AJNR

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AJNR Am J Neuroradiol published online 23 May 2024
http://www.ajnr.org/content/early/2024/05/23/ajnr.A8223

Published May 23, 2024 as 10.3174/ajnr.A8223

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We read with great interest the article by Roychaudhuri et al.[1] Having gathered a cohort of 30 preterm infants born at <33 weeks' gestational age, the authors found a strong correlation between the white matter injury (WMI) severity, as scored on brain MR imaging, at 2 time points: early (30–34 weeks' postmenstrual age) and term-equivalent age (TEA). Specifically, approximately 80% of infants remained in the same WMI category from early to TEA assessments. Building on these results, the authors suggest performing early-brain MR imaging within 2 weeks after preterm birth. Despite acknowledging the potential prognostic value of an early-brain MR imaging, we are concerned about its applicability and propose a perhaps better-suited approach for less-resourced imaging centers.

TEA-brain MR imaging is reliable at predicting motor outcome in infants with hypoxic-ischemic encephalopathy. The call for an early-brain MR imaging in premature infants is based on 2 premises: 1) We are not good at predicting nonmotor outcomes, and 2) MR imaging is superior to cranial ultrasound (CUS) at depicting noncystic WMI, notably diffuse periventricular leukomalacia (PVL) and punctate white matter lesions (PWMLs), which may be inconspicuous on TEA-brain MR imaging, yet still suspected to impair cognition.

PWMLs have been reported to be the most frequent lesion type (41%) in premature infants, most of whom had other brain abnormalities.[2] We speculate that some of these additional lesions would be highly specific for abnormal cognitive outcomes (eg, hemorrhagic parenchymal infarction, cerebellar hemorrhage >5 mm^2) and are easily outlined on CUS.

Given the presumable ischemic pathophysiology of diffuse PVL, we were intrigued by the low prevalence (<7%) of diffusion-restricted lesions on the initial MR imaging, even though a sizable portion of infants (10 of 30) had a moderate/severe WMI on the later MR imaging; this issue seems to disclose the limited added value, grounded on a brief DWI abnormality and fast ADC pseudonormalization, of performing a complex grading system on a somewhat arbitrarily defined–and dependent on the preterm infant's clinical stability–early-brain MR imaging compared with sequential CUSs.

Most interesting, early confluent DWI hyperintensities–but not focal ones–have been shown to precede cystic degeneration.[3] We believe that optimizing diffusion sequences for portable MR imaging systems[4] may be a "game changer" by enabling serial monitoring for confluent diffusion-restricted lesions, efficiently forecasting cystic WMI in at-risk premature infants.

Disclosure forms provided by the authors are available with the full text and PDF of this article at www.ajnr.org.

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http://dx.doi.org/10.3174/ajnr.A8223