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Clotting tests associated with hypofibrinogenemia and systemic bleeding in green pit viper or Russell's viper bite patients.

Thippawan Saengnoi[1], Sahaphume Srisuma[1], Teeraya Puavilai[1], Pichika Chantrathammachart[1], Amnuay Saengchisirisak[2], Winai Wananukul[2]
1 Department of Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand;
2 Sawanpracharak Hospital Medical Education Center, Nakhon Sawan, Thailand

Objective: To determine association between clotting tests (VCT, 20WBCT, platelets, PT, aPTT, and INR) and 1) fibrinogen < 100 mg/d, and 2) systemic bleeding in patients bitten by green pit viper (GPV) and Russell viper (RSV).

Method: This is a prospective cohort study involving cases bitten by GPV or RSV, who were admitted to Sawanpracharak Hospital, Nakhon Sawan, Thailand, during October 2016 to December 2017. Patient's blood were collected for fibrinogen, PT, INR, PTT, platelet count, VCT, and 20WBCT. Blood specimens were collected at initial presentation and every 6 hours until 24 hours of admission, or patients' recovery. The association between parameters and both fibrinogen < 100 mg/dL and systemic bleeding were determined using odd ratio (OR), and 95% confidence interval (95%CI).

Results: There were 30 cases; 21 were bitten by GPV, and 9 were bitten by RSV. Median age was 43 years (IQR 33.3-57.8). 161 sets of blood specimens were collected. 4 patients had systemic bleeding. A total 31 courses of antivenom were given to 15 patients. Total VCT 128 specimens, 20WBCT 99 specimens, platelets 101 specimens, PT 102 specimens, aPTT 87 specimens, INR 102 specimens, and fibrinogen 100 specimens were collected. Median time from bite to bleeding onset was 7.5 hours (IQR 4.6-9.6 hours). Factors associated with fibrinogen < 100 mg/dL were VCT ≥ 20 min (OR 17.25, 95%CI 1.62-164.43, P-value 0.01), unclotted 20WBCT (OR 10.83, 95%CI 1.51-72.16, P-value 0.01), and INR ≥ 1.2 (OR 21.27, 95%CI 3.12-227.73, P-value <0.001).

Factors that associated with systemic bleeding were VCT ≥ 20 min (OR 49.00, 95%CI 5.13-2,311.83, P-value <0.001), unclotted 20WBCT (OR 86.00, 95%CI 7.63 -3,995.03, P-value <0.001), and fibrinogen < 100 mg/dL (OR 27.00, 95%CI 2.30-359.03, P-value 0.01)

Conclusion: VCT > 20min and unclotted 20WBCT are useful bedside tests which are significantly associated with a fibrinogen level less than 100 mg/dL and systemic bleeding in GPV and RSV. but among vary in type of snake both in Thailand and run-on worldwide need multiple clotting tests for predicted this association.