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Efficacy of transcutaneous electrical nerve stimulation combined with therapeutic exercise on hand function in children with cerebral palsy

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Background: TENS major function in physical therapy field is to reduce pain but recent studies reported that TENS can reduce spasticity improve ADL and increase muscle strength. The purpose of this study is to investigate the effect of TENS on upper limb hand function and grip strength in children with hemiplegic Cerebral palsy.

Subjects: 29 children with hemiparetic CP were recruited in randomized control trial for 8 weeks, age between 6-12 years. Then, they were divided into two groups, TENS group (n=15) and control group (n=14).

Method: In TENS group the child received TENS on wrist extensor (once a day/3 day per week for eight weeks for 30 minute with pulse duration of 250 μ s, 100 Hz), in control group the child received placebo TENS both groups receive therapeutic exercise.

Outcome Measures: The primary outcome measurements include modified Jebsen Taylor Hand Function Test (JTHFT) and hand grip strength via Jamar dynamometer, the secondary outcome measurement include ABILHAND-KID questionnaire.

Results: After using TENS for 8 weeks, the results show significant increase in HAND GRIP strength of TENS group ($p=0.015$) $p<0.05$, also the estimate time to complete JTHFT task was decrease by 48%, in addition the manual ability of TENS group is improved by 23%. However, there were no significant difference of JTHFT and ABILHAND-KID questionnaire between both groups $p>0.05$.

Conclusion: The finding of this study support that applying TENS in combination with therapeutic exercise give much better improvement of strength and hand function.

Biography

Saber Fallatah is a 35 year old Saudi Citizen with Bachelor degree in Physical Therapy from King Saud University in 2002. Currently he is a Postgraduate student in KSU. He is also working in Rehabilitation Medical Hospital as Physical Therapist in Madinah city since 2005. He also participated as Organizer with Madinah Physical Therapy Club in 1st, 2nd and 3rd Madinah rehabilitation conference.

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