

Consideration of usage criteria of fibrinogen concentrate for severe traumatic brain injury

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Abstract:

Background: Traumatic coagulopathy is often observed in patients with severe traumatic brain injury (sTBI). The association between TBI and coagulopathy is well established. Earlier transfusion with high blood product ratios is recommended for severely injured patients, and fibrinogen is known as one of the most important coagulation factor in the trauma field. Fibrinogen concentrate (FC) is widely used for severe trauma patient and its effectiveness is gradually recognized. However, FC for sTBI is less reported and usage criteria is not established. We started to use FC since 2019 after approval of clinical ethics committee and aggressively administer to multiple trauma patients. We aimed to identify predicting factors of fibrinogen declining in order to set the criteria of FC usage for sTBI.

Methods: We retrospectively reviewed successive adults sTBI in our hospital between January 2017 and December 2019. We compared factors between two groups (high fibrinogen group: fibrinogen value is less than 150mg/dL 3-6 hours after arrival, and low fibrinogen group: fibrinogen value is 150mg/dL or more 3-6 hours after arrival). We researched vital signs, laboratory data, findings of computed tomography(CT) and analyze predicting factor.

Results: 50 patients were enrolled. 35 patients achieved fibrinogen value 150 or more, and 15 patients did not. D-dimer on arrival above 50 μ g/mL, skull fracture and depressive skull fracture were strong predicting factors of low fibrinogen group.

Conclusion: Low fibrinogen group should be administered FC. Some laboratory data of Coagulation abnormality demonstrated low fibrinogen as reported. Likewise, skull fracture and especially depressive skull fracture reflect severe coagulopathy in this study and patients without skull fracture is enough treated by using only fresh frozen plasma. Skull fracture has possibility of provoking tissue factors and predicting severe coagulopathy.

Biography

Gaku Fujiwara has graduated at the age of 26 years from Tsukuba University and finished junior resident term in Japanese Red Cross Society of Kyoto Daini Hospital. He belongs to neurosurgery department of Kyoto Prefectural University of Medicine as medical doctor.