AXILLARY ULTRASOUND AND LASER COMBINED WITH POST ISOMETRIC FACILITATION IN TREATMENT OF SHOULDER ADHESIVE CAPSULITIS: A RANDOMIZED CLINICAL TRIAL

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Background: Adhesive capsulitis (AC) is a common condition involving glenohumeral pain and loss of motion. Although AC is considered to resolve spontaneously within 1 or 2 years, patients will experience pain and/or residual disability several years after treatment. Adding new programs of treatment could enhance full recovery. No previous studies investigated the effect of electrotherapy applied at the axilla or the effect of Muscle Energy Technique (MET) on AC.

Purpose: The first purpose of this study is to introduce a new technique (axillary ultrasound, laser) combined with post-isometric facilitation in treating shoulder AC. The second purpose is to compare this new technique with standard care in the management of shoulder AC.

Methods: This is a randomized clinical trial study. Fifty-nine participants with shoulder AC were selected and randomly assigned for eligibility. Forty-five participants were assigned into three equal groups of fifteen. The participants were blinded to their group allocation. Standard care group (A) received traditional physical therapy treatment in the form of pulsed ultrasound, scanning laser, supervised exercise program and home exercise program; Group B received the same physical therapy program as Group A except that the ultrasound and scanning laser were applied to the axillary region of the painful shoulder (the new technique); Group C received the same modified physical therapy program as Group B plus postisometric facilitation technique to the painful shoulder. All dependent variables were measured by the second author, who was blinded to the participant's intervention group. The first author administered treatment to all three groups. All participants received 12 sessions (3 times/week for 4 weeks). Pain level and shoulder range of motion (ROM) (flexion, abduction and external rotation) were recorded three times (pre-treatment, immediately posttreatment, and 4 weeks of treatment).

Results: Mixed design MANOVA indicated significant pain reduction with significant ROM increase in all groups post-treatment and after 4 weeks. Shoulder ROM and pain levels improved significantly post-treatment compared to pretreatment ROM in all groups, with the greatest improvement in group C. Between groups analysis revealed that pain free shoulder flexion, abduction, external rotation and pain level improved significantly in group C compared to A and B immediately after treatment and after 4

weeks follow up ($P < 0.05$). Improvements reported in group B is more than A, and C is more than A and B.

Conclusion(s): Combining axillary ultrasound and laser with post-isometric facilitation had a greater (short term) effect in reducing pain and improving shoulder ROM in patients with shoulder AC.

Implications: Axillary application of ultrasound and laser could replace the traditional application (above the shoulder) for faster recovery of patients with shoulderAC. Adding postisometric facilitation technique give better recovery.

Keywords: Axillary ultrasound, laser; Adhesive capsulitis; Post-isometric facilitation

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