

Ostenil Hyaluronan Injections for Subacromial Impingement

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Introduction

- Subacromial impingement syndrome is a commonly diagnosed condition involving the shoulder which is associated with pain and loss of function.
- The main conservative treatments for pain caused by primary subacromial impingement have traditionally been rest, NSAIDS, physiotherapy and corticosteroid injections.
- There is increasingly strong evidence however that corticosteroid injections have a deleterious effect on the rotator cuff tendons (1).
- Therefore hyaluronan (HA) injections (Ostenil) into the subacromial bursa, were used in the conservative management of subacromial impingement.
- HA is a normal proteoglycan component of hyaline cartilage and synovial fluid (fig 1), it plays an important role in joint lubrication and metabolism, affects inflammation through influence on cytokine and immune cell function and has a direct analgesic effect mediated by inhibition of nociceptor activation (2).
- Ostenil (TRB Chemedica) is a high molecular weight derivative of hyaluronic acid.

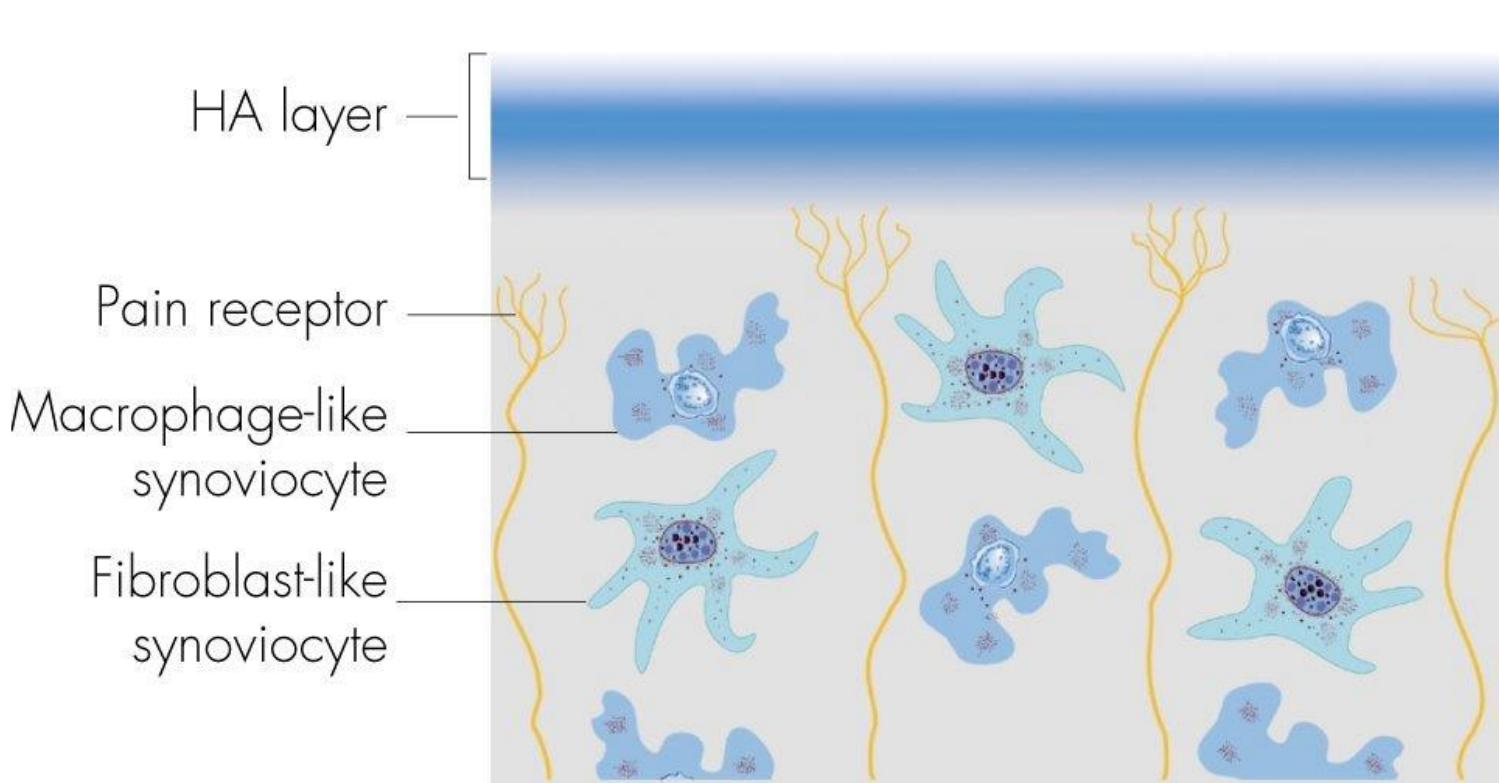


Figure 1: In the synovial tissues Hyaluronans provides a protective barrier. This barrier protects the synovium against inflammatory mediators and shields pain receptors from pain mediators.

Aims

The aim of this study was to audit the amount of pain relief and functional improvement in patients diagnosed with primary subacromial impingement following an ostenil injection into the subacromial bursa.

Materials and Methods

- Twenty five patients were diagnosed with primary subacromial impingement, with or without secondary stiffness, and these patients were injected with 20mg in 2ml of Ostenil into the subacromial bursa by the posterior approach.
- The shoulder questionnaire was completed before the injection and 6-weeks after the injection. This included the Constant Score and the Oxford Shoulder Score.
- The patients also completed a pain diary for the six weeks between receiving the Ostenil Injection and their follow up appointment.
- The patients did not receive any other treatment between having the injection and the six week follow up appointment.

References

- [1] Wen Chung et al. Inhibition of tendon cell migration by dexamethasone. Orthopaedic Research 2003;21: 265-271
- [2] Abatangelo and Regan. Hyaluronan: Biological role and function in the articular joints. European Journal of Rheumatology and Inflammation. 1995;15:9-16
- [3] Simon. Viscosupplementation therapy with intra-articular hyaluronic acid. Rheumatology Clinics of North America. 1999;25(2): 345-357
- [4] Funk. Hyaluronan vs. steroid injection for subacromial impingement of the shoulder. Osteoarthritis and Cartilage. (2005) 13(A) S80

Results

The mean age of the patients in the sample was 55 years (34-76).

There were 13 male and 12 female patients and of these 25, 13 patients also presented with secondary shoulder stiffness with reduced range of movement into external rotation.

Functional Improvement

The pre and post constant scores showed a positive change with all except 1 patient increasing the constant score value, which represents an improvement in shoulder function. The histogram (fig2) illustrates the distribution of the amount of change from pre injection to post injection constant scores.

The t-test for the change in constant scores showed that the difference between the pre injection and post injection scores ($t=6.61$) was significant at $p=0.05$.

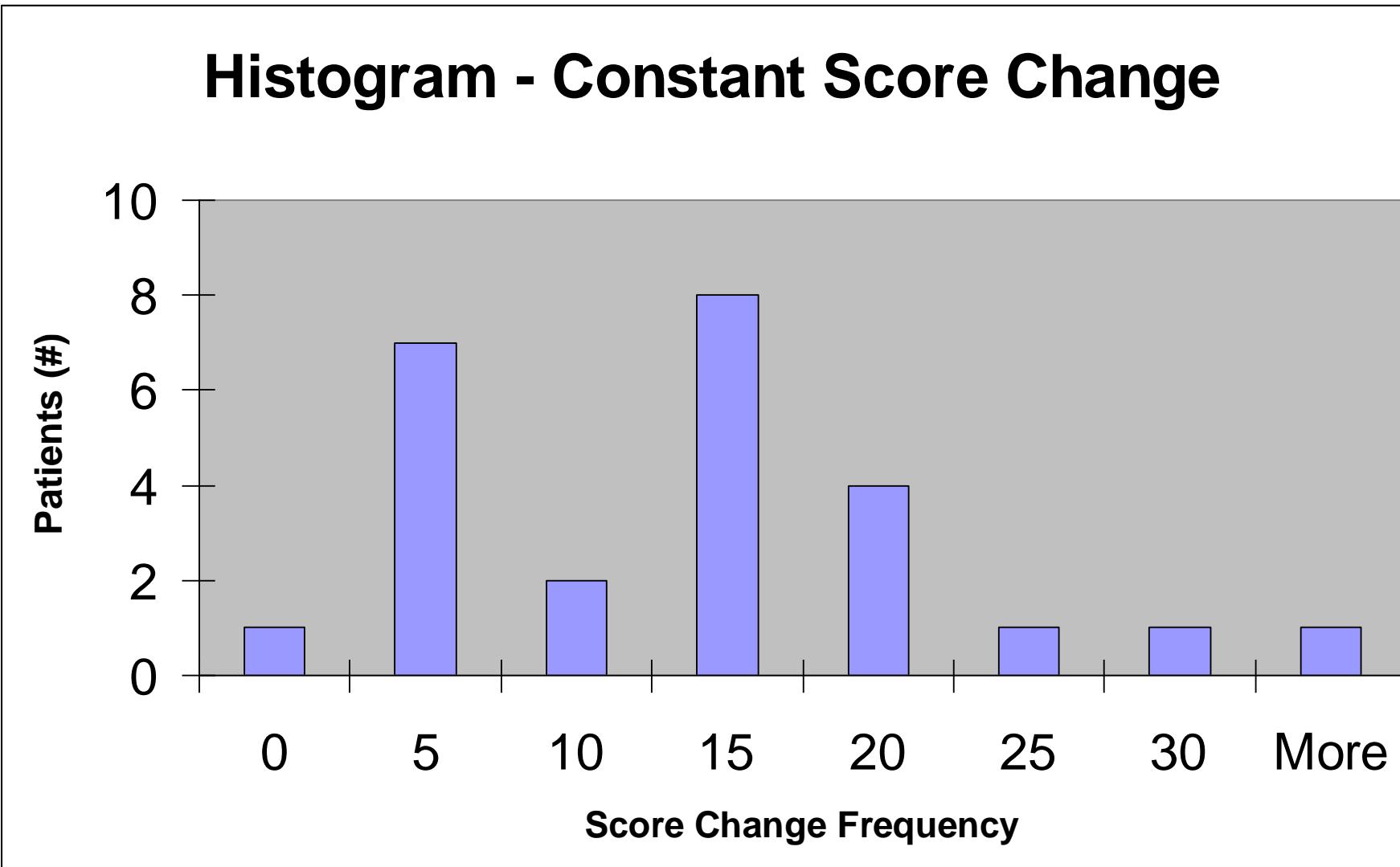


Figure 2 Histogram of distribution of the amount of change between the pre injection and post injection Constant Scores

The pre and post Oxford scores showed a positive change in 17 of the 25 patients. A decrease in value on the Oxford Score represents an improvement in subjective shoulder function. 2 patients had scores of -5 or below which represents an increase on the Oxford score of 5 points or more. The histogram (fig 3) illustrates the amount of change from pre injection to post injection oxford scores.

The t-test for the change in oxford scores showed that the difference between the pre injection and post injection scores ($t=2.39$) was significant at $p=0.05$.

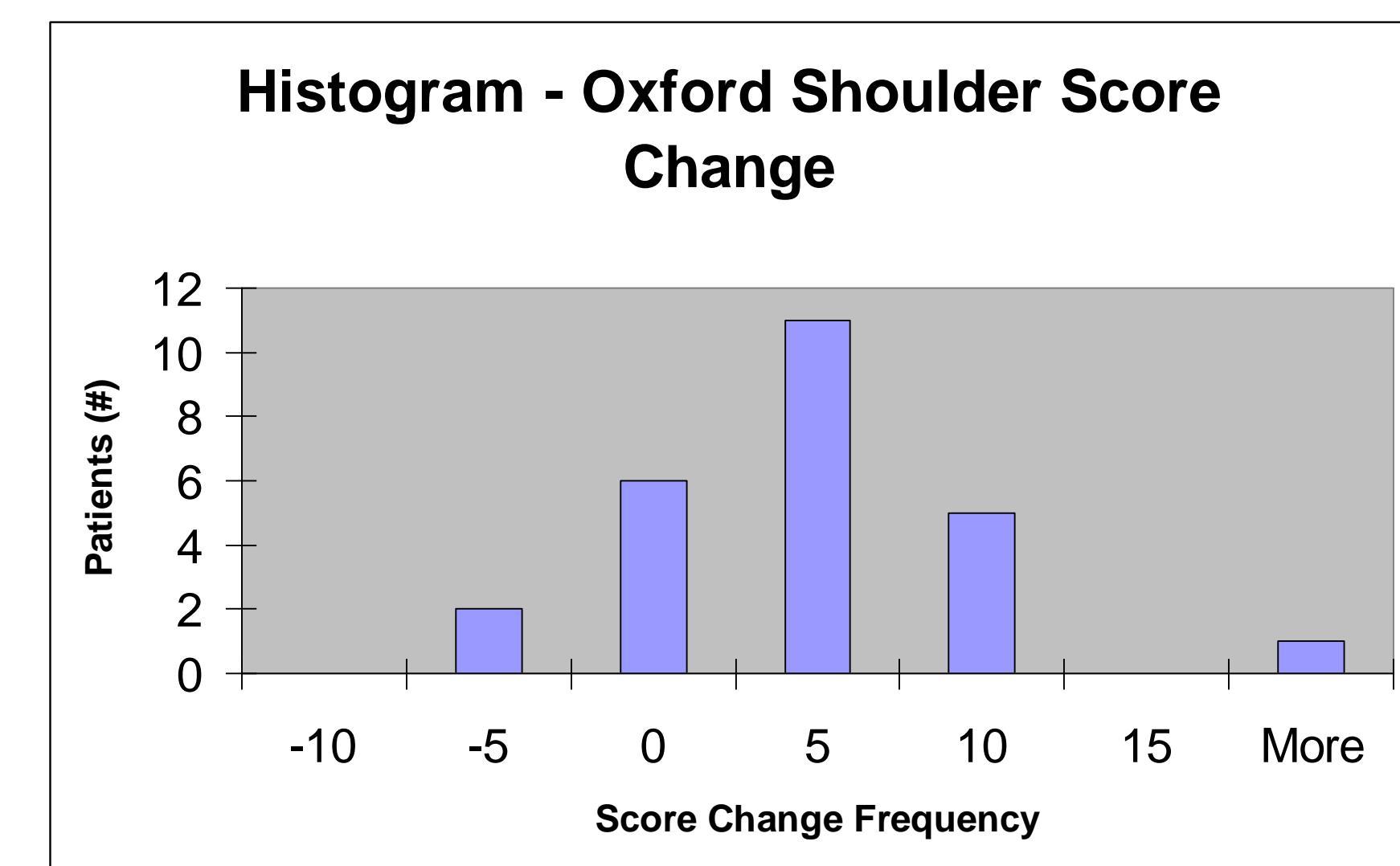


Figure 3 Histogram of number of points change on the oxford shoulder score post injection from the pre injection score

Pain Diary Analysis

Figure 4 shows the mean scores on the pain diaries from pre injection to 6 weeks post injection. The results show a reduction in the mean pain score on the 11 point scale, from 6.1 to 4.1 immediately after the injection and this reduction is maintained until 29 days post injection.

The post injection pain score does not return to the pre injection level at 6-weeks.

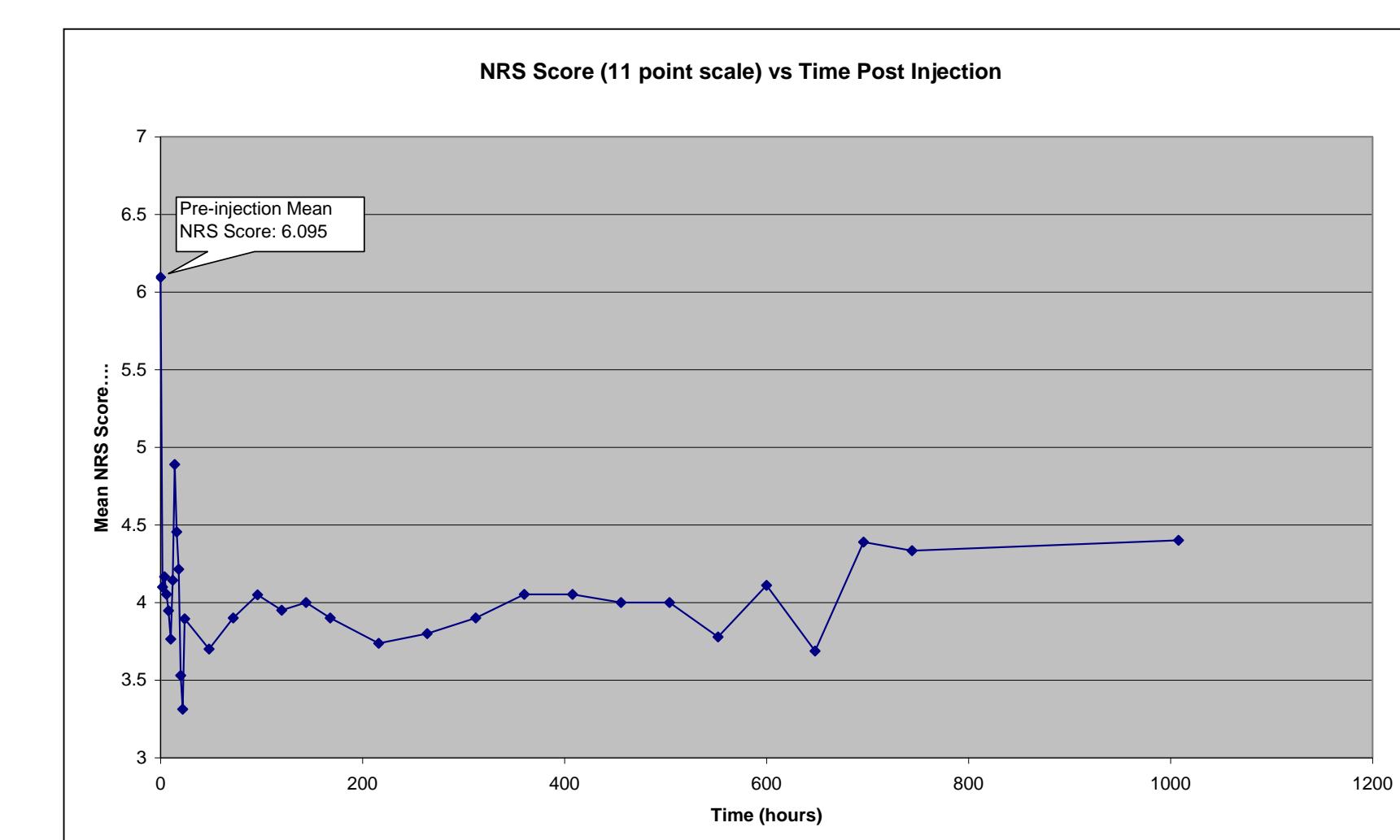


Figure 4 Pain Diary Mean Scores pre injection to 6- weeks post injection

Discussion

This study suggests that HA injections into subacromial bursa may be beneficial in reducing pain intensity and improving shoulder function in patients with primary subacromial impingement.

The research into the action of HA suggests that this is because HA is anti-inflammatory, suppressing synovitis and cytokine production and has an analgesic effect by inhibition of nociceptor activation and insulation of pain fibres (3).

There is some evidence that HA injections are as effective as corticosteroid injections into the subacromial bursa (4).

The research shows no evidence of adverse effects following HA injections and they are therefore thought to be safe especially in the area around the sensitive rotator cuff.

Conclusions

Patients receiving injections with HA felt a reduction in pain intensity and an improvement in shoulder function following an Ostenil injection into the subacromial bursa.