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The Impact of Body-Weight Supported Locomotor Training in a Toddler with GMFCS Level V Cerebral Palsy: A Case Study

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BACKGROUND AND PURPOSE

- Children with cerebral palsy (CP) classified as Gross Motor Function Classification System (GMFCS) level V present with decreased gross motor function and trunk control that impacts their functional activities and participation in family activities (Palisano et al. 2008).
- Research indicates body-weight supported locomotor training (BWSLT) may improve motor control for children with neuromotor disabilities (Damiano & DeJong 2009).
- The toddler years present a window of opportunity for developmental changes.
- Early physical therapy during the toddler years may be a critical time for impacting motor outcomes for children with CP in GMFCS levels IV-V.
- The purpose of this case study was to explore the impact of a 6-week BWSLT intervention on postural control, gross motor function, and quality of life in a young child with cerebral palsy in GMFCS level V.

CASE DESCRIPTION

- A 3 year-old male was recruited from a local pediatric home health agency.
- Complications during birth caused a true umbilical cord knot, resulting in hypoxic ischemic encephalopathy.
- He was diagnosed with CP at 12 months old.
- His GMFCS classification was Level V.
- He presented with spasticity in all 4 extremities, gross motor delay, truncal ataxia, and decreased head control.
- The child was dependent for all functional mobility and quality of life in a young child with cerebral palsy in GMFCS level V.

INTERVENTION

- The child attended 17 of the 18 sessions, missing 1 due to respiratory illness.
- He presented with spasticity in all 4 extremities, gross motor delay, truncal ataxia, and decreased head control.
- The child was dependent for all functional mobility and quality of life in a young child with cerebral palsy in GMFCS level V.

METHODS

- Total walking time varied between 11 and 26 minutes (in 3-5 minute bouts) and total standing time ranged from 4 to 13 minutes (in 2-5 minute bouts).
- The child's school physical therapist reported he was able to hold his head up more during the day and showed increased endurance with improved lower extremity control with walking in his gait trainer.
- Quality of life did not improve much after the intervention, as reported by the child’s mother.
- The 6 week time frame was chosen based on previous literature, but a longer time frame may have produced greater results.
- The SafeGait 360 has a lower limit of 10 pounds body weight support, which was 33% of the child’s weight. Another system may have been better to allow more progressive unweighting for this young child.
- Future research is needed to determine if this type of intervention can improve function across a larger population of toddlers with CP in GMFCS levels V.
- Dosage requirements for this population should also be explored.

OUTCOME MEASURES

- The outcomes of this case study suggest that gross motor function and trunk control may improve through BWSLT in young children with CP classified as GMFCS level V.
- The child’s school physical therapist reported he was able to hold his head up more during the day and showed increased endurance with improved lower extremity control with walking in his gait trainer.
- Quality of life did not improve much after the intervention, as reported by the child’s mother.
- The 6 week time frame was chosen based on previous literature, but a longer time frame may have produced greater results.
- The SafeGait 360 has a lower limit of 10 pounds body weight support, which was 33% of the child’s weight. Another system may have been better to allow more progressive unweighting for this young child.
- Future research is needed to determine if this type of intervention can improve function across a larger population of toddlers with CP in GMFCS levels V.
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