

ORIGINAL ARTICLE

# Transcranial US of preterm neonates: High risk gestational age and birth weight for perinatal asphyxia

Mahmoud Agha <sup>a,c,\*</sup>, Gehad Selmi <sup>b,c</sup>, Mohamed Ezzat <sup>c</sup>

<sup>a</sup> Medical Research Institute, Alexandria University, Egypt

<sup>b</sup> Suez Canal University, Egypt

<sup>c</sup> AGH, Hufuf, Saudi Arabia

Received 25 July 2011; accepted 8 February 2012

Available online 6 March 2012

## KEYWORDS

TCUS;  
Perinatal asphyxia;  
Preterm neonates;  
Hypoxic encephalopathy;  
IVH;  
Gestational age and body weight

**Abstract** *Objective:* The study aims to determine the high risk gestational week (GW) and/or birth weight (BW) of the preterm neonate, below which perinatal hypoxic cerebral injuries are expected to occur. *Material and methods:* Eighty preterm neonates, born at or before 37 GW, were included. Twenty-three of them were < 32 GW and 57 > 32 GW. Also, 28 of them were < 1500 g and 52 > 1500 g. Imaging was done by transcranial ultrasound with 4–9 MHz curvilinear probe. CT scan was additionally performed for only 18 candidates. The study protocol was approved by the ethics committee in Al-Mana General Hospital (AGH). *Results:* Intraventricular hemorrhage (IVH) was diagnosed in six preterm neonates < 32 GW and two > 32 GW. Three < 32 GW and one > 32 GW presented with hypoxic ischemic encephalopathy (HIE) with no hemorrhage. Two preterm neonates < 32 GW had both IVH & HIE. All positive cases were below 1500 g BW. *Conclusion:* Preterm neonates < 32 GW and/or < 1500 g are highly susceptible for HIE and/or IVH. Thus, special medical care, including post-labor hospitalization in well equipped special baby care units (SCBU) and routine transcranial ultrasound (TCUS) screening is recommended for those preterm neonates.

© 2012 Egyptian Society of Radiology and Nuclear Medicine. Production and hosting by Elsevier B.V.

Open access under [CC BY-NC-ND license](#).

\* Corresponding author. Address: P.O. Box 50367, Al Salhiyah, 12–14 Al Najah St., Al Ahsa, Hofuf 31982, Saudi Arabia. Tel.: +966 3 5887000, 5893413, 5893491; fax: +966 3 5887005. E-mail address: dr.mahmoudagha@gmail.com (M. Agha).

0378-603X © 2012 Egyptian Society of Radiology and Nuclear Medicine. Production and hosting by Elsevier B.V.

Open access under [CC BY-NC-ND license](#).

Peer review under responsibility of Egyptian Society of Radiology and Nuclear Medicine.

doi:10.1016/j.ejrn.2012.02.001



Production and hosting by Elsevier

**Table 1** Grading of IVH (6).

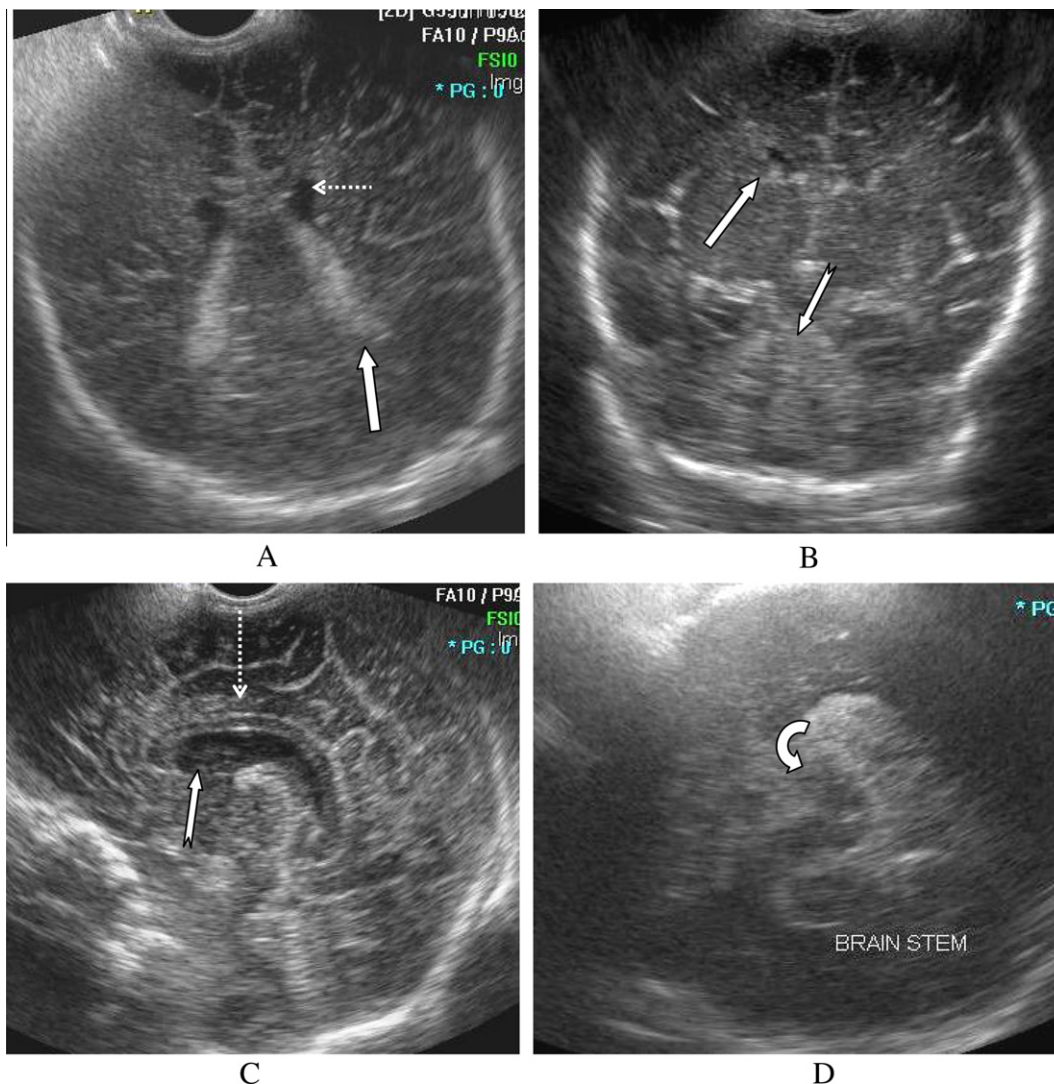
Grade	Definition	Prognosis
I	Subependymal/germinal matrix in caudothalamic groove	Overall good
II	IVH with normal sized ventricles	Relatively good
III	IVH with hydrocephalus	Mortality 20%
IV	G III & parenchymal hemorrhage	Mortality 90%

## 1. Introduction

Preterm neonates are more susceptible to cerebrovascular insults compared to full term ones, due to immaturity of their cerebral physiologic autoregulation. Perinatal asphyxia is the leading cause of cerebrovascular accidents (CVA) in premature neonates. It is associated with high mortality and morbidity scores, including permanent neuropsychiatric disorders e.g.,

**Table 2** Grading of PVL (7).

Grade	Definition	Prognosis
I	Transient periventricular hyperechogenicity lasting for 7 days or longer	Overall Good
II	Periventricular hyperechogenicity with small localized frontoparietal cystic lesions	Developmental delay
III	Extensive periventricular cystic lesions	Spastic diplegia
IV	Involvement of the deep and subcortical white matter with extensive cystic lesions	Spastic quadriplegia



**Figure 1** Normal TCUS of preterm neonate. Anterior fontanel approach (A) oblique coronal at the level of the body of lateral ventricle and (B) coronal at level of third ventricle showing normal caliber of the lateral ventricles (dashed arrow), choroid plexus (straight arrow) and cerebellum (notched arrow). (C) Midline sagittal anterior fontanel view showing lateral ventricle (notched arrow) corpus callosum and overlying cingulate gyrus (dashed arrow). (D) Trans-temporal axial approach showing cerebral peduncles (curved arrow).

Download English Version:

<https://daneshyari.com/en/article/4224706>

Download Persian Version:

<https://daneshyari.com/article/4224706>

[Daneshyari.com](https://daneshyari.com)