

CADTH Reference List

Stellate Ganglion Block for the Treatment of Pain

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Key Messages

- Four systematic reviews, 1 randomized controlled trial, and 3 non-randomized studies were identified regarding the clinical effectiveness of stellate ganglion block for the treatment of chronic or acute pain in the head, neck, or upper extremities.
- No evidence-based guidelines were identified regarding the use of stellate ganglion block for the treatment of chronic or acute pain in the head, neck, or upper extremities.

Research Questions

1. What is the clinical effectiveness of stellate ganglion block for the treatment of chronic or acute pain in the head, neck, or upper extremities?
2. What are the evidence-based clinical practice guidelines regarding the use of stellate ganglion block for the treatment of chronic or acute pain in the head, neck, or upper extremities?

Methods

Literature Search Methods

A limited literature search was conducted by an information specialist on key resources including MEDLINE, the Cochrane Database of Systematic Reviews, the international HTA database, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were stellate ganglion block and acute and chronic pain in the upper extremities (neck, head, arms, shoulder, and so forth). No filters were applied to limit the retrieval to study type. Where possible, retrieval was limited to the human population. The search was also limited to English-language documents published between January 1, 2016 and January 20, 2021. Internet links were provided, where available.

Selection Criteria

One reviewer screened literature search results (titles and abstracts) and selected publications according to the inclusion criteria presented in Table 1. Full texts of study publications were not reviewed. Open access full-text versions of evidence-based guidelines were reviewed when abstracts were not available.

Results

Four systematic reviews,¹⁻⁴ 1 randomized controlled trial,⁵ and 3 non-randomized studies⁶⁻⁸ were identified regarding the clinical effectiveness of stellate ganglion block for the treatment of chronic or acute pain in the head, neck, or upper extremities. No health technology

Table 1: Selection Criteria

Criteria	Description
Population	Individuals (any age) with chronic or acute pain in the head, neck, or upper extremities
Intervention	Stellate ganglion block (i.e., anesthetic [any kind] injection into the stellate ganglion)
Comparator	Q1: Standard or usual treatment for pain (e.g., pharmacological, behavioural, psychological); placebo; no treatment (safety outcomes only) Q2: Not applicable
Outcomes	Q1: Clinical benefits and harms (e.g., pain control, health-related quality of life, mobility, hematoma, accidental injection of anesthetic into wrong space [e.g., intravascular, brachial plexus], allergic response, muscle spasm, infection) Q2: Recommendations regarding best practices (e.g., treatment protocols, who should be treated, counter indications for treatment)
Study Designs	Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies, evidence-based guidelines

assessments were identified regarding the clinical effectiveness of stellate ganglion block for the treatment of chronic or acute pain in the head, neck, or upper extremities. No evidence-based guidelines were identified regarding the use of stellate ganglion block for the treatment of chronic or acute pain in the head, neck, or upper extremities.

Additional references of potential interest that did not meet the inclusion criteria are provided in Appendix 1.

References

Health Technology Assessments

No literature was identified.

Systematic Reviews and Meta-analyses

1. Goel V, Patwardhan AM, Ibrahim M, Howe CL, Schultz DM, Shankar H. Complications associated with stellate ganglion nerve block: a systematic review. *Reg Anesth Pain Med*. 2019 Apr 16;rapm-2018-100127. [Medline](#)
2. Toma O, Persoons B, Pogatzki-Zahn E, Van de Velde M, Joshi GP, collaborators PWG. PROSPECT guideline for rotator cuff repair surgery: systematic review and procedure-specific postoperative pain management recommendations. *Anaesthesia*. 2019 Oct;74(10):1320-1331. [Medline](#)
3. Duong S, Bravo D, Todd KJ, Finlayson RJ, Tran Q. Treatment of complex regional pain syndrome: an updated systematic review and narrative synthesis. *Can J Anaesth*. 2018 Jun;65(6):658-684. [Medline](#)
4. Smart KM, Wand BM, O'Connell NE. Physiotherapy for pain and disability in adults with complex regional pain syndrome (CRPS) types I and II. *Cochrane Database Syst Rev*. 2016 Feb 24;2:CD010853. [Medline](#)

Randomized Controlled Trials

5. Kim MK, Yi MS, Park PG, Kang H, Lee JS, Shin HY. Effect of stellate ganglion block on the regional hemodynamics of the upper extremity: a randomized controlled trial. *Anesth Analg*. 2018 May;126(5):1705-1711. [Medline](#)

Non-Randomized Studies

6. Aleanakian R, Chung BY, Feldmann RE, Jr., Benrath J. Effectiveness, safety, and predictive potential in ultrasound-guided stellate ganglion blockades for the treatment of sympathetically maintained pain. *Pain Pract*. 2020 Jul;20(6):626-638. [Medline](#)
7. Vinod K, Kurhekar P, Sharanya K, et al. Efficacy of the stellate ganglion block through the lateral approach using ultrasonogram and fluoroscopy. *Turk J Anaesthesiol Reanim*. 2018 Sep;46(5):393-398. [Medline](#)
8. Datta R, Agrawal J, Sharma A, Rathore VS, Datta S. A study of the efficacy of stellate ganglion blocks in complex regional pain syndromes of the upper body. *J Anaesthesiol Clin Pharmacol*. 2017 Oct-Dec;33(4):534-540. [Medline](#)

Guidelines and Recommendations

No literature was identified.

Appendix 1: References of Potential Interest

Systematic Reviews and Meta-Analyses

Stellate Ganglion Block Not Specified

- Hurley ET, Maye AB, Thompson K, et al. Pain control after shoulder arthroscopy: a systematic review of randomized controlled trials with a network meta-analysis. *Am J Sports Med.* 2020 Dec 15;363546520971757. [Medline](#)

Randomized Controlled Trials

Alternative Comparator

- Yoo Y, Lee CS, Kim YC, Moon JY, Finlayson RJ. A Randomized comparison between 4, 6 and 8 ml of local anesthetic for ultrasound-guided stellate ganglion block. *J Clin Med.* 2019 Aug 27;8(9):27. [Medline](#)
- Imani F, Hemati K, Rahimzadeh P, Kazemi MR, Hejazian K. Effectiveness of stellate ganglion block under fluoroscopy or ultrasound guidance in upper extremity CRPS. *J Clin Diagn Res.* 2016 Jan;10(1):UC09-12. [Medline](#)

Non-Randomized Studies

No Comparator

- Ghai A, Kaushik T, Kundu ZS, Wadhera S, Wadhera R. Evaluation of new approach to ultrasound guided stellate ganglion block. *Saudi J Anaesth.* 2016 Apr-Jun;10(2):161-167. [Medline](#)

Alternative Comparator

- Karaman H. Complications and success rates of stellate ganglion blockade; blind technique vs. fluoroscopic guidance. *Biomed Res.* 2017 Sep;28(4):1677-1682. <https://www.alliedacademies.org/articles/complications-and-success-rates-of-stellate-ganglion-blockade-blind-technique-vs-fluoroscopic-guidance.pdf> Accessed 2021 Jan 22.

Guidelines and Recommendations

Unclear Intervention and Methodology

- Santos Lasasosa S, Cuadrado Perez ML, Guerrero Peral AL, et al. Consensus recommendations for anaesthetic peripheral nerve block. *Neurologia.* 2017 Jun;32(5):316-330. [Medline](#)

Review Articles

- Conidi FX. Interventional treatment for post-traumatic headache. *Curr Pain Headache Rep.* 2016 Jun;20(6):40. [Medline](#)
- Jeon Y. Therapeutic potential of stellate ganglion block in orofacial pain: a mini review. *J Dent Anesth Pain Med.* 2016 Sep;16(3):159-163. [Medline](#)