Ultrasound-Guided Stellate Ganglion Blocks: Indications, Outcomes, and Safety Profile of 236 Blocks

PRESENTER:
Vanessa Rodriguez



BACKGROUND:

The stellate ganglion block (SGB) interrupts sympathetic outflow to the head, neck, and upper extremity. Ultrasound, first described for this block in 1995, has largely displaced landmark-based approaches by allowing real-time visualization of vascular, neural, and visceral structures.

Indications have broadened well beyond classic pain syndromes to psychiatric conditions such as PTSD. Descriptions of real-world practice remain limited to small case series and modestly sized trials.

OBJECTIVE:

To characterize a consecutive series of ultrasound-guided SGBs at a single practice, and to use intraprocedural video to quantify procedural duration and needle depth, benchmarks not previously reported at this scale.

METHODS:

- **DESIGN:** Retrospective cohort of all consecutive ultrasound-guided SGBs at C6 or C7 by a single physician. Reporting follows STROBE.
- **TECHNIQUE:** Supine, head elevated 45° and rotated contralaterally. High-frequency linear probe with color Doppler; 22-G 80-mm needle advanced in-plane posterior to the carotid artery and superficial to the longus colli muscle. Injected 1 mL at a time under continuous visualization.
- **OUTCOMES:** Effectiveness classified per patient from free-text documentation as responder, non-responder, mixed, or undocumented. Adverse events recorded per patient across all blocks.
- **ANALYSIS:** Descriptive; Pearson and Spearman coefficients related duration to depth.

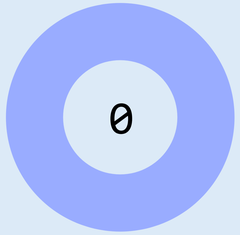
Vanessa Rodriguez, B.S.[1], Arun Kalava, M.D.[2], Sabrina Takagishi, B.S.[1], Ashvika Bandaru, B.S.[1], Lyla Monte[3], Kesava Mandalaneni, M.D.[4]

UCF College of Medicine
UNIVERSITY OF CENTRAL FLORIDA

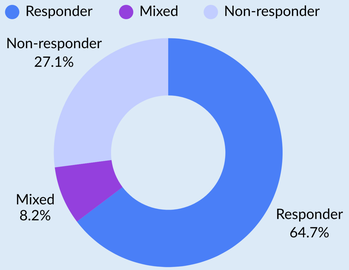
[1] University of Central Florida College of Medicine
[2] Tampa Pain MD
[3] University of South Florida
[4] Oakland University William Beaumont School of Medicine

Stellate ganglion blocks are **safe**, **rapid**, and **technically reproducible**

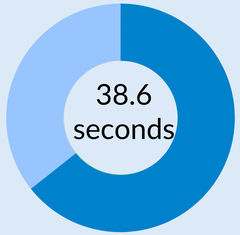
Major Complications



Response Rates



Mean Procedure Duration



Response by Indication

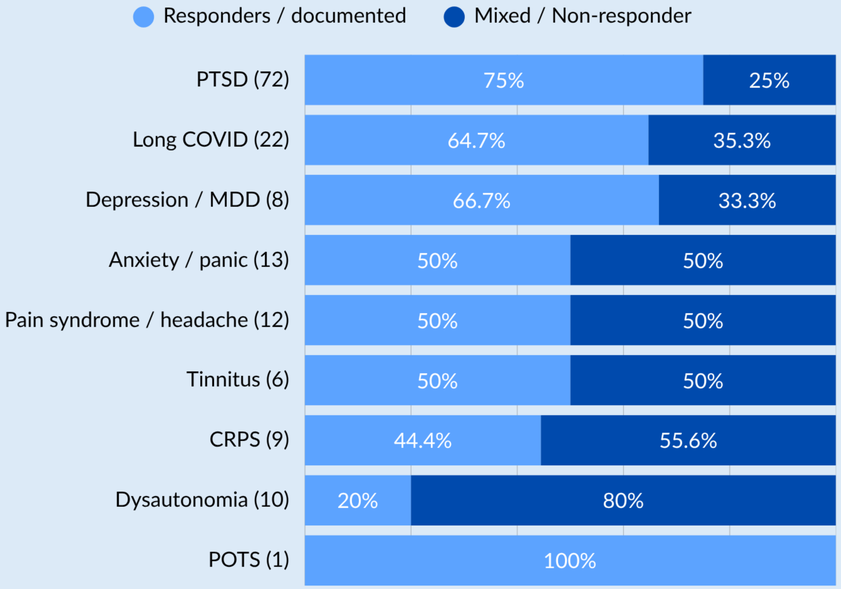


Table 1. Cohort, Procedural, and Video-Based Characteristics

Characteristic	*Value*
Procedures per patient, mean ± SD (range)	1.9 ± 1.0 (1-7)
1 procedure, n (%)	46 (36.8)
2 procedures, n (%)	61 (48.8)
3 procedures, n (%)	10 (8.0)
≥4 procedures, n (%)	8 (6.4)
Female / male, n (%)	63 (50.4) / 62 (49.6)
Age, y, mean ± SD (range)	49.0 ± 13.7 (19-78)
Side: right / left, n (%) of procedures	184 (78.0) / 52 (22.0)
Patients receiving bilateral blocks (separate sessions), n (%)	34 (27.2)
Injectate volume 7 mL, n (%) of documented procedures	121/124 (97.6)
Agent: ropivacaine 0.5% / bupivacaine 0.5% / lidocaine, n (%)	87 (69.0) / 35 (27.8) / 4 (3.2)
Supplemental sedation, n (%) of patients	11 (8.8)
Video sub-cohort, n procedures	54
Duration, s, mean ± SD (median, range)	38.6 ± 11.1 (37, 17-67)
Needle depth, cm, mean ± SD (median, range; n = 52)	1.91 ± 0.35 (2.0, 1.25-2.75)
Duration-depth correlation	r = -0.12 (P = .39)

Table 2. Adverse Events and Complications (n = 125 patients, 236 procedures)

Adverse event	*n*	*% of patients*
Hemodynamic (bradycardia/hypotension/ vasovagal/tachycardia)	6	4.80%
Headache	5	4.00%
Injection-site soreness/tenderness	5	4.00%
Anxiety	3	2.40%
Dyspnea/possible phrenic nerve involvement	1	0.80%
Nausea	1	0.80%
Drowsiness	1	0.80%
Tremor	1	0.80%
Sleep disturbance	1	0.80%
Major complications (hematoma, local anesthetic systemic spread, pneumothorax, infection, seizure, permanent neurologic injury)	0	0.00%