LETTER TO THE EDITOR

16th November 2013

Peta Smith Consultant Neonatal Physiotherapist, LAPI Tutor UK

Adare Brady Consultant Neonatal Physiotherapist, LAPI Tutor UK

Dear Editor,

We are writing in response to an article published in the most recent edition of the APCP Journal Volume 4 Number 2 (2013) 26-33 - 'A comparison of the Sensitivity and Specificity of 3 Neurological Assessments Currently in Use on Neonatal Units' by Jade Kant.

One statement we would like to correct in this article was that Joan Lacey was not herself directly clinically involved in the 2004 study. This is wrongly stated in the article.

The Lacey Assessment of the Pre-Term Infant (LAPI) in its development has been used as the routine neurological assessment of the preterm infants admitted to the Neonatal Intensive Care Unit at at Royal Prince Alfred Hospital (RPAH) since 1978 and is carried out by the neonatal physiotherapists attached to the Unit. Since the early 90’s Joan had no clinical involvement on the Unit, although she was appointed as Honorary Consultant Physiotherapist to the Department of Newborn Care at RPAH, University Hospital of Sydney, as one of the research team, a post she held until her death in April this year.

This clarified, we would also like to clarify some points made by the author regarding the LAPI in relation to the study quoted in this article which was published in the Australian Journal of Physiotherapy 2004; 50: 137-144 by Joan Lacey herself and her co-authors Sian Rudge, Ingrid Rieger and David Osborn.

One of the advantages of the LAPI is that it has been developed over three decades of ongoing research by Joan Lacey et al to improve its diagnostic accuracy. This ongoing research also ensured that the assessment has been regularly reviewed and updated since its earliest form in 1978.

The purpose of the 2004 study was to determine the diagnostic accuracy of the LAPI to predict the later neurodevelopment and type and neurological status of preterm infants. Lacey JL, Rudge S, Rieger I and Osborn DA (2004): Assessment of neurological status in very preterm infants in neonatal intensive care nursery and the diagnostic significance of the asymmetrical tonic neck reflex. The Australian journal of Physiotherapy 50: 135-142

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The purpose of the 2004 study was to determine the diagnostic accuracy of the LAPI to predict the later normal motor outcome or cerebral palsy (CP) at 3 years of age in a cohort of extremely preterm infants and to determine whether the assessment is accurate if it is performed at a very early preterm age (<33 weeks post menstrual age PMA) compared with later preterm ages (>33 weeks post PMA.)

The diagnostic accuracy of LAPI for CP at 3 years for the infants assessed ≤33 weeks PMA showed a sensitivity of 57 and a specificity of 90, a positive predictive value PPV of 57 of and a negative predictive value NPV of 95 for subsequent CP.

The diagnostic accuracy of LAPI for CP at 3 years for the infants assessed >33 weeks PMA showed a sensitivity 86, a specificity 83, PPV of 57 and NPV of 96 for subsequent CP, therefore much higher and so more reliable for this cohort of infants, as the prediction for outcome was more accurate for infants when they were assessed after 33 weeks PMA.

Cranial ultrasound scan (CUSS) data was restrospectively analysed with the presence of intraventricular haemorrhage (IVH) was then compared to motor development. Twenty infants who developed CP did not have an IVH. The diagnostic accuracy of IVH by CUSS at 3 years was 44% sensitivity, 87% specificity, 43% PPV and 88% NPPV for CP less than the LAPI

This showed the LAPI to have high diagnostic accuracy for prediction of subsequent CP by the identification of abnormal features in infants > 33 weeks PMA and it is recommended that most infants should be assessed using the LAPI after they reach 33 weeks PMA for the greatest reliability.

LAPI assessment at ≤ 33 weeks PMA is not as sensitive, however even at this very early age the diagnostic accuracy was greater than identification of IVH on CUSS in this population.

Comparison of the results of the neonatal assessments with three year outcome shows a good predictive value for later CP or normality. Although assessment at 30 weeks postmenstrual age is too early for the reliable identification of later developing abnormal features, clinical use by appropriately trained physiotherapists in the neonatal intensive care unit and Level 2 nurseries would allow individual positioning routines and advice for the baby at this age. This assessment is therefore more than just a diagnostic / predictive tool, but also helps the specialist neonatal physiotherapist in clinical decision making and allow for individual positioning routines and advice for the baby at this stage.

References

MC Butcher-Peuch, D J Henderson Smart, D Holley, J L Lacey, and D A Edwards (1985): Relation between apnoea duration and type and neurological status of preterm infants. Archives of Disease in Childhood, 1985, 60, 953-955


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