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Treatment results for combined radial and focused shock wave therapy for chronic cervical spine pain

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Introduction:

Radial pressure waves play an important role in muscle shock wave therapy. Focused shock waves have recently been used for treatment of muscle trigger points in addition to their original use for the treatment of tendons. The advantage of this method is attributed to the fact that the focused nature of the waves allows for more precise identification of muscle triggers due to provocation of characteristic referred pain, resulting in an improved treatment.

Material and method:

To determine the treatment efficiency of various shock waves, a prospective randomized study was performed on 150 patients with chronic cervical spine pain (>6 months, VAS 7.2) during an observation period of 3 months. Three comparable groups of 50 patients each were treated in 6 sessions as follows: Group 1 (RPW) was only treated with radial pressure waves (8000 shocks/session, 1.8-3.5 bar). Group 2 (RPW-FSW) was treated with radial pressure waves (4000 shocks/session) and also with focused shock waves (1200 shocks/session, 0.05-0.15 mJ/mm², 300 shocks/trigger area). Group 3 (FSW) was only treated with focused shock waves (2100 shocks/session). Therapeutic success was measured by evaluating range of motion (CROM) and VAS before therapy, after therapy and at a 3-month follow-up.

Results:

Group 1 (RPW) confirmed increases in ROM as reported in earlier studies (Gleitz, 2004) of +20° rotation, +17° anterior/posterior flexion und +16° lateral flexion at the end of treatment and at a 3-month follow-up. Pain intensity (VAS) dropped from 7.2 to 2.1.

Group 2 (RPW-FSW) achieved a comparable increase in mobility. The reduction in pain, however, started significantly earlier than in Group 1 and lower long-term pain intensity was achieved (VAS 1.7, p<0.05).

Group 3 (FWS), in comparison to the other groups, achieved a significantly lower (p<0.05) increase in ROM of only +13° of rotation, +17° of anterior/posterior flexion and +16° of lateral flexion. Pain intensity fell to VAS 2.2, a significantly lower decrease than in Group 2 (RPW-FSW), but not significantly lower than in Group 1 (RPW).

Conclusion:

Combined treatment of muscle triggers with both radial pressure waves and focused shock waves achieved better results with the selected therapy parameters than either therapy alone. Compared to purely radial treatment, the addition of focused shock waves to therapy showed the benefit of a more rapid and effective reduction in pain, but did not show greater improvement of ROM. The reduced increase in ROM with sole application of focused shock waves despite the improved local effects could be due to the relatively smaller muscle area that was treated in each session.