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"modified Constraint Induced Movement Therapy in the Pirates Group": A Randomized Clinical Trial

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Introduction

For children with predominantly unilateral Cerebral Palsy (CP), there is still limited evidence for the effectiveness of modified Constraint Induced Movement Therapy (mCIMT).

Objective

To show that in children with predominantly unilateral CP, aged 2.5-8 years, a period of 6 weeks mCIMT followed by 2 weeks of goal directed training of bimanual play and self-care activities increases the use of the paretic upper limb and the occupational performance in bimanual play and self-care activities more than Usual Care (UC).

Methods

A randomised clinical trial was conducted, comparing mCIMT in the so called 'Pirates Group' (for 3 hours 3 times a week) and Usual Care. Primary outcome measurements were the Assisting Hand Assessment (AHA) and the ABILHAND-Kids. Secondary outcome measurements were the "Melbourne Assessment of unilateral upper limb function for children with neurological impairment" (the Melbourne), the Canadian Occupational Performance Measure (COPM), Goal Attainment Scaling (GAS) and a new module of the Video Observations Aarts and Aarts (VOAA) with different amount of use scores.

Results

A total of 52 children with predominantly unilateral CP were included: 28 children were allocated to the mCIMT group and 24 to the UC group. Virtually all primary and secondary outcome measurements demonstrated significantly better improvements in the mCIMT group compared to the UC group, except for the Melbourne that showed a positive trend in favour of the mCIMT group without reaching significance. Values of Cohen's d (Effect Size) were .43 for the AHA, 1.01 for the ABILHAND-Kids, 1.32 for the COPM-Performance, 1.31 for the COPM-Satisfaction, .65 for the VOAA-B (quantitative frequency score), .55 for the VOAA-A (qualitative frequency score), .52 for the VOAA-MD (overall duration of use) and .40 for the Melbourne. The GAS showed improvement in 82% of the mCIMT group and 23% of the UC group, respectively.

Conclusion and contribution to practice/evidence base of occupational therapy

mCIMT combined with playful bimanual activities in the 'Pirates group' is an effective child-centred intervention to increase the spontaneous use of the paretic upper limb and the occupational performance in play and self-care activities in CP children.