A499 - Fibrinogen-based vs plasma-based therapy for trauma-induced coagulopathy: implications on blood transfusion

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Introduction:
Coagulopathy is the leading cause of preventable death in patients with severe trauma. A better understanding on the role of hypofibrinogenemia has lead to an increase in fibrinogen administration, leading to shift from fixed-ratio transfusion protocol to a viscoelastic-based goal-directed algorithm. This approach requires further clinical validation.

Methods:
We conducted a retrospective study comparing transfusion strategies in patients with major trauma between 2013 and 2018. We retrieved demographic data and blood products administered from patients with at least one red-blood cell (RBC) transfusion. Primary outcome was a reduction of RBC administration. Secondary outcomes were mortality, ICU length of stay and acute kidney injury.

Results:
We included 141 patients admitted in the ICU due to severe trauma (SAPSII:41.5 ±21.9), and mainly after emergent surgery (68.8%). They featured a mean age of 45.3±19.3y, were predominantly male (76.6%) and 73% were in shock. In the first 24 hours of hospital admission a mean of 3.6±4.5 RBC units were administered. Most patients received a fibrinogen-based protocol (FBP) (78%), with an average of 5±3g of fibrinogen and 1±3 fresh-frozen plasma (FFP) units, versus 3±4 g of fibrinogen and 6±4 FFP units in the FFP group. The FBP was associated with a decrease administration of RBCs in the first 24 hours (R = -2.6; p < 0.004), even after adjustment for severity (p=0.003) and for tranexamic acid use (p = 0.003). It was associated also with a decrease of platelet transfusion (p=0.004). Fibrinogen-based protocol was not associated with a decrease in mortality, acute kidney injury or noradrenaline dose.

Conclusion:
Treatment of TIC in past years has progressively changed to a goal-directed fibrinogen-based approach. In our population, the use of FBP lead to a reduction of RBC administration in severe trauma patients.