One-week time course of the effects of Mulligan's Mobilisation with Movement and taping in painful shoulders

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Aim

The aim of this study was to compare the one week time course of range of motion (ROM), pain severity and pressure pain threshold (PPT) after one session of mobilisation with movement (MWM), with or without the addition of tape.

Methods

A repeated-measures, crossover, randomised trial. Twenty-five patients with unilateral antero-superior shoulder pain of more than four weeks duration, who responded positively to an initial MWM treatment session, were randomised to receive either a single glenohumeral MWM treatment (3 sets of 10 repetitions) or the same MWM with the addition of tape after treatment. The tape was applied with the aim of augmenting the effect of the MWM, and was removed 48 hours post-application. Outcome measures included pain free active abduction ROM in the plane of the scapula, pain severity (100 mm visual analogue scale) and PPT assessed using pressure algometry. Measurements were taken at baseline, immediately following treatment, at 30 mins, 24 hours and seven days post-intervention. After a seven day washout period all patients received the alternate treatment.

Results

No significant differences were observed regarding the order of which the patients received the two interventions. Both MWM alone and MWM with tape provided statistically significant reductions ($p < 0.05$) in pain immediately post-intervention and at 30 mins, but neither treatment demonstrated sustained effects at 24 hours or after 7 days. MWM with tape produced statistically significant ($p < 0.05$) improvements in pain free ROM at all intervals (26.8° post-intervention, 21.0° at 30 mins, 20.7° at 24 hours and 18.9° after 7 days), while improvements with MWM alone was statistically significant ($p < 0.05$) only immediately after intervention and at 30 mins (16.2° and 11.9° respectively). No statistically significant differences were observed for PPT for either treatment.

Conclusion

Patients who responded positively to MWM of the shoulder experienced an additional duration of improvement in pain free active ROM for up to one week with the added application of tape.

Commentary

Shoulder pain is one of the most common musculoskeletal problems in the general population, and it is reported that approximately 20% of disability payments for musculoskeletal problems are due to shoulder disorders (Michener et al 2004). Patients regularly seek help from physiotherapists, but treatment outcomes are often poor (Sueki and Chaconas 2011). MWMs are frequently used to treat shoulder problems, but evidence is scarce and only relates to immediate effects (Teys et al 2013). Similarly use of tape to augment the effects of MWMs is often advocated (Mulligan 2010), but no previous studies have investigated the effects of this in patients with shoulder pain and/or dysfunction.

Teys et al (2013) have presented an article investigating whether the use of tape augments the effects of MWMs in shoulder patients. Fifty-three consecutive patients complaining of anterolateral shoulder pain were treated with an MWM technique were treated with a posterolateral translation of the humeral head in the glenoid fossa, as described by Mulligan (2010). Twenty-five patients (47%) responded positively, meaning that they had instant improvement of pain free active shoulder abduction in the scapular plane by at least 10° after one MWM treatment.

The results of this study are interesting as they indicate that initial effects on painfree ROM with MWMs to the shoulder can be prolonged by adding a simple strip of tape applied from the anterior shoulder, over the acromion and diagonally across the scapula to a point approximately level with the T7 spinal segment. In a clinical setting it would be interesting to see the results of using this period of increased ROM for exercises aimed at addressing any identified muscle dysfunctions or impairments.

The application of tape in this study provided no additional benefit with regard to reducing shoulder pain, but did improve shoulder function in the form of approximately 20° increased painfree active scapular plane abduction, which was sustained for one week. Functional limitations and the ability to work has been reported to be more important for patients than pain (Faber et al 2006). One might therefore argue that painfree ROM is a more clinically important outcome measure than pain for this patient group, as improvement of painfree active ROM most likely reflects improved shoulder function. However, because this study only measured ROM in one plane of movement it is difficult to estimate any global functional implications.

As stated by the authors themselves this is the first study aiming to investigate whether there is an added effect of adding tape to MWMs in painful shoulders, and consequently care must be taken not to overinterpret the results. The study sample is relatively small and it is not known whether the additional effects of tape provide benefit for longer than one week. However, as the application of tape seems to have few side effects or adverse events (Radford et al 2006), there are few contraindications to using this technique in clinical practice. The application of tape is quick and of little cost, and many physiotherapists have already experienced positive results with its use. This article provides preliminary evidence that treatment effects for patients with painfully restricted shoulder ROM, who respond positively to MWMs, can be augmented by the addition of taping.

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