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ASSESSING BIMANUAL PERFORMANCE IN YOUNG CHILDREN WITH HEMIPLEGIC CEREBRAL PALSY: A SYSTEMATIC REVIEW OF OUTCOME MEASURES

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Introduction

The importance of upper limb assessment for children with hemiplegic cerebral palsy is now well recognised. When completing these assessments therapists and researchers often target the more affected limb using unimanual measures. Yet children with hemiplegic cerebral palsy rarely use their impaired hand for unimanual tasks. This hand is typically used when they need it: that is during bimanual task performance. Bimanual assessment should be an integral component of an upper limb skills assessment.

Objectives

This systematic review aimed to identify which bimanual outcome measures have been used with young children with hemiplegic cerebral palsy (<4 years). This age range was targeted as neural plasticity might add advantage to interventions. Evidence for reliability and validity of the outcome measures was sought.

Methods

Ten electronic databases were searched up to February 2009. Subject headings were used to identify key words, and inclusion/exclusion criteria were applied to the retrieved papers. Further searches for evidence of the psychometric properties of each outcome measure were undertaken. Quality criteria were used to (1) evaluate the internal validity of each study and (2) appraise the validity and reliability of the identified outcome measures.

Results

Ten of 11 outcome measures identified as measuring bimanual skills in young children with hemiplegia had inadequate evidence for reliability and validity. Only the Assisting Hand Assessment (AHA) had evidence for reliability and validity for its intended purposes.

Conclusion

Reliability and validity should be fundamental considerations when developing or selecting assessments. Additional considerations for assessing young children include: (1) standardised administration and scoring, (2) items that capture the complexity of bimanual behaviour, and (3) protocols and items that are targeted to children within a small age range to meet their specific developmental needs.

Although the AHA has evidence for reliability and validity for its intended purposes, its lower age limit is 18 months. Assessing the bimanual skills of younger infants, when early intervention aims to provide most benefit, is also critical.

Contribution to the practice/evidence of occupational therapy

Valid, reliable and clinically appropriate outcome measures should be used for research and to evaluate the efficacy of clinical practice.