Proximal and Distal Ultrasound-guided Suprascapular Nerve Blocks for Shoulder Pain: A Retrospective, Non-Inferiority Analysis

Mohamed Shitia, DO[1,2], Richard D. Wilson, MD, MS[1,2], Travis Cleland, DO[3]

MetroHealth Rehabilitation Institute[1], Cleveland, Ohio; Case Western Reserve University[2], Cleveland, Ohio

Crystal Clinic Orthopaedic Center[3], Akron, Ohio

Background

- Suprascapular nerve blocks are a treatment option for those with shoulder pain
- A mixture of lidocaine and steroid is often administered along the course of the nerve
- Proximal suprascapular nerve block (pSSNB): injection occurs proximal to spinoglenoid notch (i.e. closer to the suprascapular notch)
  - Most common approach
- Distal suprascapular nerve block (dSSNB): injection occurs distal to spinoglenoid notch
  - Less common approach
  - Preferred by some physicians due to ease, patient comfort, and avoidance of phrenic nerve injury or pneumothorax
- Both types of blocks occur proximal to the sensory branches that innervate the shoulder joint and soft-tissues

Objective

- To determine if ultrasound-guided dSSNBs are non-inferior to pSSNBs

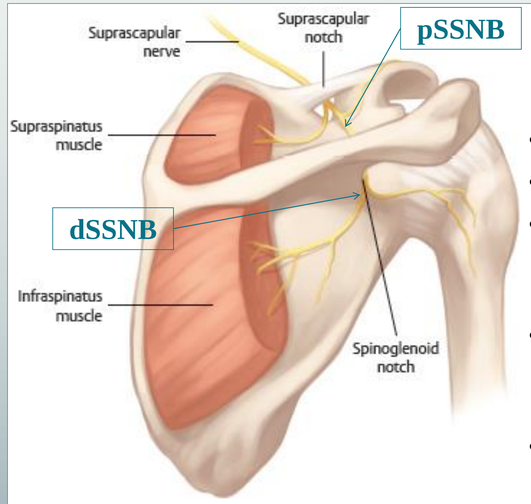

Figure 1: Anatomical Location of Proximal and Distal SSNBs.

Methods

- **Design**: Retrospective chart review
- **Setting**: Academic, ambulatory clinic
- **Participants**: 182 patients with shoulder pain who received an ultrasound-guided pSSNB (n=86) or dSSNB (n=96)
- **Outcome Measures**: Pain scores (0-10) assessed immediately prior, immediately following, and 1-3 months following injection
- **Statistical Analysis**: Non-inferiority (one-tailed t-test) was defined as an absolute risk-difference of no more than 5% in a clinically relevant pain reduction at 1-3 month follow-up.

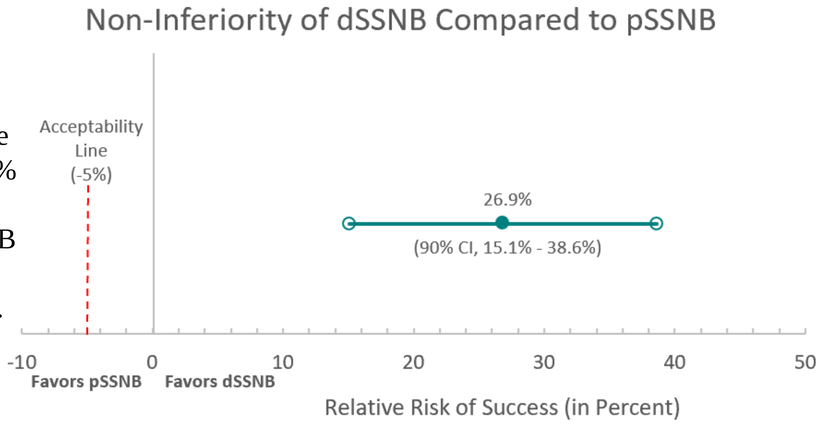

Figure 2: Forest plot depicting that the relative risk of success was 26.9% higher for the dSSNB group than for the pSSNB group, far surpassing the acceptability line at -5%.

Results

- The risk-difference of successful outcome, defined as having at least a 30% pain reduction at 1-3 month follow-up, for the dSSNB group was 26.9% higher than for the pSSNB group (90% CI 15.1% - 38.6%, $p<0.0001$).

Conclusions

- These results suggest that ultrasound-guided dSSNBs are non-inferior to pSSNBs.
- In fact, dSSNBs may even be superior to pSSNBs, which may warrant further investigation.
- This is clinically significant for providers who prefer positioning the patient in the lateral decubitus position.
- Furthermore, the distal approach can be helpful in avoiding iatrogenic phrenic nerve involvement or pneumothorax which may occur with pSSNBs.

References

Figure 1: https://radiologykey.com/treatment-of-adhesive-capsulitis/