Efficacy of Extracorporeal Shock Wave Therapy On Cervical Myofascial Pain Following Neck Dissection Surgery

12-2-2020

Study Protocol

Objective: Cervical myofascial pain is one of the problems that contribute in chronic neck pain following neck dissection surgery, so we aimed to investigate efficacy of extracorporeal shock wave therapy (ESWT) on cervical myofascial pain in expression of decreasing pain and improving cervical range of motion (ROM).

Design: This trial is a single blind randomized control experimental study.

Subjects: 46 patients with cervical myofascial pain following neck dissection surgery were recruited in this trial and subdivided at random into two equal groups. ESWT Group: received ESWT once a week for 4 weeks (0.25 ml/mm^2, 1000 shocks) plus topical none steroidal anti-inflammatory drug (NSAID; 3 times /day for 4 weeks). Control Group: received only topical NSAID.

Outcome measures: Pain assessment was measured by visual analogue scale (VAS) and pressure algometry. Cervical range of motion device (CROM) was used for assessment of lateral flexion and rotation of neck ROM for both sides. All measurements were collected before the beginning of the study, after 2 weeks and at the trial termination (after 4 weeks).

Results: ESWT Group revealed significant improvement in all parameters at post I and II compared to control group ($p < 0.001$), while the control group revealed only a statistical decrease in VAS at post I without any statistical difference in pain threshold and neck ROM, however, there were statistical differences in all parameters at post II compared to pre-treatment and post I ($p < 0.001$).

Conclusion: Higher statistical results were achieved with ESWT without any side effects confirming the safety and efficiency of ESWT in cervical myofascial pain.

Subject characteristics:

The mean ± SD of subjects' characteristics of both groups is illustrated in Table 1. There weren't statistical differences ($p>0.05$) in the mean of age, weight, height and sex distribution between groups.

Effect of treatment on rotation and side bending ROM, VAS and PTT:

Mixed MANOVA showed a significant interaction effect of treatment and time (Wilks' Lambda = 0.01, $F (12, 30) = 227.55$, $p = 0.001$, = 0.98). There was a significant main effect of time (Wilks' Lambda = 0.005, $F (12, 30) = 489.27$, $p = 0.001$, = 0.99). There was a significant main effect of treatment (Wilks' Lambda = 0.03, $F (6, 36) = 162.55$, $p = 0.001$, = 0.96). Table 2 and 3 showed descriptive statistics of rotation and side bending ROM, VAS and PTT and the statistical level of

comparison between groups as well as significant level of comparison between pre, post I and post II in each group.

Between group comparisons

Pre-trial evaluations revealed non statistical difference between both study and control groups in all measured variables ($p > 0.05$). A significant increment of neck rotation, and side bending ROM in both directions away and toward the operated side with a marked improvement of PPT was reported at post I and II in the study group compared to control group ($p > 0.001$). Moreover, there was a significant decrease in VAS of the study group at post I and at post II compared to control group ($p > 0.001$).

Within group comparison

Statistical improvements were reported in the rotation and side bending ROM in both directions away and toward the operated side and also in PPT in the study group at post II in comparison with pre-treatment and post I ($p < 0.001$); furthermore, a significant amelioration in the rotation and side bending ROM in both directions and PPT at post I compared with that pre-treatment ($p < 0.001$).There was a statistical diminution of VAS in the study group at post II compared to pre-treatment and post I ($p < 0.001$); and also, in VAS at post I in comparison with pre-treatment ($p < 0.001$).

There was no statistical difference in the rotation and side bending ROM in both directions and in PPT between pre-treatment and post I ($p > 0.05$) in the control group; However there was a statistical increase in the rotation and side bending ROM in both directions and also in PPT at post II in comparison with pre-treatment and post I ($p < 0.001$). There was a statistical decrease in VAS in the control group at post II compared with that at pre-treatment and post I ($p < 0.001$); as well in VAS at post I in comparison with pre-treatment ($p < 0.001$).