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Title: Development of a screening version of the Hand Assessment for Infants - for infants at risk of unilateral cerebral palsy

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Background and aim: There is a need for a screening tool for infants at high risk of developing unilateral cerebral palsy (CP) that is easily accessible, simple to use and require few resources. We will investigate the validity and the reliability of a screening version of the Hand Assessment for Infants (HAI) in infants 3.5-12 months of age at risk of unilateral CP. Further, the aim is to investigate if parents can collect assessment data by using a smartphone app.

Methods: To reduce the original HAI item set and develop the screening HAI (s-HAI), receiver operating characteristics curve analysis was used. We have data from 28 families using the s-HAI and HAI performed in clinic. Parents performed 5-minutes recordings which were reviewed for quality to serve as a base for scoring. Four raters independently scored sixteen recordings for inter-rater reliability and the Intraclass Correlation Coefficient was calculated. The relation between scorings from s-HAI and HAI was analyzed using Spearman's correlation. Parents' experience was evaluated by a questionnaire.

Results: A set of 6 unilateral items from full length HAI can be used with 86% accuracy to correctly classify unilateral CP. The interrater reliability of s-HAI was 0,96 (0,92-0,99) and the relation between HAI and s-HAI scores was 0,86. Parents performed the recordings with good quality and only two had to redo the recording. Seventeen out of 28 parents preferred to do the recording at home instead of at the hospital.

Conclusion: The s-HAI can be used to identify infants at high risk of developing unilateral CP with high accuracy and high inter-rater reliability.