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Introduction:
Patients with moderate traumatic brain injury (mTBI) are 1.5 times more frequent than those with severe TBI and some of them will develop secondary neurologic deterioration (SND) within the first 7 days[1]. However, identifying at risk patients of SND is still challenging. This study aimed to determine risk factors associated with SND after mTBI.

Methods:
We conducted a single centre retrospective study. Adults admitted in Brest hospital between 2015 and 2018 for mTBI, defined by Glasgow coma scale (GCS) score 9-13, were eligible. We assessed clinical patients’ characteristics in the prehospital setting, at admission and during the first 72 hours of hospitalisation. Biology, transcranial doppler (TCD) and CT examinations were also reported. SND was defined either by a decrease in GCS or by a deterioration in neurologic status sufficient to warrant intervention like mechanical ventilation, transfer to the ICU or neurosurgery[3]. Factors statistically associated with SND were identified.

Results:
147 patients were included, mean patient age was 51.5 years (± 18.94 years) and 81% of patients were men. Mean GCS score was 11.4 (± 1.63). 46 (31.3%) showed SND and 14-day mortality rate was of 18.4%. Patients with SND were older (p<0.001), had higher hypoxemia and intubation rates (p=0.011, p=0.002 respectively) before admission. They had significantly higher IGS2 scores on admission (p <0.001), and more frequent hyperglycemia (>8mmol/l) and hypotension (SBP < 90 mmHg) (p=0.001 and p<0.001 respectively) during the first 72 hours. Neuro-worsenning was also associated with abnormal TCD (pulsatily index > 1.4) and abnormal head CT scan on admission (higher categories at Marshall CT score) (p=0.004 and p<0.001 respectively). 32% of patients with SND required neurosurgery.

Conclusion:
We report for the first time the largest study about early outcome after mTBI. About a third of mTBI patients showed SND and early factors could be used for determing at risk patients.

References: