

Oral corticosteroids

Their place in the management of adhesive capsulitis

Julia Walters

BM, BCh, is Research Fellow,
Menzies Research Institute,
University of Tasmania. jaew@
utas.edu.au

Faline Howes

MBBS(Hons), MPubHlth, is
an academic general practice
registrar, Discipline of
General Practice, University of
Tasmania.

Rachelle Buchbinder

MBBS(Hons), MSc, PhD,
FRACP, is Director, Monash
Department of Clinical
Epidemiology, Cabrini Hospital,
Professor, Department
of Epidemiology and
Preventive Medicine, Monash
University, Victoria, and Joint
Coordinating Editor, Cochrane
Musculoskeletal Group.

This series of articles facilitated by the Australian Cochrane Musculoskeletal Group (CMMSG) aims to place the findings of recent Cochrane musculoskeletal reviews in a context immediately relevant to general practitioners. This article considers the place of oral corticosteroids for adhesive capsulitis affecting the shoulder.

The incidence of intrinsic disorders of the shoulder presenting in general practice has been estimated to be 14.7/1000 per year with adhesive capsulitis (also termed frozen shoulder, stiff painful shoulder or periarthritis) accounting for around 20% of cases (incidence 2.4/1000 per year), but occurring more frequently in the middle aged and those with diabetes.¹ The aetiology of pathological findings of intra-articular inflammation and fibrosis is not known. Adhesive capsulitis is diagnosed clinically based on characteristic symptoms and signs: spontaneous onset of severe shoulder pain that interferes with activities of daily living and sleep, and progressive stiffness or restriction of both active and passive movements, especially elevation and external rotation.² Radiological examination is most commonly normal and is

not required for the diagnosis unless the clinical picture suggests an alternative cause.¹

Adhesive capsulitis is a self limiting condition, lasting 18–30 months,² although a significant proportion of sufferers may have prolonged functional limitation and stiffness. Treatment options include nonsteroidal anti-inflammatory drugs (NSAIDs), intra-articular injection of corticosteroid with or without arthrographic distension of the glenohumeral joint (hydrodilatation), physiotherapy (passive mobilisation and exercise therapy), and oral corticosteroids, but evidence of benefit from these options is of varying strength.^{3–5}

Buchbinder et al⁵ performed a systematic review to assess the efficacy and safety of oral steroids compared to placebo or compared to other treatments.

The review results are summarised in *Table 1* and how these results might affect practice are shown in *Table 2*.

Table 1. Key review results⁴

- Five randomised controlled trials (RCT) were identified with a total of 179 participants. Mean age varied from 52–58 years with a preponderance of female participants and mean duration of symptoms from 5–6 months. Oral steroid dose and duration of treatment varied (prednisolone equivalent 4–30 mg/day, 2–6 weeks). Studies compared oral steroids against placebo, no treatment or intra-articular corticosteroid injection. Because comparators varied, studies could not be pooled for meta-analysis
- Results from individual studies showed:
 - significant improvement in pain, increase in movements and decrease in disability over the short term (3–4 weeks) but negligible differences in the long term
 - 48% more participants reported short term success overall with the number needed to treat being two
 - minimal adverse effects were reported
- The review was unable to draw firm conclusions on the efficacy of oral steroids for adhesive capsulitis although data were suggestive of worthwhile short term benefits

Table 2. Putting evidence into practice**Case study 1**

Mrs Xankakis, 52 years of age, is in good health and has a full time, busy and responsible administrative position. She presents with a 6 week history of gradual onset of severe pain and stiffness in her right shoulder affecting her ability to continue her usual activities. The pain wakes her at night and she can't sleep on her right side. She has no history of trauma, inflammatory arthritis or past shoulder problems. She has been taking two ibuprofen tablets (100 mg), which she bought at a chemist, 2–3 times per day but this has not helped her pain. On examination, her range of active and passive shoulder abduction and flexion is limited by pain to 70 degrees and external and internal rotation to 10 degrees. In view of her age and typical clinical presentation you diagnose adhesive capsulitis and explain that radiological investigation would not add any information.

What immediate treatment do you choose?

As Mrs Xankakis has already tried taking a low dose of NSAIDs and has no contra-indications to NSAIDs, you advise that she could increase the dose, using ibuprofen 400 mg 2–3 times per day or naproxen 250 mg three times per day for pain, although this may not completely relieve her symptoms. You explain that, although the natural history of adhesive capsulitis is for spontaneous improvement, the course can be lengthy. A 3 week course of prednisolone is very likely to hasten improvement in symptoms, although there is no evidence of longer term benefit. You explain that the risk of side effects over this short period of use is small. She is most troubled by pain at night and associated fatigue which is having an impact upon the quality of her work, so she is very keen for rapid recovery. You commence 3 weeks of prednisolone (6 x 5 mg as a single morning dose after food) and ask her to actively move her arm at her side regularly to try and maintain the movement that she has. You arrange review at 3 weeks. At this time you plan to taper the dose over 2 weeks. You tell her that if she develops any difficulties sleeping or feels 'hyped up' or anxious, the dose of prednisolone can be reduced to 4 x 5 mg. If she develops any other side effects she should return for review sooner.

Case study 2

Mr Youll, 50 years of age, presents with pain and stiffness in his left shoulder. While the pain is of moderate severity especially at night, it is the shoulder restriction that troubles him most. He has difficulty putting on his coat and reaching into his back pocket. His symptoms have gradually worsened over 6 months and although he has put up with it for a long time, he is now asking if there is any treatment that will help. He has longstanding insulin dependent type 2 diabetes (at times poorly controlled), hypertension, and a past history of peptic ulceration. Examination of his shoulder reveals severe restriction of all movement.

What treatment do you consider?

You tell Mr Youll that adhesive capsulitis or 'frozen shoulder' is the probable cause of his symptoms. You explain that while people with diabetes have a higher chance of developing the condition, in most cases the symptoms slowly improve even without treatment over 2 years. He has already tried physiotherapy at the onset of his symptoms, but this seemed to make the pain worse. There is some evidence for short term benefit with oral steroids but you would be reluctant to prescribe these in the first instance in view of his diabetes and history of peptic ulcer. Alternatively, a steroid injection might provide short term pain relief and only transiently affect his blood sugar control. You also discuss combining a steroid injection with an arthrographic distension of the shoulder joint with saline (hydrodilatation), which can be performed under radiological control. There is some evidence that this also improves shoulder movement and function. As his main problem is shoulder stiffness limiting his activities this seems a good alternative. You explain that the procedure can sometimes be uncomfortable but the risk of complications is low. You also tell him that if this does not result in improvement, there is still the possibility that he could have a short course of prednisolone provided he monitors his sugars closely and adjusts his insulin if needed. You arrange a review in 4 weeks.

Conclusion

Data from two placebo controlled trials and one no treatment controlled trial provide moderate level evidence that oral corticosteroids provide significant short term benefits in pain, range of movement of the shoulder and function in adhesive capsulitis. While the effects may not be maintained beyond 6 weeks, further research is needed to determine whether more sustained benefits can be achieved by a longer course of treatment and/or a more gradual tapering of the dose, and/or combining oral steroids with other treatments such as hydrodilatation or physiotherapy.

Conflict of interest: none declared.

References

- van der Windt DA, Koes BW, de Jong BA, et al. Shoulder disorders in general practice: incidence, patient characteristics, and management. *Ann Rheum Dis* 1995;54:959–64.
- Brue S, Valentin A, Forssblad M, et al. Idiopathic adhesive capsulitis of the shoulder: a review. *Knee Surg Sports Traumatol Arthrosc* 2007; Feb 28 [Epub ahead of print].
- Buchbinder R, Green S, Youd JM. Corticosteroid injections for shoulder pain. *Cochrane Database Syst Rev* 2003;1:CD14004016.
- Buchbinder R, Youd J, Green S, et al. Efficacy and cost effectiveness of physiotherapy following glenohumeral joint distension for adhesive capsulitis: a randomised trial. *Arthritis Care Res* 2007;57:1027–37.
- Buchbinder R, Green S, Youd JM, et al. Oral steroids for adhesive capsulitis. *Cochrane Database Syst Rev* 2006;4:CD14006189.