

**UPDATES IN ROLE OF TRANSCRANIAL ULTRASOUND &
DOPPLER IN EVALUATION OF
VENTRICULOMEGALY IN NEONATES & INFANT**

Essay Submitted for partial fulfillment of Msc degree

In

RADIODIAGNOSIS

BY

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الجديد فى فحص الموجات فوق الصوتية والدوبلر الملون فى تقييم حالات اتساع بطينات المخ فى حديثى الولاده والأطفال

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O

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا
مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ
الْحَكِيمُ

صدق الله العظيم

سورة البقرة الآية (32)

Abstract

Ventriculomegaly in the pediatric age group is a very common pathological entity. It could be secondary to increased cerebrospinal fluid pressure in the ventricular cavity (hydrocephalus), or to a lack of brain parenchyma due to (atrophic) involution or arrested development.

TCUS & TCD achieve a major advance in the study of neonatal brain, they are portable, safe, non invasive, of low cost and highly effective techniques that are of considerable value in evaluation of pediatric ventriculomegaly and should be included within an integrated approach to CNS imaging in the neonates.

Keywords

(Ventriculomegaly, TCUS, TCD, CSF, Atrophy, Hydrocephalus)

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List of abbreviations

- **ACA:** Anterior Cerebral Artery
- **ACC:** Agenesis of the Corpus Callosum and intraventricular haemorrhage
- **ACoA:** Anterior communicating artery
- **AF:** Anterior fontanelle
- **AVM:** Arteriovenous malformation
- **BVD:** Biventricular distance
- **CBFV:** Cerebral Blood Flow Velocity
- **CDI:** Color Doppler Imaging
- **CMV:** Cytomegalovirus
- **CNS GCTs:** Central nervous system germ cell tumours
- **CPA:** Cerebellopontine angle
- **CSF:** Cerebro Spinal Fluid
- **CSP:** Cavum septum pellucidum
- **CT:** Computerized tomography
- **CUS:** Cranial ultrasonography
- **ECMO:** Extracorporeal membrane oxygenation
- **EDV:** End diastolic velocity
- **FM:** Foramen magnum
- **GA:** Gestational Age
- **GCA:** Giant cell astrocytomas
- **GM:** Germinal Matrix
- **GM/IVH:** Germinal matrix or periventricular haemorrhage
- **HC:** Hydrocephalus
- **HIV:** Human immunodeficiency virus
- **HSV:** Herpes simplex virus

- **ICAs:** Internal Carotid Arteries
- **ICP:** Intracranial Pressure
- **IVH:** Inter Ventricular Haemorrhage
- **LVR:** Lateral ventricular ratio
- **MRI:** Magnetic resonance imaging
- **NF1:** Neurofibromatosis type 1
- **NICU:** Neonatal intensive care unit
- **NPH:** Normal pressure hydrocephalus
- **PCAs:** Posterior Cerebral Arteries
- **PCoAs:** posterior communicating arteries
- **PF:** Posterior fontanelle
- **PI:** Pulsatility index
- **PNET:** Primitive neuroectodermal tumours
- **PSV:** Peak systolic flow velocity
- **PVHI:** Periventricular haemorrhage infarction.
- **PVL:** Periventricular leukomalacia
- **RI:** Resistance index
- **RVR:** Relative vascular resistance
- **SAS:** Sub Arachnoid Space
- **SENs:** Subependymal nodules
- **SOD:** Septo-optic dysplasia
- **TCD:** Transcranial Doppler
- **TCUS:** Transcranial Ultrasound
- **TORCH:** Toxoplasmosis, rubella, cytomegalovirus
- **TS** : Tuberous sclerosis
- **US:** UltraSonographay
- **VGAMs:** Vein of Galen aneurismal malformations