What is the role of standardised motor assessments in the clinical diagnosis of high risk of cerebral palsy?

“Standardised motor assessment tools now exist in early infancy to enable accurate and early detection of high risk of cerebral palsy before the clinical observation of motor delay may be evident.” Novak et al (2017) 

Cerebral palsy is a clinical diagnosis based on a combination of clinical signs, neurological symptoms and motor activity limitations rather than a laboratory biomarker. Historically, early infancy was regarded as the latent or silent period where cerebral palsy could not be identified accurately.

Motor dysfunction remains an essential criteria in the clinical diagnosis of high-risk of cerebral palsy. This may be assessed by an infant having reduced quality of movements as measured on a standardised assessment (e.g. General Movements Assessment) or neurologically abnormal movements (e.g. observable hand asymmetry or suboptimal HINE* scores) and/or motor activities that are substantially below that expected for chronological age. This may be seen by an abnormal score on standardised motor assessment, parental or clinical observation.

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The General Movements Assessment is the most predictive motor assessment tool for the likelihood risk of cerebral palsy and is considered the reference standard for early detection of cerebral palsy. With established validity and inter-rater reliability, it has predictive validity superior to neuroimaging with best sensitivity as high as 98% and specificity as high as 91% in the early months.

Normal GMs, especially in concurrence with other smooth fluid movements are shown to have high correlation with normal outcome, whilst abnormal GMs, in particular ‘cramped synchronised’ GMs in the ‘writhing’ period (which may be transient, or present for several weeks) followed by ‘absent fidgety’ (F-) in the ‘fidgety’ period has consistently shown the highest predictive value for spastic motor type cerebral palsy.

Repeated assessment throughout both the ‘writhing’ and ‘fidgety’ stages of GMs assists in prediction of later motor severity of cerebral palsy. The relationship and time of appearance of ‘cramped synchronised’ GMs predicts the degree of later functional impairment with the earlier the appearance, the more severe the functional impairment as classified by the Gross Motor Function Classification System.

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