Effect of dynamic humeral centering on painful active elevation of the arm in subacromial impingement syndrome: A randomized trial

J. Beaudreuil a,*, S. Lasbleiz a, A. Yelnik b, T. Bardin a, P. Orcel a

a Service de médecine physique et de réadaptation, groupe hospitalo-universitaire Saint-Louis, Lariboisière, Fernand-Widal, 2, rue Ambroise-Paré, 75010 Paris, France
b Service de rhumatologie, groupe hospitalo-universitaire Saint-Louis, Lariboisière, Fernand-Widal, 2, rue Ambroise-Paré, 75010 Paris, France

*Corresponding author.
E-mail address: johann.beaudreuil@lrb.aphp.fr.

Keywords: Degenerative rotator cuff disease; Subacromial impingement; Dynamic humeral centering

Aim.– The physiotherapy dynamic humeral centering aims to prevent subacromial impingement of rotator cuff tendons during elevation of the arm. In this study we aim to determine whether dynamic humeral centering acts via an effect on subacromial impingement mechanism by assessing its effect on painful elevation of the arm in subacromial impingement syndrome.

Patients and method.– Patients with degenerative rotator cuff disease and subacromial impingement syndrome were prospectively included in a randomized controlled trial. Patients and the assessor were blinded to the study hypothesis and treatment, respectively. Patients underwent dynamic humeral centering or nonspecific mobilisation as a control for 6 weeks in 15 supervised individual outpatient sessions with home exercises. Outcomes were pain-free range of motion (0 = 0° to 10 = 150° and more, mean [extremes]) and painful arc of the shoulder (number [%] of patients with painful arc), both in active forward and lateral elevations of the arm at 3 months.

Results.– Sixty-nine patients were included: 34 in the dynamic humeral centering group (age 58 ± 11, ratio F/M 26/9) and 35 in the control group (age 59 ± 10, ratio F/M 27/13) in the control group. The median of age was 63.1 years. Thirty-three lower limbs (7 primary and 26 secondary) for 2 weeks (5 hours per day) combining manual lymph drainages, multilayered inelastic and elastic bandaging, physical exercises and education. Outcome was assessed by limb circumferences (each 5 cm until the line between the epicondyles of the humerus for the upper limb and until the line in the middle of the kneecap for the lower limb). The functional test consisted in measuring the maximum movements realized in 30 seconds in a determined way: for the upper limb, the hand had to touch the ipsilateral knee subsequently the contralateral knee and the contralateral shoulder, the back of the neck and the ipsilateral shoulder. For the lower limb, the foot had to touch the ipsilateral nook of a square drawn on the ground subsequently tiptoes had to touch the stair of a footboard. The patient had to repeat this movement for the four nooks of the square with touching the footboard each time.

Conclusion.– Intensive rehabilitation of lymphedema was effective in increasing the motor skills of the limb.

Reference