Manipulation or intra-articular steroids in the management of adhesive capsulitis of the shoulder. A prospective randomized trial


INTRODUCTION

The American Academy of Orthopaedic Surgeons defines frozen shoulder (adhesive capsulitis) as “a condition of varying severity characterized by the gradual development of global limitation of active and passive shoulder motion where radiographic findings other than osteopenia are absent”. Primary frozen shoulder is idiopathic and self-limiting over a period of 12 to 24 months. The management of this condition is controversial with the aim to interrupt the natural history of the condition to reduce the period of disability to a minimum. A variety of treatment modalities have been advocated however there have been few prospective studies assessing the effect of these different modalities. Distension of the shoulder joint with or without arthrography or steroid injection is one such treatment modality and MUA has been accepted as the gold standard of treatment for frozen shoulder because it is the most commonly used by all surgeons.

AIM

The aim of this study was to carry out a long-term prospective randomized study to compare the outcome, after a 2 year follow-up period, of two groups of patients treated either by manipulation under anaesthetic (MUA) or by intra-articular shoulder injections using steroids with distension.

METHODOLOGY

The study cohort comprised 53 consecutive patients who presented to a hospital upper limb service and were diagnosed with primary frozen shoulder. The senior author assessed each patient before entry into the study and excluded patients with medical conditions such as diabetes, and those who had received a steroid injection into the affected shoulder before referral were excluded. Patients were randomized to two groups, MUA or injection, by a closed envelope method. Full ethical approval was received and each patient gave consent. The MUA group (28 patients) received treatment with a MUA, performed by the senior author. The injection group (25 patients) received 3 injection treatments with a steroid and distension, at 6 week intervals in the outpatient clinic. Following the intervention both groups were taught and given an exercise sheet of follow-up exercises by a physiotherapist.
All patients were reviewed at 2, 6 and 12 weeks and then at 6, 9, 12, 18 and 24 months with each patient completing the Constant-Murley Shoulder Function Assessment Score (CS) and the VAS score to assess pain levels at each follow-up appointment. The SF-36 was completed at the start and end of the two year follow-up by both groups.

RESULTS

The median age of the MUA group was 56.5 years and the injection group was 57.0 years. The median duration of symptoms before presentation in the MUA group was 19 weeks and the injection group was 16 weeks. Both groups were therefore considered to be in the “freezing” phase of the disease. The dominant limb was affected in 46% of the MUA group and in 24% of the injection group.

As most of the significant improvements occurred within the first 16 weeks regression analysis was performed on the outcome measures for this time period only. Results showed there was no significant difference between speed in reduction in pain (VAS) or improvement in function (CS) between those treated with MUA and those treated with steroid and distension. When comparing the affected to the unaffected side for each patient regression analysis showed no difference between groups with a similar rate of change in the CS.

All components of the SF-36 scores improved for all patients during the course of the treatment with the Physical role and bodily pain components showing the greatest improvement. No statistically significant difference was found between the 2 groups with respect to the change in SF-36 scores.

DISCUSSION

This study is not controlled. The authors report the reason for this was because it was deemed it would not be ethically sound to include a no treatment group, given that previous studies have shown the benefit of including steroid injections and MUA in the treatment of this patient group. Perhaps it have been feasible to have a physiotherapy only group as the control group and then have each of the two intervention groups performing physiotherapy in addition to the interventions. This was not considered however as the results of a recent systematic review (Blanchard et al 2010) have shown that in the short term corticosteroid injections have greater effect compared to physiotherapy alone and in the longer term it may be deemed more beneficial to have steroid injection over physiotherapy. In current practice however, given the lack of conclusive evidence, patients who receive injections or MUA for adhesive capsulitis are likely to also receive follow-up physiotherapy. The patients in this study only received one session of physiotherapy over the two year study period.
The authors emphasize that conclusions from this study can only be applied to patients in the “freezing” phase of the disease. The results showed no difference in the speed of change in the two groups and the authors highlight that MUA is more costly and inconvenient for patients, involves undergoing a general or regional anesthetic which carry their own risk, and potentially can involve serious complications. On the other hand minimal complications have been reported post distension injections.

The PEDro scale highlights a number of limitations in the study design. Firstly the medical conditions which dictated exclusion from the study were not listed; reference is made only to diabetes. The senior author who carried out the MUA was not blinded to the patient group. It was not stated who carried out the injections and we do not know if the physiotherapist who administered the follow-up exercise programme were blinded to the treatment groups. It is also not mentioned who administered the CS and if they were blinded to the treatment groups and the authors failed to highlight in the methodology section that the CS was carried out on both the affected and unaffected sides.

In the results section the authors compare the rate of change of the CS for the subjects affected side and unaffected side. However given that the results of the CS are expected to differ between dominant and non-dominant hands and that the dominant limb was affected in 46% of the MUA group when compared to 24% of the injection group this is likely to influence the results.

**CONCLUSION**

In conclusion, given the cost implications, the potential risks of MUA the authors recommend the use of steroid injections with distension rather than MUA and physiotherapy as a first-line treatment for patients in the “freezing” phase of primary adhesive capsulitis.