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Effect of hemocoagulase agkistrodon on coagulation status in patients with traumatic brain injury in vitro

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- Abstract . Objective To analyze the effects of hemocoagulase agkistrodo(HCA) on the coagulation status of healthy people and traumatic brain injury (TBI) patients in vitro. Methods A total of 10 TBI patients were enrolled from December 2018 to June 2019, and 24 age and sex matched healthy controls were also enrolled Clinical and pathological data blood samples of all

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subjects were collected Different gradient concentrations of HCA were added to the blood samples which were detected by thromboelastography and the R value, K value, α angle and MA value of thromboelastography parameters between the two groups were analyzed to explore the effect of HCA on the coagulation status of patients with TBI. Results With the increase of HCA concentration in blood samples, the R and K values gradually increased and the α angles and MA values gradually decreased in both TBI patients group which included 7 males and 3 females with an median age of 33 (28-39) years old and healthy control group which included 11 males and 13 females with an median age of 33 (23-49) years old. The differences in the R values, K values, α angles and MA values of different concentration gradients were statistically significant in both healthy control group and TBI patients group (χ^2 were 109.80, 131.28, 185.47, 165.97 and 54.92, 75.60, 80.12, 59.25, respectively, all $P < 0.001$). The differences between R values after adding HCA of 0-0.105 U/ml in the healthy group were statistically significant ($P = 0.025$), but K values, α angles and MA values were not statistically significant (P values were 0.275, 0.206 and 0.330, respectively); the R values of the TBI patients group were not statistically significant after adding HCA of 0 to 0.105 U/ml ($P = 0.976$), and the K values, α angles and MA values were statistically significant (P values were 0.047, 0.041, and 0.034, respectively). The R values of the healthy control group, the TBI patients group, and the overall data were significantly positively correlated with the HCA dose (r values were 0.552, 0.700, 0.420, respectively, $P < 0.001$), the K values were significantly positively correlated with the HCA dose (r values were 0.726, 0.861, 0.750, respectively, $P < 0.001$), the α angles were significantly negatively correlated with the HCA dose (r values were -0.815, -0.876, -0.807, respectively, $P < 0.001$) and the MA values were significantly negatively correlated with the HCA dose (r values were -0.757, -0.710, -0.729, respectively, $P < 0.001$). Conclusions HCA does not aggravate the procoagulant state of blood in healthy people and TBI patients, and with the increase of HCA concentration in blood, the blood samples of both groups show a tendency to decrease the coagulation ability.

- Key words : Brain injury, traumatic; Hemocoagulase agkistrodon Thrombosis; Haemostasis

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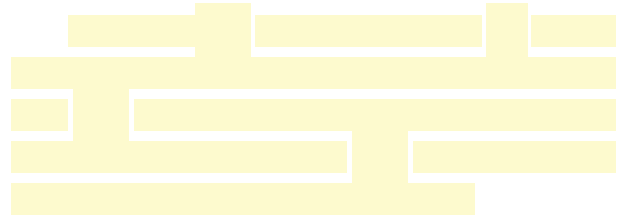
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