Are more early detection tools for cerebral palsy needed in low- and middle-income countries?

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EDITOR—In a recent commentary, Neel questioned whether another observational assessment is necessary for early detection of cerebral palsy (CP) in high-risk infants.[1] From our experience in a low-resource setting like Suriname, we believe the answer is emphatically yes. There remains an urgent need for additional early detection tools tailored to low- and middle-income countries (LMICs), where implementing existing protocols has proven challenging.

Despite the availability of effective early diagnostic methods (e.g. General Movements Assessment [GMA], Hammersmith Infant Neurological Examination, neonatal magnetic resonance imaging, cranial ultrasound), healthcare systems in LMICs face significant barriers for early detection of CP. These include shortages of trained specialists, transport problems to the healthcare facilities, limited healthcare resources and project funding.[2] Therefore, well-established tools may be underutilized or impractical in LMIC contexts. These challenges may also result in delayed diagnosis in low-resource settings, where the average age of CP diagnosis in some LMIC populations is around 4 to 6 years.[3] For example, a recent hospital registry in Suriname reported a mean diagnostic age of 5 years 5 months,[4] although earlier diagnosis is feasible with appropriate tools and training. These findings highlight both the potential and the

existing implementation gap: with appropriate tools and training, much earlier diagnosis is achievable even in low-resource settings.

In this context, additional tools that are feasible for LMICs are essential. The Standardized Infant NeuroDevelopmental Assessment (SINDA) is a promising tool. Hadders-Algra et al. recently demonstrated that at 3-months corrected age, the SINDA neurological exam predicts CP or other atypical neurodevelopmental outcomes by 24 months with accuracy comparable to the well-known GMA.[5] In their study, both GMA and SINDA showed high predictive values (specificity >90%, and a sensitivity of around 90%) for identifying infants who would later develop CP or significant developmental delays. Equally important, SINDA may be more practical to deploy in low-resource environments. It is quicker to administer, easier to learn, and does not require video recording or off-site analysis. Being a hands-on assessment, SINDA also allows clinicians to provide real-time feedback and guidance to caregivers during the same visit, something that is challenging by using the video-based GMA. Furthermore, SINDA requires minimal equipment and can be reliably performed by health workers with basic training (including general physicians, nurses, midwives, or community health workers), unlike the GMA which typically demands highly trained specialists. These features make SINDA especially attractive for wider implementation in LMICs, where cost-effectiveness and task-shifting to mid-level providers are often necessary.

For health systems in LMICs, an accessible tool like SINDA could significantly strengthen early CP detection efforts. By complementing or, where needed, substituting for more resource-intensive assessments, SINDA has the potential to lower the age at diagnosis and expand coverage to underserved areas. We therefore concur that another early detection tool is indeed needed, one that can bridge the gap between high- and low-income settings in

recognizing CP and motor delays early. However, the recent SINDA versus GMA study[5] was conducted in a controlled clinical setting; it will be crucial to validate these findings across diverse LMIC contexts and to establish standardized training and quality assurance for SINDA users.

In conclusion, the evidence to date suggests that introducing more adaptable early detection tools like SINDA could greatly improve the timeliness and accessibility of CP diagnosis at an early age in low-resource environments, ultimately enabling earlier intervention and better outcomes for children with CP.

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