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Background: The average age for the diagnosis of cerebral palsy (CP) is 19 months. Recent neuroplasticity literature suggests that intensive, task-specific intervention ought to commence as early as possible and in an enriched environment, during the critical period of neural development. Active motor interventions are effective in some populations, however the effects of active motor interventions on the motor outcomes of infants with CP have not been researched thoroughly, but pilot work is promising. The aim of this study was to determine the short-term effects of "GAME"; a new and novel goal-oriented activity-based, environmental enrichment therapy programme on the motor development of infants at high risk of CP and test study procedures for a randomized controlled trial (RCT).

Methods: Pragmatic 2-group pilot RCT. 8.703.3999939(m)2.900.7000122(R)354hnTBT.011599Inc.000100130(gcTm5fw2681Tm.eo0010

exist where all participants actually have CP or are at very

levels and for this reason used regression to enable us to account for differing motor ability affecting outcome.

Participants

Thirteen infants were recruited from 6 Neonatal Intensive Care Units (NICUs) in the Sydney Children's Hospital Network (SCHN) and from the Cerebral Palsy Alliance, Australia. Infants 3–5 months of age were eligible for en-

therapy with the baseline level set by the investigators on the basis of an initial assessment of ability of the identified goal and confirmed by parent interview. GAS banks have been recommended in literature as a way of improving rigour. We used GAS banks wherever possible but individualised the goals as per the tool conventions when banks did not exist. For example, if the same baseline ability was evident for different participants for a specific goal the same GAS levels from a bank were used. As per test developer conventions parents were encouraged to identify 3 to a maximum of 5 goals for the 12-week period. Assessors were blinded to group allocation and scored the infant's 12-week GAS performance from video.

Carroll Occupational Performance Measure (COPM)

The COPM is an individualised, criterion referenced tool measuring perceived change in infant performance and parental satisfaction with performance over time on family priorities. The COPM is widely used in CP research and is valid, reliable and responsive [8,22]. During a semi-structured interview parents identified a number of areas that they would like to focus on with their baby during the study period. The standard 10-point scale was used to rate the infant's performance and their own satisfaction with the infant's performance on the identified focus areas. This was repeated after 12-weeks by a blinded assessor. An improvement of two or more points is regarded as clinically significant [22].

Peabody Developmental Motor Scales - Second Edition (PDMS-2)

The PDMS-2 [23] is standardised norm-referenced tool, which is valid, reliable, and widely accepted. A total of 5 sub-scales are assessed including reflexes, locomotion, stationary, grasp and visual motor integration. A total motor quotient (TMQ) is calculated with a mean of 100 and SD of 15. Responsivity has been established for infants for the original version [24] and for toddlers with CP for the PDMS-2 [25]. The PDMS-2 was selected preferentially over the gold standard Gross Motor Function Measure (GMFM) because it evaluates fine motor skills that are targeted in many early intervention programmes.

Home Observation for Measurement of Environment (HOME) - Infant Edition

September 2012 (Table 1). Six infants were randomised to the GAME and seven to SC. Twins were randomised into the same group, as it would be impossible for parents to operationalize two different treatment approaches without intervention contamination. The flow of participants through the study is summarised in

Post-hoc analysis of the dose of therapy found a significant difference between groups in both the number

