

# Suprascapular nerve block reduced chronic shoulder pain and disability in degenerative disease or rheumatoid arthritis

Shanahan EM, Ahern M, Smith M, *et al.* Suprascapular nerve block (using bupivacaine and methylprednisolone acetate) in chronic shoulder pain. *Ann Rheum Dis* 2003;**62**:400–6.

Clinical impact ratings GP/FP/Primary care ★★★★★☆☆ Rheumatology ★★★★★☆☆

**Q** In patients with chronic shoulder pain from degenerative disease or rheumatoid arthritis, is suprascapular nerve block (SNB) effective for reducing the resulting pain and disability?

## METHODS

**Design:** randomised placebo controlled trial.

**Allocation:** concealed.\*

**Blinding:** patients and outcome assessors.\*

**Follow up period:** 12 weeks.

**Setting:** St Vincent's University Hospital in Dublin, Ireland and the Repatriation Hospital in Adelaide, South Australia.

**Patients:** 83 unselected patients (108 shoulders) (mean age 73 y, 52% men) with chronic shoulder pain of  $\geq 3$  months' duration resulting from degenerative disease (43 patients, 56 shoulders) or rheumatoid arthritis (40 patients, 52 shoulders). Exclusion criteria included a known allergy to the injecting agents, severe chronic airways disease, cardiac failure, and adhesive capsulitis.

**Intervention:** shoulders were allocated to SNB (n = 56) or placebo (n = 52). SNB consisted of an injection into the suprascapular fossa of a combination of bupivacaine (10 ml of a 0.5% solution) and methylprednisolone (1 ml containing 40 mg) after local analgesia with lidocaine (2 ml of a 1% solution). The placebo injection consisted of normal saline (5 ml) infiltrated subcutaneously after local analgesia with lidocaine (2 ml of a 1% solution).

**Outcomes:** shoulder pain and disability (0–100 shoulder pain and disability index [SPADI]) measured at baseline, and at weeks 1, 4, and 12 of follow up.

**Patient follow up:** shoulder follow up was 94%.

\*See glossary.

on the SPADI scale were greater in the SNB group than in the placebo group throughout follow up (table).

## CONCLUSION

Suprascapular nerve block was effective for reducing chronic shoulder pain and disability in patients with degenerative disease or rheumatoid arthritis.

## Commentary

The trial by Shanahan *et al* showed convincing pain relief lasting for  $\geq 12$  weeks after SNB with bupivacaine and methylprednisolone.

The results are generalisable to patients who are referred to secondary care with chronic shoulder pain arising from damaged joints (91% of shoulders were abnormal on x ray). A more modest improvement in shoulder related disability was observed, which reflects the degree to which pain (as opposed to mechanical factors) affects function. This technique is especially useful when the shoulder joint or rotator cuff is substantially damaged because concern exists that repeated intra-articular steroid injections in this setting may increase the rate of structural decline. On the other hand, an intra-articular steroid injection in the context of joint inflammation may have a positive influence on the underlying pathology. The 2 techniques cannot, therefore, be viewed as straightforward alternatives.

It is notable that previous studies have shown the benefit of SNB with bupivacaine alone in rheumatoid arthritis<sup>1</sup> and frozen shoulder,<sup>2</sup> whereas this trial used a combination of bupivacaine and methylprednisolone. Little information exists in the literature on the longer term outcome of SNB or the benefit of repeated intra-articular steroid injections.

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- Gado K, Emery P. Modified suprascapular nerve block with bupivacaine alone effectively controls chronic shoulder pain in patients with rheumatoid arthritis. *Ann Rheum Dis* 1993;**52**:215–8.
- Dahan TH, Fortin L, Pellier M, *et al.* Double blind randomized clinical trial examining the efficacy of bupivacaine suprascapular nerve blocks in frozen shoulder. *J Rheumatol* 2002;**27**:1464–9.

## MAIN RESULTS

Analysis was by intention to treat. Improvement in shoulder pain and disability and the number of shoulders that improved by  $>10$  points

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Suprascapular nerve block (SNB) v placebo in chronic shoulder pain from degenerative disease or rheumatoid arthritis at 1–12 weeks\*

Outcomes	Follow up	SNB	Placebo	Difference between groups (95% CI)
Mean improvement from baseline in shoulder pain and disability (SPADI total scores 0–100)	Week 1	17	0.66	16 (9.9 to 22)
	Week 4	14	0.80	13 (6.6 to 19)
	Week 12	14	2.6	11 (3.6 to 18)
				<b>RBI (CI)</b>
Number of shoulders that improved by $>10$ SPADI total scores	Week 1	67%	24%	186% (74 to 393)
	Week 4	65%	11%	501% (175 to 1309)
	Week 12	55%	19%	192% (60 to 459)
				<b>NNT (CI)†</b>
				3 (2 to 4)
				2 (2 to 3)
				3 (2 to 6)

\*SPADI = shoulder pain and disability index. Other abbreviations defined in glossary; RBI, NNT, and CI calculated from data in article.

†NNT refers to number of shoulders needed to treat.