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Original Research Article

Relationship between initial fibrinogen level with coagulopathy and mortality in multiple trauma patients

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ABSTRACT

Background: In trauma induced coagulopathy (TIC), low fibrinogen value is often found and plasma fibrinogen reached low value earlier than other parameters of coagulation factors. Initial fibrinogen value is strongly correlated to the injury severity score (ISS) and be an independent predictor of mortality. This study was expected to see the relationship between initial fibrinogen level with coagulopathy and mortality, so it can predict early coagulopathy and can prevent bleeding complications that lead to mortality.
Methods: The study was conducted prospectively. The entire examination obtained from patients with multiple trauma. Fibrinogen levels and coagulopathy were taken from the blood laboratory tests in conjunction with other routine examination when patients were admitted to the ER of Hasan Sadikin General Hospital. Outcome parameters were the incidence of coagulopathy and mortality. Statistical analyses were performed to look at the significance of relationships.
Results: Of the 25 patients with multiple trauma obtained a majority of 80% were male patients and with the highest incidence mechanism was head trauma as many as 16 people (64%). There were 8 patients (32%) experienced coagulopathy and mortality occurred in 7 patients (28%). Chi square analysis found a significant association between fibrinogen and coagulopathy ($p = 0.043$), while the association between initial fibrinogen with mortality was not significant ($p = 0.341$).
Conclusions: Initial fibrinogen level is significantly associated with coagulopathy but it cannot predict mortality in patients with multiple trauma. Further study is needed in order to assess the benefit of these results on the management of multiple trauma patients.

Keywords: Coagulopathy, Fibrinogen, ISS, Multiple trauma, Mortality

INTRODUCTION

Coagulopathy which occurs in trauma is known as trauma induced coagulopathy (TIC). Reported by Brohi, that one in seven deaths caused by trauma and as much as 30% from all the trauma patients came to the hospital in conditions of TIC. TIC is a consequence of the slow hemodilution, acidosis, hypothermia and the loss of clotting factors through an active bleeding. Coagulopathy caused by severe trauma can be life threatening and can be a predictor of morbidity and mortality.[1-8]

In TIC state, low fibrinogen value is often encountered, and getting worse in the event of trauma with bleeding. Severe tissue injury may cause hypoperfusion that leads to a cascade of systemic anticoagulation and its subsequent hyperfibrinolysis, in which the value of fibrinogen in plasma tends to be low. Plasma fibrinogen