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CARPAL TUNNEL SYNDROME: PAIN REDUCTION AFTER MICROAMS TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION

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ABSTRACT:

OBJECTIVE: *To determine the reduction of pain score, in patients with carpal tunnel syndrome after treatment with microamps TENS.*
STUDY DESIGN: *Quasi experimental.*
PLACE AND DURATION OF STUDY: *Neurology Department Dow University Of Health Sciences Civil Hospital Karachi, from 27th February 2008 to 27th August 2008*
METHODOLOGY: *Patients were evaluated between February 2008 and August 2008. Pre treatment pain score was assessed by the author with the help of a linear pain scale numbering 0-5. All patients received 4 weeks TENS therapy, (3 times a week, 45 minute of each session). Re-evaluation of pain score was done within one week of completion of treatment. Paired't' test was applied to compare mean significant difference between pre and post treatment pain score. Chi-square test was also applied to compare difference of post treatment pain score for gender and duration of symptoms. P ? 0.05 was considered level of significant.*
RESULTS: *Out of 51 CTS patients 37(72.5%) were female and 14(27.5%) were male. Mean ± SD difference in pre and post treatment pain score was 3.41±1.04 with 95% confidence interval 3.12 to 3.71 (t = 23.4; df = 50; p value 0.00).Duration of symptoms was statistically significant in reduction of post treatment pain score (Chi-Square= 12.07; df =3; P=0.007) while gender difference was not statistically significant. (Chi-Square= 3.96; df =3; P=0.265).*
CONCLUSION: *After treatment with transcutaneous electrical nerve stimulation pain was significantly reduced. Lesser the duration of symptoms better the outcome while gender difference was not proved to be statistically significant.*

KEY WORDS: Carpal tunnel syndrome, median nerve, pain, microamps transcutaneous electrical nerve stimulation.

INTRODUCTION

Carpal tunnel syndrome (CTS) is the compression of the Median nerve at the wrist.[1] It is an important cause of pain and functional impairment of hand. Prevalence of electrodiagnostically confirmed symptomatic CTS are 3%among women and 2% among men.[2] In a study from South India CTS accounted for 7% of all peripheral nerve disorders.[3]

Current standard treatments are initially conservative, such as adjusting the work environment, using wrist splints and nonsteroidal anti-inflamatory drugs.[4] Direct injection of steroids into the carpal tunnel may provide relief for 2-4 months[5] and only 22% of patients remained symptom free for next 18 months.[6] Surgical release of the transverse carpal ligament is performed in 40-50% of CTS patients. Following surgery, approximately one third of patients continued to experience pain and functional loss.[7] Older individuals may not improve as much as younger patients.[8]

American Academy of Neurology advises noninvasive treatment during the early course of the disease.[9] Microamps transcutaneous electrical nerve stimulation (TENS) is a noninvasive therapy to treat the painful symptoms of CTS. It increases the ATP concentration and protein synthesis at the cellular level.[10] The success rate ranges from 88% in a controlled study[11] to 92% in another study.[12] TENS is more effective when administered within 6 to 12 months of onset of symptoms.[11] It costs around $ 1000/ patient.[12] While without surgery the current estimated cost to treat one patient of CTS is around $12,000.[12]