

Specific question:

Is a suprascapular nerve block an effective method of reducing pain and disability in adults with shoulder pain?

Clinical bottom line:

Suprascapular nerve blocks (SSNB) are beneficial in decreasing pain and improving disability in patients with shoulder arthritis or adhesive capsulitis.

There is high quality evidence to suggest that these patients benefit more from a SSNB than they would from a placebo nerve block. There is also high quality evidence to suggest that a single SSNB may provide more pain relief, in the short term, than a series of intra-articular corticosteroid injections, or acupuncture in patients with adhesive capsulitis.

Why is this important?

Shoulder pathologies such as arthritis, or capsulitis are often very difficult to treat in musculoskeletal practice with some patients presenting with high pain and disability scores. Although widely performed in Pain Management and Anaesthetics, uncertainty regarding the effectiveness of SSNB's for patients with common musculoskeletal causes of shoulder pain has led to ambiguity regarding their use in Orthopaedic or Musculoskeletal settings.

Inclusion criteria:

- Adults with shoulder pain secondary to musculoskeletal (MSK) disorders commonly treated in MSK practice.
 - o Osteoarthritis (GHJ or ACJ)
 - o Adhesive capsulitis / frozen shoulder
 - o Rotator cuff arthropathy
 - o Rotator cuff tears
 - o Rotator cuff tendinopathy
 - o Impingement syndromes

- Intermittent suprascapular nerve blocks
 - o Either guided using radiology, or via bony landmarks.

Exclusion criteria:

- Visceral pain
- Cancer pain
- Hemiplegic shoulder pain
- Peri or post-operative pain
- Continuous nerve block via indwelling catheter

Search:

	Description	Search Terms
Population and Setting	Adults with shoulder pain secondary to MSK disorders & commonly treated in MSK practice	Shoulder pain, osteoarthritis, adhesive capsulitis, frozen shoulder, arthropathy, rotator cuff tear, tendinitis, bursitis, impingement
Intervention or Exposure (ie what is being tested)	Suprascapular nerve block	Nerve block, Suprascapular
Comparison, if any	Other interventions	
Outcomes of interest	Reduction in pain, cost effectiveness	
Types of studies	Systematic reviews, RCT's, Cohort studies	
Other		Limit to: English language Limit to: 2005-2015

Databases searched	Date of last search	No. of results
MEDLINE	March 2015	19
EMBASE		38
AHMED		3
CINAHL		2

Results:

- 53 unique studies downloaded
 - o 11 potentially relevant
 - o 42 excluded studies
 - 2 included studies

First author, Year, Type of study	Population and setting	Intervention or exposure tested	Study results	Assessment of quality and comments
Favejee, M., et al. (2011) Systematic Review	<p>Patients with frozen shoulder (adhesive capsulitis)</p> <p>3 RCT's with a total of 164 patients</p>	<p>Comparing SSNB against a range of treatments including, steroid injection, placebo nerve block, or acupuncture.</p>	<p>One high quality trial compared Bupivacaine SSNB with placebo (saline) SSNB (n=34). 62% overall reduction of pain with SSNB compared to 13% in the placebo group (p=0.03)</p> <p>Another high quality RCT compared a single SSNB with a series of intra-articular injections (n=30) and demonstrated significantly better pain relief (p=0.001) and ROM (p=<0.05) at 12 weeks.</p> <p>A low quality study favoured SSNB for pain relief and ROM 30 mins post treatment when compared to acupuncture (n=100).</p>	<p>Clearly focussed review question</p> <p>Wide range of sources used and well-designed methodology</p> <p>Quality assess by 12 point criteria and two independent reviewers</p> <p>The two high quality trials, despite having good academic rigour has small sample sizes</p> <p>Treatment sizes and adverse events not noted in the review</p>
Shanahan, E., et al. (2003) Multicentre RCT	<p>108 patients with Patients with chronic shoulder pain (>3 months) presenting to rheumatology (n=108)</p> <p>50% Degenerative diagnosis 50% Rheumatoid arthritis</p> <p>Most had had previous failed treatments prior to starting the study</p> <p>Exclusions include frozen shoulder and steroid injection <3 months ago.</p>	<p>Intervention group – SSNB using local anaesthetic and steroid. Using a landmark guided approach</p> <p>Control group – Placebo injection (saline injected subcutaneously)</p>	<p>Clinically and statistically significant decrease in pain at rest, pain at night, and pain on movement with SSNB</p> <p>Mean VAS improvement with SSNB between 13 and 22 on 100 point VAS scale</p> <p>Consistently better than placebo (between 8 – 15 points better) (p=<0.05)</p> <p>Greatest effect on pain at night and on pain with movement</p> <p>Benefits were prolonged and still present at 12 weeks</p> <p>Modest but clinically significant improvement in disability with SSNB. Not significant with placebo.</p> <p>Adverse events:</p> <ul style="list-style-type: none"> - 1 = MSK chest pain post injection - resolved in 48hours - 1 = minor bruising - 1 = died due to unrelated myocardial infarction 	<p>Multi-centred (South Australia and Ireland)</p> <p>Power calculations performed and numbers met</p> <p>Sealed envelope randomisation and concealed throughout study</p> <p>Assessor, clinician, and patient all blinded</p> <p>Baseline data similar between groups</p> <p>12 week follow-up</p> <p>Used intention-to-treat analysis</p> <p>Adverse events recorded</p> <p>Overall high quality study</p>

Summary

There is high quality evidence to suggest that intermittent suprascapular nerve block injections decrease pain in the short term in those patients presenting with shoulder capsulitis or arthritis when compared to placebo injection, and may be better than a series of intra-articular injections, or acupuncture, for adhesive capsulitis.

Although only a few trials exist that look specifically at a musculoskeletal patient population, the evidence does point towards suprascapular nerve block being a useful treatment option in patients with prolonged shoulder pain from arthritis or capsulitis.

It is not yet known how treatment with SSNB fares against other treatment strategies commonly used for these pathologies, including Physiotherapy or Surgery. Research is also lacking on the effectiveness of combining SSNB with other treatment strategies.

Despite most studies focus on pain as a primary measure, two studies did look at disability and found modest but clinically significant improvements when compared to placebo, or intra-articular steroid injections.

Although one study observed that treatment benefits still remained at three months post injection, further research is required to determine the long term effects of this treatment strategy.

One study, within the systematic review by Favejee, et al. (2011), compared the effects of landmark guided SSNB versus a near- nerve electromyographically guided technique. The authors found no statistically significant difference in pain relief for up to 60 minutes between the two techniques. The large multi-centre trial by Shanahan, et al. (2003) utilised a landmark guided approach to administer the SSNB.

Conclusions

Suprascapular nerve blocks should be offered to patients struggling with pain or disability following shoulder arthritis or capsulitis. This approach may be favoured over a series of intra-articular injections for adhesive capsulitis. Due to the limited scope of the current evidence base, it is uncertain whether SSNB's are more effective than commonly used treatment strategies such as Physiotherapy or surgery. It is also uncertain as to whether combinations of therapies, including the addition of a SSNB, are more or less beneficial.

You may advise patients receiving a SSNB for shoulder arthritis or capsulitis that they may gain symptom relief and that this may continue for three months but that the evidence does not inform us about longer term outcomes after these injections. Further research is warranted into the outcomes of landmark guided versus radiology or EMG guided approaches. Initial evidence would

suggest that there is no difference in short term results but a larger scale trial with a longer follow up would help to draw more accurate conclusions.

References

Favejee, M, M., Huisstede, B, M. and Koes, B, W. (2011). Frozen Shoulder: The Effectiveness of Conservative and Surgical Interventions - Systematic Review. *British Journal of Sports Medicine*, **45** (1), 49-56

Shanahan, E., Ahern, M., Smith, M., Wetherall, M., Bresnihan, B. and FitzGerald, O. (2003). Suprascapular nerve block (using bupivacaine and methylprednisolone acetate) in chronic shoulder pain. *Annals of the Rheumatic Diseases*, **62** (5), 400–406