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TGF beta expression in Plasma and Cerebral Spinal Fluid following aneurismal Subarachnoid Haemorrhage (aSAH): Temporal profile during early and delayed Ischemic injury

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Abstract

Subarachnoid haemorrhage (SAH) is a cerebrovascular emergency mostly due to an aneurysm rupture. The discharge of blood into the subarachnoid space raises the intracranial pressure and reduces blood flow with early cerebral ischemia (EBI). Later, many complications contribute to a delayed cerebral ischemia (DCI). Vasospasm (VS) refers to the arterial narrowing occurring in 50-70% of patients. However, DCI and VS are not synonymous and other process contribute to the DCI pathogenesis. Certain Biomarkers associated to EBI and DCI in SAH are required. Transforming growth factor beta (TGF-β) is a cytokine that affects cell proliferation, dif-ferentiation, tissue homeostasis and regeneration. TGF-β is not fully investigated in SAH. We explored if the temporal profile of TGF-β was associated to neurological outcome. We measured the expression of TGF-β in plasma and cerebral spinal fluid (CSF) of SAH patients on days 0-1, 3 and 7 from time of bleeding. TGF beta in CSF was higher at the 3 time points in 70% of patients with VS ($P<0.05$). TGF-β showed a trend of expression in CSF ad plasma in 75% patients with a peak at T0, reduction at T1 and peak at T2. Patients who developed VS showed major increment of TGF-β in CSF compared to blood on T2. Three patients experienced early brain death with a massive peak of TGF-β at T1. This study carries the probability to translate laboratory finding into clinical practice making the TGF-β a possible early marker of EBI and DCI with the prospective to stratify patients in risk categories.

Biography

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