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Cerebral artery blood flow velocities in children with sickle cell anaemia at the Federal Teaching Hospital

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Introduction: Vaso-occlusion in Sickle Cell Anaemia (SCA) results in the narrowing of the major cerebral blood vessel, predisposing affected children to cerebrovascular accidents (CVA). The risk of CVA can be assessed with cerebral blood flow velocities measurement using a transcranial Doppler ultrasound.

Objective: To determine the cerebral blood flow velocities in children with SCA aged 2-16 years.

Methods: This was a hospital-based, cross-sectional study of children with SCA conducted between April and September 2023. Transcranial Doppler ultrasound was used to assess the anterior and middle cerebral arteries.

Results: A total of 102 children out of the 150 enrolled were screened within the study period. The values obtained from this procedure were categorised as abnormal (≥200cm/s), conditional (170 – 199cm/s) and normal or standard risk (< 170cm/s). Children with abnormal blood velocities are at high risk of CVA, while children whose velocities fall within the conditional range are at moderate risk for CVAs. The prevalence of abnormal cerebral blood flow velocity above 170cm/second was 17.6% (13.7% was in the conditional risk zone and 3.9% in the high-risk zone). All the subjects in the highrisk zone were aged 2-6 years, and 75% were females.

Conclusion: The prevalence of abnormal cerebral blood flow velocity in the cohort of SCA children is 17.6%, with 10-40% annual risk for stroke. Identification of children at risk for a CVA helps in the primary prevention of CVA by prompt therapy institutions.

Biography

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