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Successful use of planned plasma exchange for treatment of life-threatening disorder of coagulation due to pit viper snakebite

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Objective: The of this study was to describe a life-threatening coagulopathy case caused by a viper snakebite which was successful treatment by plasma exchange (PEX) combined with comprehensive intensive care.

Methods: By asking history and examining patient's condition and during the treatment at Poison Control Center, Bach Mai hospital.

Results: An 18-year-old female transmitted to the Poison Control Center of Bach Mai Hospital with life-threatening at 26th hours after being bitten by a viper available in a mountainous region of Cao Bo, Vi Xuyen, Ha Giang, Vietnam. On admission, patients presented hypovolemic shock due to blood loss with severe coagulation disorder. Laboratory test: RBC 1.25 T/L, Hb 36 g/L, PLT 2 G/L, WBC 11,900 G/L; PT<10%, INR>5, APTTs>100, APTTbc>3, Fibrinogen<0,5; creatinine 94 μ mol/L, GOT 25 U/L, GPT 21 U/L, CK 889 U/L; Protein 33,4 g/L; Albumin 15,1 g/L; Procalcitonin 1,36 ng/mL; Urine test: RBC 250 cells/mL; pH7.5; pCO₂ 26 mmHg, PO₂ 105 mmHg, HCO₃ 20,3 mmol/L (BE22,9 mmol/L), Lactate 5,8 mmol/L. Transfusion volume from admission to the first PEX (within 45h) included: 2000 mL fresh frozen plasma, 400 mL cryo, 1900 mL packed red blood cells, 500 mL pooled platelets, 300 mL apheresis platelets; 60 bottles of *Trimeresurus albolabris* antivenom serum LD50 were infused within the first 38 hours. Coagulopathy condition was not improved then. 10 PEX were used with total plasma volume of 24,200mL (2400 – 2500 mL/PEX), with first 5 PEX (14 hours/PEX in critical phase – coagulation disorder was not changed before and after PEX) and last 5 PEX (22 hrs/PEX in dangerous phase – coagulation disorder was more improved after PEX but it appeared right then). In total, 5300 mL of packed red blood cells, 6000 mL of fresh frozen plasma, 4700 mL of cryo, 2750 mL of pooled platelets and 1950 mL of apheresis platelets were transfused. There were no complications during the course of treatment. The length of hospital stay was 18 days.

Conclusion: The life-threatening coagulopathy caused by viper bites could be effectively treated by the combination of planned PEX and comprehensive intensive care. The frequency of PEX should be 8–12 hrs/time in the critical phase and 12–24 hrs/time in the dangerous phase until prothrombin and platelets are back to normal ranges.