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Title: Ultrasound-Guided Dry Needling versus Traditional Dry Needling for patients with Knee Osteoarthritis: A Double-blind Randomized Controlled Trial

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DISCLAIMER

The procedure should be conducted by a trained and registered physiotherapist.

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ABSTRACT

Abstract

OBJECTIVE: To compare the effect of ultrasound (US)-guided dry needling (DN) with traditional DN in the treatment of pain and dysfunction for patients with knee osteoarthritis (KOA).

DESIGN: A double-blind, randomized controlled trial.

METHODS: Patients (25 male and 65 female), age 50-80 years diagnosed with KOA were recruited and randomly assigned to one of three groups in a 1:1:1 ratio for intervention: real US-guided DN with exercise therapy (G1), placebo US-guided DN with exercise therapy (G2), and exercise therapy solely (G3). G1 and G2 were blinded to the application of real or placebo US guidance by turning the monitor of US imaging out-of-view from participants' vantage points. The effectiveness of blinding was evaluated by asking the participants whether they had received real-US guided DN. The responses were assessed by Chi-square test. Visual Analogue Scale (VAS), Knee injury, and Osteoarthritis Outcome Score (KOOS) subscales (KOOS-pain, KOOS-symptoms, KOOS-quality-of-life (QoL)) were collected at baseline, 4 weeks, and 8 weeks by a blinded assessor. Data were analyzed by mixed model analysis of variance (ANOVA) with Bonferroni correction.

RESULTS: Eighty-four participants (61.26±5.57 years) completed the study. G1 achieved significant improvement in VAS at 8 weeks compared to G2 and G3 (G1 vs. G2: MD=-15.61, 95% CI [-25.49, -5.51], p=0.001; G1 vs. G3: MD=-19.90, 95% CI [-29.71, -10.08], p< 0.001). G1 achieved significant improvement in KOOS-pain at 8 weeks compared to G2 and G3 (G1 vs. G2: MD=9.76, 95% CI [2.38, 17.14], p=0.006; G1 vs. G3: MD=9.48, 95% CI [2.31, 16.66], p=0.010). KOOS-symptoms and KOOS-QoL were not statistically significant between groups. G2 had no significant difference of the perceptions as G1 with p=0.128. G2 were successfully blinded to placebo US-guided DN.

CONCLUSION: US-guided DN with exercise therapy may be more effective than traditional DN with exercise therapy or exercise therapy alone in reduce pain of KOA.

ATTACHMENTS

Protocol of dry needling US_JP.doc

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