Assessment of Cerebral Perfusion Pressure by Transcranial Doppler in Pediatric Patients with Convulsive Status Epilepticus

Original Article

Volume 62, Pages 264-268, April 2025

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Accepted: 21 February 2025 / Published online: 12 March 2025

https://doi.org/10.1007/s13312-025-00002-y

ABSTRACT

OBJECTIVES

To study the changes in cerebral hemodynamics and cerebral perfusion pressure (CPP) in children with convulsive status epilepticus (SE) by bedside transcranial doppler (TCD).

METHODS

Transcranial doppler of bilateral middle cerebral artery (MCA) was performed in 42 antiepileptic drug naïve convulsive SE patients (1–12 years) within 30 min of seizure termination and in 42 hemodynamically stable patients with non-neurological symptoms without any pre-existing cardiovascular and renal pathologies. The mean flow velocity (Fvm), diastolic flow velocity (Fvd) and peak systolic velocity (PSV) were measured, and CPP was calculated.

RESULTS

Mean (SD) Fvd, PSV, Fvm, and CPP in the right MCA in study group was 57.85 (3.57) cm/s, 139.90 (7.07) cm/s 85.19 (3.30) cm/s and 68.40 (4.91) mm Hg, respectively, and corresponding values in left MCA were 58.04 (3.35) cm/s, 139.90 (6.96) cm/s, 85.30 (3.20) cm/s, and 68.50 (4.93) mmHg. Alterations of Fvd, PSV, and Fvm and CPP were statistically significant in the study group compared to comparator group.

CONCLUSION

Bedside TCD within 30 min of seizure termination in SE patients can detect alterations in cerebral flow velocities risking cerebral hypoperfusion.

Keywords: Cerebral hypoperfusion ·Convulsion ·Intracranial pressure ·Seizure ·Status epilepticus

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