

EFFECTS OF LYMPHATIC DRAINAGE THERAPY ON AUTONOMIC NERVOUS SYSTEM, PAIN, EDEMA AND PHYSICAL FUNCTION IN INDIVIDUALS WITH EARLY STAGE OF KNEE OSTEOARTHRITIS: A RANDOMIZED CONTROLLED TRIAL

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ABSTRACT

This research consists of two studies. The first study, preliminary study, aimed to investigate the effects of lymphatic drainage therapy (LDT) on salivary alpha-amylase (SAA), heart rate variability (HRV), muscle tone (via straight leg raise: SLR), and Hoffmann reflex (H reflex) in healthy participants, and to ensure the protocol for LDT intervention. The second study, main study, aimed to investigate immediate and long-term effects of LDT on visual analog scale (VAS), pressure pain threshold (PPT), SAA, HRV, girth, knee range of motion (ROM), Thai knee osteoarthritis outcome score (KOOS) and six-minute walk test (6MWT) in individual with early-stage knee osteoarthritis (OA).

In the preliminary study, sixty-six participants were blinded and randomized to experimental group (EXP) or control group (CT). LDT was applied to participants for 45 minutes in EXP group, while 45 minutes of rest was provided to participants in CT group. SAA, HRV, SLR and H reflex were assessed at pre and post intervention. The result showed that H reflex decreased significantly after applying LDT; within and between groups, whereas it increased in CT group. First tension (R1) during SLR significantly increased within both groups, while second tension (R2) increased in CT group. There was no significant difference of HRV and SAA in LDT or CT groups.

In the main study, research assessor and all participants were blinded. Thirty-six participants were randomized to CT group receiving cold pack for 45 minutes and home-based exercise program, while EXP group received LDT for 45 minutes and home-based exercise program. The immediate effect showed that SAA and girth decreased in EXP and BP<sub>dia</sub> decreased in CT group. For long-term effects, SAA, BP, VAS, Thai KOOS and 6MWT improved after 1 week, while in the control group, BP and Thai KOOS improved after 1 week.

In conclusion, LDT can be provided for individuals with early stage of knee OA as LDT can help improve pain, swelling, and physical function. This research recommends to apply LDT on knee OA and may be considered to provide for other musculoskeletal conditions.

KEY WORDS: LYMPHATIC DRAINAGE THERAPY / HOME-BASED EXERCISE / KNEE OSTEOARTHRITIS / AUTONOMIC NERVOUS SYSTEM / PHYSICAL FUNCTION

166 pages