CONTRACTIBILITY CHANGES AFTER ULTRASOUND-GUIDE-DRY-NEEDLING IN THE MULTIFIDUS OF SUBJECTS VERSUS WITHOUT LOW BACK PAIN

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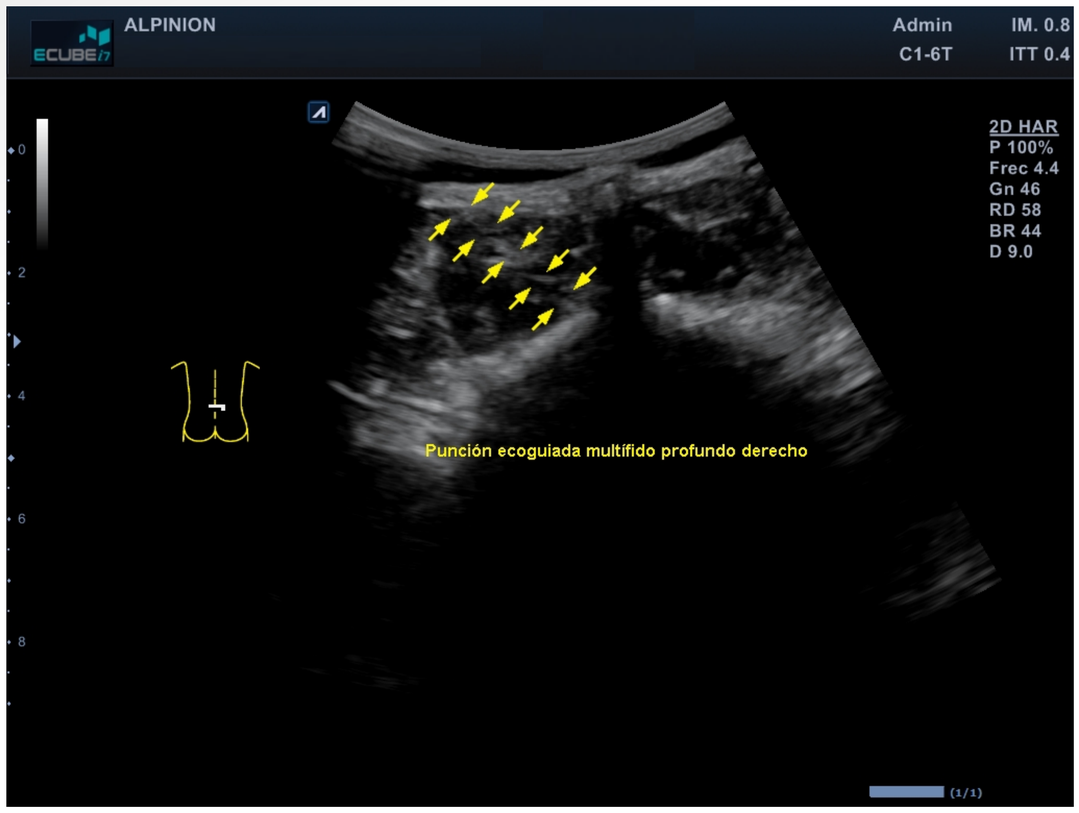
INTRODUCTION:

Chronic nonspecific low back pain (LBP) is a prevalent and disabling condition which generates changes in the motor control recruitment of the lumbar multifidus (MF). Measurement of MF cross sectional area (CSA) shows a high correlation with electromyography changes. Ultrasound-guide dry needling (DN) has shown to be a valid approach which may change the contractibility of the lumbar MF.

PURPOSE:

This study aim was to determine the immediate contractibility changes after ultrasound-guide-DN in the multifidus comparing subjects with and without LBP.

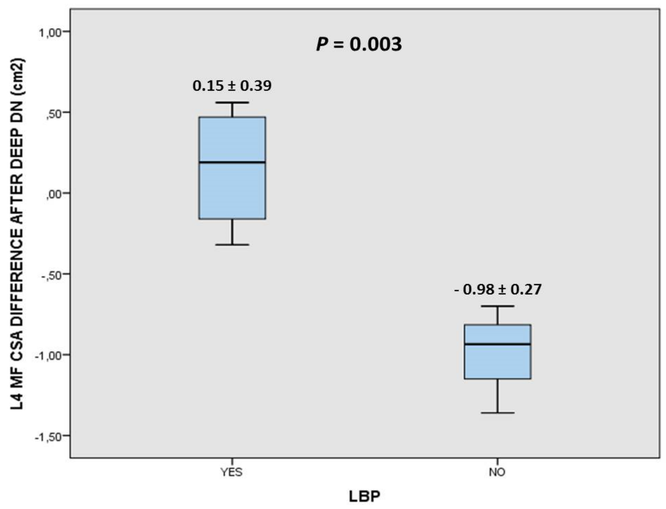


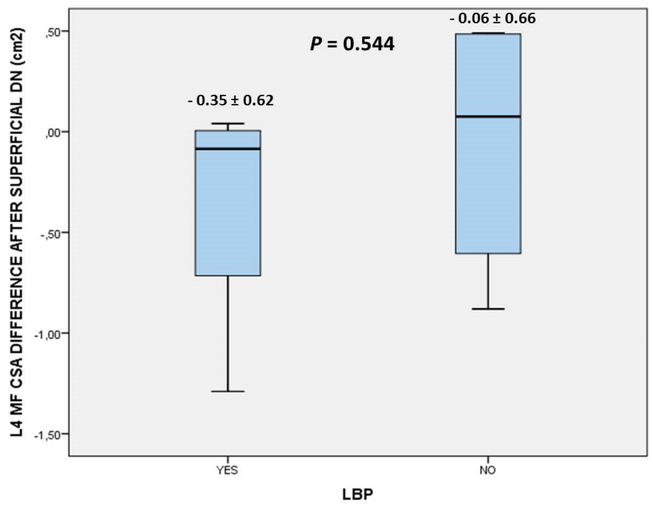
METHOD:

A prospective longitudinal experimental study was carried out following the TIDieR criteria. A sample of 8 women, 4 with and 4 without chronic nonspecific LBP, were recruited from the CARMASALUD clinical and research center. All subjects were placed in prone position and received ultrasound-guide-DN in the L4 MF muscles by the inferomedial angle of approach towards the lumbar lamina. Deep and superficial DN were applied in the right and left MF, respectively. First, deep DN was performed using Hong's fast-in and fast-out technique until local twitch responses exhaustion or maximum 5 needle insertions. Second, superficial DN was carried out without reaching the L4 MF superficial fascia, in the tissue during 2 minutes. The primary outcome was the L4 MF CSA variation between at rest and a 30º ipsilateral hip extension. SPSS version 22.0 for Windows was used for statistical analysis. A Shapiro-Wilk test was used to test normality. Mean ± SD and median ± IR were performed to descriptive data. Student t test and Mann-Whitney U test were carried out to assess the descriptive data and primary outcome.

RESULTS:

The sociodemographic data (age, height, weight and body mass index) and baseline primary outcome did not show any statistically significant difference (P > 0.05) comparing subjects with and without LBP. Statistically significant differences (P = 0.003) were found for the L4 MF CSA increase after deep DN in the subjects with LBP (0.15 ± 0.39 cm2) versus healthy subjects (- 0.98 ± 0.27 cm2). Nevertheless, superficial DN did not show any statistically significant difference regarding the LBP group versus healthy subjects.





CONCLUSIONS:

The immediate L4 MF CSA contractibility increase after ultrasound-guide deep DN appears to be dependent of the chronic LBP existence.

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