (Genus: *Hypnale*) envenoming in Sri Lanka.

Methods: A descriptive observational study involving a series of 263 patients admitted with Hump-nosed pit viper bites to Provincial General Hospital, Ratnapura was conducted. Data collection was done from July 2015 to August 2017. Twenty minute whole blood clotting test (WBCT20) was performed on admission and then six hourly for 24 hours. Complete blood count including all indices, clotting profile (PT/INR, APTT) and blood picture were done.

Results: There were 162 (61.59%) males and 101 (38.4%) females. Their age was ranging from 13-75 years. The bitten sites were feet (157; 59.69%), hands (82; 31.17%), ankles (14; 5.32%), forearms (3; 1.14%), thigh (1; 0.38%) and buttock (1; 0.38%). Day time (6AM-6PM) bites were 173 (65.77%) and 90 (34.22%) were bitten at night (6PM-6AM). Eighty five (32.31%) patients were bitten while working in their home gardens, 84 (31.93%%) while working in estates, 51 (19.39%) while walking on foot paths, 16 (6.08%) while working inside homes, 11 (4.18%) while walking on roads and 3 (1.14%) while working in paddy field. Of the studied patients, 55 (20.91%) were manual labourers, 44 (16.73%) were house wives, 40 (15.2%) were estate workers, 20 (7.6%) were gem miners, 10 (3.8%) were tea pluckers and 8 (3.04%) were masons. Systemic envenoming features were observed in 21 (7.9%) patients who all developed coagulopathy (positive WBCT20). The bleeding manifestations were gross haematuria in 3 (1.14%), microscopic haematuria in 5 (1.9%) and generalized ecchymoses in one (0.38%) patient. Seventeen (6.46%) patients had acute kidney injury (AKI) from which three (1.14%) developed chronic

kidney disease. Leucocytosis was observed in 26 (9.8%); thrombocytopenia in 16 (6%) and decreased haemoglobin level (< 9 g/dL) was found in 12 (4.5%) patients. Twenty patients showed elevated levels of PT/INR and APTT. Microangiopathic haemolytic anaemia (MAHA) was observed in 21(7.98%) patients from which 11 (4.1%) patients developed thrombotic microangiopathy. Reduced levels of mean corpuscular volume (MCV) in 25 (9.5%), mean corpuscular haemoglobin (MCH) in 28 (10.6%), mean corpuscular haemoglobin concentration (MCHC) in 34 (12.9%), mean platelet volume (MPV) in 14 (5.3%) and red blood cell (RBC) count in 15 (5.7%) patients were observed.

Conclusion: Coagulopathy is the main haematological manifestation following hump nosed pit viper envenoming. Genus *Hypnale* venom affects the morphology of RBCs and platelets. There is an association between MAHA and AKI.