

Effects of modified constraint-induced movement therapy in infant and young toddler

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Objective

To address the issue of whether modified constraint-induced movement therapy (mCIMT) is feasible for infants and young toddlers aged 7 months to 18 months with spastic hemiparetic cerebral palsy (CP).

Methods

A randomized control group design (pre, post and 2-month follow up test) was applied for sixteen infants and young toddlers with spastic hemiparetic CP (mean = 12.5 months). Participants were randomly assigned to mCIMT or conventional therapy (control) group for 3-week (15 sessions excluding weekends); only mCIMT group wore a resting splint for 23-hour per day including a session (2 hours/day). Blinded Evaluators measured children 1-week prior, 1-week and 2-month after the intervention with the Pediatric Motor Activity Log (PMAL), the Peabody Developmental Motor Scales-2 (PDMS-2), the Gross Motor Function Measure (GMFM66&88), the Pediatric Evaluation of Disability Inventory (PEDI), and the Clinical Global Impression (CGI-S&CGI-I).

Results

Compared with the control group, the mean rank of the mCIMT group was higher in the How often ($Z=-2.631$, $p<0.01$) and How well ($Z=-2.365$, $p<0.05$) of the PMAL, and the Visual motor integration ($Z=-1.993$, $p<0.05$) of the PDMS-2 at post-treatment. Both groups showed statistically significant gains in the PEDI and GMFM. In all measures, the mCIMT group did not show significantly lower results than the control group.

Conclusion

mCIMT applied to infant and young toddlers had a positive impact on their affected hand use and did not cause motor development delays. The findings supported the hypothesis of feasibility in applying mCIMT to young children at corticospinal tract (CST) refinement period. Further research is required to enroll larger samples and address the long-term effect.

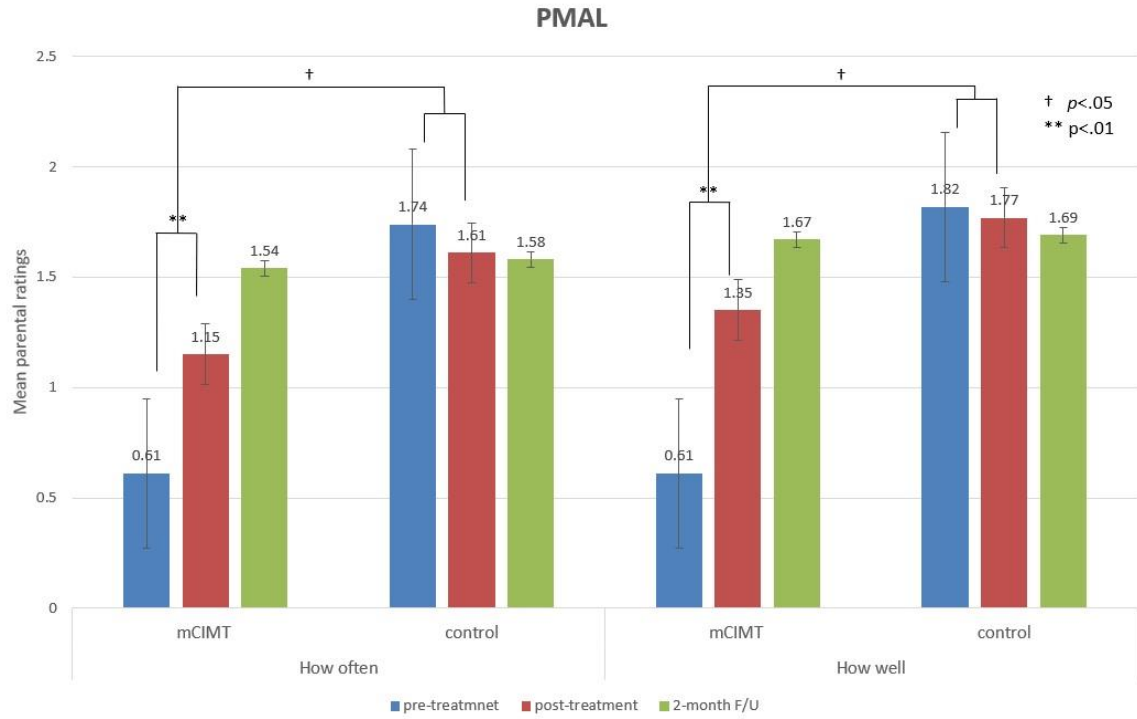


Fig 1. Pediatric Motor Activity Log.

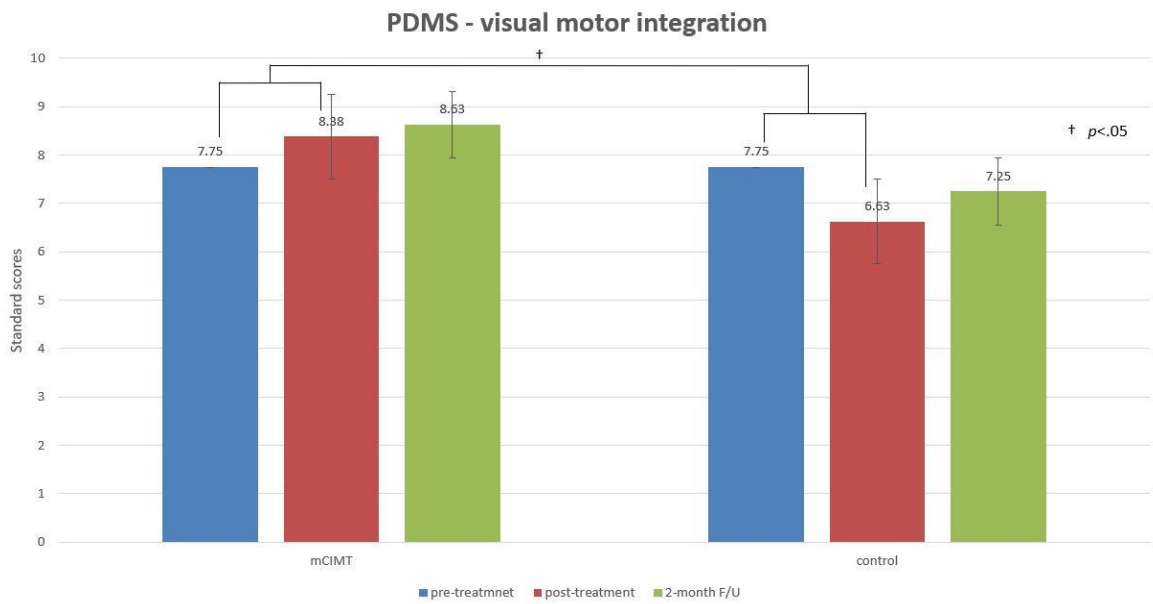


Fig 2. PDMS - Visual motor integration.