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Plasma biomarker may help to distinguish acute CVST from non-thrombotic CVSS in emergency

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Cerebral venous sinus thrombosis (CVST) is one of the important causes of stroke in young people and a lethal event (1). Acute CVST is overlapped with non-thrombotic cerebral venous sinus stenosis (CVSS) in both clinical presentation and brain imaging (2); both of them are predominantly involved in young women, and have severely non-explained headache with vomiting and the imaging feature of non-integrity venous sinus in magnetic resonance venography (MRV) (2). However, the treatment option and the clinical outcomes are entirely different, CVST is typically treated with anticoagulants, whereas non-thrombotic CVSS is treated with dehydration and stenting (3,4). Although CVST can be distinguished from CVSS by digital subtraction angiography (DSA), it is unfeasible in the emergency department (ED). Moreover, thrombolysis should be performed emergently to some intractable and severe CVST. Thus, distinguishing these two diseases in hyperacute stage is crucial. Report showed that D-dimer may helpful in supporting CVST (5), but the result in CVSS is not clear. We compared the levels of plasma biomarkers (D-dimer and fibrinogen) between 34 cases of acute CVST (symptom onset within seven-days) and 34 synchronal cases of age- and gender-matched non-thrombotic CVSS; all of them are confirmed the final diagnosis with DSA. The results revealed significant difference of the two biomarkers in the two groups; 94·1% (32/34) cases in acute CVST group and 5·9% (2/34) in non-thrombotic CVSS group had abnormally elevated D-dimer; 73·5% (25/34) in acute CVST group and 17·6% (6/34) in non-thrombotic CVSS group had abnormally elevated fibrinogen (χ^2 = 52·941 and 18·285, all P < 0·001). More importantly, D-dimer and fibrinogen can easily be performed at real time in ED. The results can be obtained within 30 mins after the patient arrives, which is quicker than obtaining the magnetic resonance

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imaging or DSA imaging. So, these two biomarkers may be helpful and feasible in ED to predict acute CVST in patients with equivocal clinical symptoms, or to distinguish CVST from CVSS when the imaging of MRI/MRV is equivocal.

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