Traumatic brain injury is a major cause of death and disability in the trauma population. Trauma induced coagulopathy has been reported in cases of isolated traumatic brain injury (ITBI) and is associated with high mortality and morbidity\(^1\). Approximately one third of patients with ITBI have associated coagulopathy\(^2\). We describe a case of ITBI where the thromboelastometry (ROTEM\(^\circledR\)) was the first warning sign of the ensuing coagulopathy.

**References:**


**Background**

A 77 years-old female with history of hypertension and diabetes mellitus, treated with aspirin, fell down multiple stairs resulting in head trauma and loss of consciousness. Assisted on scene with Glasgow Coma Scale (GCS) 7, was intubated and transported to the emergency department of our hospital. She presented with a GCS 4 and anisocoria. Head CT showed acute subdural hematoma in fronto-temporo-parietal right side. No other trauma injury or signs of active bleeding were identified on admission. First analytical evaluation was normal, but a blood sample for ROTEM\(^\circledR\) was collected before the patient went to the operating room (OR). During craniotomy she developed signs of coagulopathy and hemodynamic instability requiring norepinephrine. The results of the first ROTEM\(^\circledR\) showed absence of clot formation and severe hyperfibrinolysis (Fig. 1). Transfusion support was initiated (4 RBC, 1 PLT, 2g fibrinogen, 4 FFP) and 1g tranexamic acid administrated. There was clinical improvement, allowing for surgery completion with adequate haemostasis, and a post-transfusion ROTEM\(^\circledR\) showed improved clot formation (Fig. 2).

Admitted to the ICU with a GCS 3, the patient died 24 hours later of the neurologic injury, after a decision to withhold further therapy based on the irreversibility of the clinical condition.

**Discussion**

The management of patients with TBI includes avoidance of hypoxemia, hypotension, and prevention of secondary brain damage and intracranial hypertension. Coagulopathy associated with trauma may appear with isolated TBI and contributes to secondary brain damage\(^1,2\). It is associated with a poor prognosis and an early identification of these patients is essential, especially if there is a need to surgical decompression as was the case.

Many investigators believe that ROTEM\(^\circledR\) may be useful for diagnosis of early trauma coagulopathies and can also be used to direct blood and blood-product transfusion\(^3\).