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Do fidgety general movements predict cerebral palsy and cognitive outcome in clinical follow-up of very preterm infants?

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COMMENTARY

Infants born very preterm (<32 weeks' gestation) have increased risk for cerebral palsy (CP) compared with their term-born peers, and are often included in developmental follow-up programs to allow early detection of CP and identify as soon as possible, those infants who will require specific intervention. The Prechtl General Movement Assessment (GMA) evaluates the quality of infants' spontaneous movements and has excellent predictive validity for CP (1), with the highest sensitivity and specificity between 9-16 weeks when "fidgety" general movements (small amplitude movements in all directions of variable acceleration and moderate speed throughout the whole body) are present. The GMA also offers considerable utility as it is observational, and is increasingly used by clinicians in preterm follow-up programs (2). The recent study by Datta et al. examined the predictive

validity of GMA at three months' corrected age for CP and other neurodevelopmental impairment for 535 infants born very preterm seen as part of developmental follow-up across three centres.

The study has two key findings. Firstly, that within a clinical context, the GMA at three months is a useful tool for predicting CP for very preterm infants, in agreement with previous research (1, 2). Absent fidgety GMA was associated with CP at two years' corrected age, and predictive accuracy for CP increased when combined with brain injury on neonatal cranial ultrasound. The GMA therefore provides valuable information as part of the clinical assessment comprising neuroimaging, clinical history, and other neurodevelopmental assessment (1). A second finding was the association between absent fidgety GMA and poorer cognitive outcome, similar to previous studies (3). However, it should be noted that the association was weaker when children with CP were excluded, given the high incidence of cognitive impairment in children with CP (1). Rather than predicting cognitive outcomes, abnormal GMA findings may help clinicians identify infants who warrant closer follow-up of their cognitive development (4).

As a qualitative, observational assessment, there are important methodological considerations to ensure the reliability and subsequent predictive validity of the GMA in clinical follow-up. This was not a prospective cohort study with clear eligibility criteria and it should be noted that the follow-up rate was low at 28.5%. Previous clinical follow-up studies have used double-scorers and reviewed ambiguous cases (2). While Datta et al. reported specificity of the GMA that was similarly high to other studies, sensitivity was lower. There were also differences in the sensitivity and specificity between centres, which the authors attributed to rater differences (although inter-rater reliability was not reported). The GMA is usually scored from video, necessitating additional time to the standard clinic visit. Guzzetta, et al. (5) compared the predictive validity of GMA through direct observation and GMA scored from video. The predictive validity of both methods was high, as was the correlation between the two methods, however, 6% of cases could not be definitively scored from direct observation. They concluded that direct observation was similarly sensitive as GMA scored from video, however, recommended videoed assessment for cases that were not clear.

In clinical practice, there is scope to use technology, such as smartphone applications (6), for parents to upload a video for GMA prior to their clinic visit. Clinicians can then determine whether further GMA is required, and organise additional measures such as brain magnetic resonance imaging for infants with abnormal GMA, to increase the predictive accuracy for neurodevelopmental outcome, such as CP, and thereby target early intervention.

URL TO THE FULL REVIEW ON THE EBNEO WEBSITE

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CONFLICTS OF INTEREST

None

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