

통증 및 근골격재활

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OP1-2-4

Efficacy of Stimulator Using Low-intensity US Combined with TENS on Patients with Painful Knee OA

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Introduction

Knee osteoarthritis (OA) is a major public health issue causing chronic pain and disability. Many patients with knee OA are treated with a combination of pharmacologic and non-pharmacologic modalities. Trans-Cutaneous Electrical Nerve Stimulation (TENS) is widely used for management pain in knee OA and there are several reports about the effects of cartilage regeneration of low intensity ultrasound (US). To the best of our knowledge there is no report about the stimulator using low intensity US combined with TENS for patients with painful knee OA. In this study we aim to evaluate the efficacy and safety of the stimulator using low intensity US combined with TENS.

Methods

This prospective randomized controlled trial is designed to compare the treatment effect of stimulator using low intensity US combined with TENS (US/TENS group) with TENS only (TENS group). Both group were undergone a session of 20 minute-self therapy which was done 3 or less than 3 sessions for a day and more than 10 sessions for a week during 8 weeks. Thus, total treatment session was more than 80 sessions. We evaluated knee pain and disability with Visual Analogue Scale (VAS) score, Western nulltario and McMaster (WOMAC) score and the MOS 36-item Short-Form Health Survey (SF-36). We also measured the cartilage thickness of the knee for assessment of cartilage regeneration with a diagnostic US in both groups, before and after the treatment (visit 1 = baseline, visit 2 = right after sessions of treatment, visit 3= 3 weeks after session of treatment). Statistics were executed for comparing the effects of treatment within and between the groups.

Results

Total 34 patients were enrolled and completed a series of evaluations in a timely manner (US/TENS group = 17, TENS group = 16). In both groups, we found the significant improvements for VAS, WOMAC and SF-36 score when comparing pre-treatment (V1) values with post-treatment (V2 and V3) Results. However, the thickness of knee cartilage

did not show difference after treatment. When comparing VAS and WOMAC score of V1 with V2, the score of US/TENS group show more significant improvement than those of TENS group. On the other hand, TENS group had better VAS and WOMAC score when comparing V2 values with V3 Results. There was no statically significant difference of VAS and WOMAC score between two groups when comparing V1 values with V3 Results.

Conclusions

The stimulator using low intensity US combined with TENS for patients with painful knee OA showed significant efficacy for relieving pain and improving physical performance. However, further study is needed to confirm the difference of therapeutic effect in comparison to other modalities.