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Behavioral health clinicians endorse stellate ganglion block as a valuable intervention in the treatment of trauma-related disorders

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ABSTRACT

The stellate ganglion block (SGB) procedure has been used successfully for over 10 years to treat post-traumatic stress symptoms in thousands of US military service members, civilians, and veterans in select hospitals in Europe and North America. Primarily through targeting the autonomic nervous system, the SGB procedure serves as an invaluable adjunct to trauma-focused psychotherapy. Without published best practices for emerging therapies, clinicians are left on their own to determine how best to apply new treatments to their patient populations. The aim of this qualitative research was to compile attitudes and recommendations from therapists with expertise in using SGB for treating symptoms of post-traumatic stress disorder, so that their experiences could be disseminated widely to clinicians without SGB expertise. An 18-item survey was developed and distributed electronically to a group of behavioral health professionals of various specialties between May and June 2020. Of surveyed behavioral health clinicians with personal experience incorporating SGB into their trauma-focused psychotherapy, 95% of respondents would recommend SGB to a colleague as a useful tool for the treatment of trauma-related disorders. SGB was rated at least as useful as the most valuable interventions listed in the American Psychological Association Clinical Practice Guideline for the Treatment of Post-traumatic Stress Disorder with 100% of respondents characterizing SGB as 'Very Beneficial' or 'Somewhat Beneficial', and 0 respondents characterizing SGB as 'Not Helpful' or 'Harmful'. Given the feedback from this study, behavioral health providers should consider using SGB in conjunction with standard trauma-focused care.

Significance of this study

What is already known about this subject?

- Exaggerated hyperarousal is an independent predictor of non-response to standard post-traumatic stress disorder (PTSD) treatment.
- For over 100 years, a simple, safe procedure called stellate ganglion block (SGB) has been used successfully to treat a variety of sympathetically modulated pathologies (eg, chronic regional pain syndrome, postherpetic neuralgia), and over the past 10 years SGB has also been used in some locations to treat post-traumatic stress symptoms with a success rate of approximately 70%–80%.
- Fourteen peer-reviewed publications since 1990 support SGB's safety and effectiveness in the successful treatment of PTSD symptoms across a variety of patient demographics and trauma etiologies, but what has not been identified is how best to integrate SGB into standard trauma-focused treatment.

What are the new findings?

- When surveyed, from a sample of behavioral health clinicians who have experience with SGB for PTSD, 96% identified 'Arousal/Reactivity' as the symptom cluster most improved following treatment with SGB.
- Zero behavioral health clinicians who have experience with SGB for PTSD characterized SGB as 'Harmful' or 'Not Helpful'.

INTRODUCTION

As defined by the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition, post-traumatic stress disorder (PTSD) is a pathologic 'trauma and stressor-related disorder' that occurs following exposure to severe trauma and affects approximately 10 million Americans.[1 2] The stellate ganglion block (SGB) procedure has been used successfully for over 10 years to treat post-traumatic stress symptoms in thousands of military service members and veterans in select hospitals in Europe and North America. The SGB procedure serves as an invaluable adjunct to trauma-focused psychotherapy primarily through targeting dysfunction of the autonomic nervous system.[3]

Significance of this study

- Among all of the psychological interventions in the 2017 American Psychological Association Clinical Practice Guideline for the Treatment of PTSD in Adults, SGB was perceived to be at least as useful as the highest rated standard interventions when behavioral health clinicians with SGB experience were surveyed.

How might these results change the focus of research or clinical practice?

- While anecdotes do not replace higher level evidence, lessons gathered from the select group of behavioral health clinicians with SGB expertise provide the reader with valuable experience in how best to integrate this emerging modality into standard trauma-focused care.
- The overwhelming positive responses in this survey on the value of SGB in trauma-focused care should, at a minimum, encourage further exploration from clinicians who care for patients suffering with such a challenging condition to treat as PTSD.

SGB is an injection of local anesthetic in the neck to temporarily block the cervical sympathetic trunk which controls the body's fight-or-flight response. This outpatient procedure, performed primarily under ultrasound guidance, takes less than 30 minutes and has immediate effects. Adverse events from an inadvertent intravascular injection (eg, seizure), hematoma, and pneumothorax are potential complications, but are exceedingly rare under real-time ultrasound guidance. More common potential minor side effects include temporary hoarseness, globus, or rarely headache. Additionally, signs of Horner's syndrome (ptosis, anhidrosis, miosis, and scleral injection) are expected to occur after every successful SGB and resolve within hours as the local anesthetic wears off.[4]

Specific for this indication, the SGB procedure has been evaluated in 14 peer-reviewed publications since 1990, including a multicenter randomized clinical trial in 2019, supporting this modality's safety and effectiveness in the successful treatment of PTSD symptoms across a variety of patient demographics and trauma etiologies.[4–17] Though 1 small trial showed the effects of SGB were equivalent to a sham injection, it should be noted that the SGB arm in this study still demonstrated an 8-point reduction in PTSD checklist (PCL) scores at 1 month.[16] While many of these early studies are level 2 or 3 evidence, a collective examination of all studies demonstrates consistent findings with respect to safety, onset of relief, magnitude of effect, and success rates.

Despite the growing evidence to support adding this novel procedure to trauma-focused care, many providers, especially outside of military communities, are resistant to adopt SGB as a potential adjunct to their practice. Without published best practices for emerging therapies, clinicians are left on their own to determine how best to apply new treatments to their patient populations. To date, there are no clear recommendations based on the collective experiences of behavioral health professionals who have referred their patients for SGB as a key adjunct in their treatment of trauma-related disorders.

The purpose of this study is to begin defining best practices for SGB in trauma-focused treatment. To start, we have consolidated collective responses from psychiatrists and seasoned psychotherapists who have been using SGB to complement their patient care. Through a collaborative approach, we gain insight into optimal treatment for our patients.

MATERIALS AND METHODS

Subjects

To survey a broad representation of behavioral health professionals who have experience with SGB, we contacted all of the military, Veterans Affairs, and civilian centers known to provide SGB for PTSD. We then solicited contact information for the behavioral health providers who closely collaborate with providers who conduct the blocks. Of note, there are several pain centers who conduct many SGBs for post-traumatic stress symptoms, but who do not have close collaboration with their patients' mental health providers. In many cases, their patients' therapists are unknown to them. This occurs when a patient self-refers for SGB or if a patient's primary care provider refers for SGB without involving the patient's therapist—omitting a critical step in collaborative care. As a result, we identified approximately 50 psychologists, psychiatrists, psychiatric nurse practitioners, and licensed clinical social workers (LCSW) with experience caring for patients who had been treated with SGB for trauma-related conditions. The respondents were a mix of both civilian and military clinicians from private and government sectors practicing in the USA and Europe.

Procedure

An 18-item survey was distributed electronically to this group of select behavioral health professionals of various specialties between May and June 2020. We asked respondents experienced with using SGB as a treatment adjunct for patients with trauma-related conditions to share their personal experiences and perceptions of SGB. The intent of this survey was to answer questions that would be commonly asked by providers with no experience incorporating SGB into their practice. Our survey may be found in online supplemental file 1.

RESULTS

Out of 53 providers solicited, we received responses from 27. The breakdown by specialty was: psychologists=10, psychiatrists=7, LCSW=4, psychiatric nurse practitioners=2, and anesthesia/pain providers=4. In this analysis, we omitted the results of the 4 respondents who identified as 'Anesthesia/Pain' because the intent of the survey was to obtain opinions from behavioral health providers only (figure 1). SGB experience levels varied. Four providers had treated less than 10 patients with SGB, 7 providers had between 10 and 25, seven had between 26 and 50, while 5 providers had experience with over 50 SGB patients.

Overall, 95% (22 out of 23) of respondents would recommend SGB to a colleague. When describing SGB, 65% of respondents characterized this procedure as 'Very Beneficial' while 30% considered SGB 'Somewhat Helpful'.

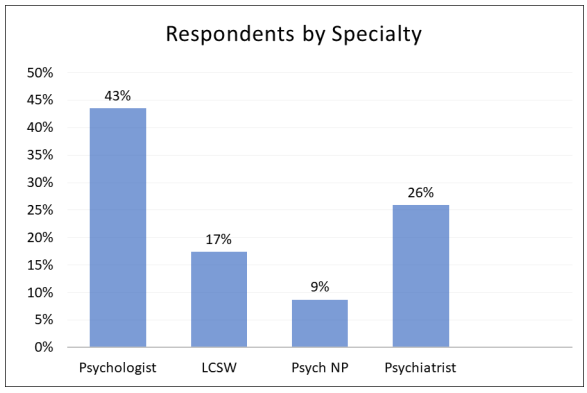

Figure 1 Survey respondents by specialty. LCSW, licensed clinical social worker; NP, nurse practitioner.

No respondents (0 out of 23) classified SGB as 'Harmful' or 'Not Helpful'. When asked for which post-traumatic stress symptom is SGB most helpful, 96% of respondents identified 'Arousal/Reactivity' over the other 3 clusters of 'Re-experiencing', 'Avoidance', and 'Negative Thoughts'. This is consistent with previously published studies and suggests there may be a deliberate purpose here for SGB as an adjunct to psychotherapy.[15] Several scenarios were presented to determine when during the course of treatment it would be appropriate to refer a patient for an SGB procedure. Over 80% of the time, respondents were either 'likely' or 'very likely' to refer a patient for SGB at any course of their therapy. The exception to this was for patients who have never been treated with therapy or medications for trauma-related symptoms, and in this case, greater than half of respondents (55%) would still refer a patient with a trauma-related disorder for SGB even before beginning therapy or medications.

Respondents were asked their opinions on the usefulness of the psychological interventions listed in the 2017 American Psychological Association (APA) Clinical Practice Guideline (CPG) for the Treatment of Post-traumatic Stress Disorder (PTSD) in Adults as well as the usefulness of SGB. Our cohort of behavioral health providers noted SGB to be at least as useful as the other top interventions surveyed (figure 2). Results yielded 100% of respondents characterizing SGB as 'Very Beneficial' or 'Somewhat Beneficial' and 0 respondents characterizing SGB as 'Not Helpful' or 'Harmful'. In total, SGB was favored over all 8 modalities endorsed for PTSD treatment in the CPG, including medications, eye movement desensitization and reprocessing therapy, cognitive–behavioral therapy, cognitive processing therapy, and prolonged exposure therapy.

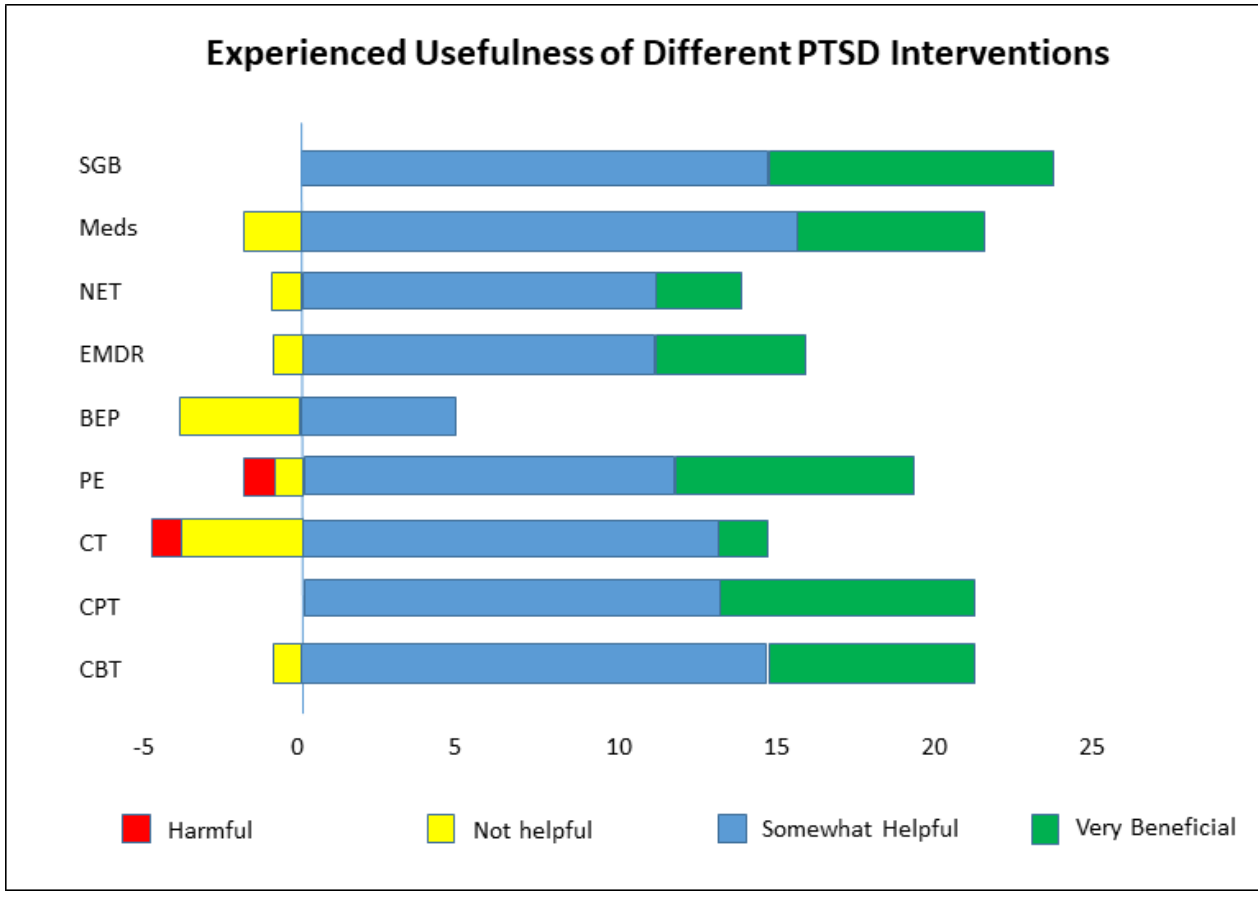

Figure 2 Usefulness of SGB and American Psychological Association PTSD Clinical Practice Guideline recommended interventions.[23] BEP, brief eclectic psychotherapy; CBT, cognitive–behavioral therapy; CPT, cognitive processing therapy; CT, cognitive therapy; EMDR, eye movement desensitization and reprocessing therapy; Meds, medications; NET, narrative exposure therapy; PE, prolonged exposure therapy; PTSD, post-traumatic stress disorder; SGB, stellate ganglion block.

DISCUSSION

This is the first published record of behavioral health clinicians' attitudes and experiences with SGB in the care of patients with trauma-related conditions. As with any survey-based study, the results and conclusion presented here require careful interpretation. Qualitative research such as this study may be used to understand how a particular phenomenon is perceived by survey respondents while attempting to discover beliefs, values, or motivations about the topic being surveyed. These methods can be employed when little knowledge exists about a particular research area and can also generate hypotheses for future quantitative research.[18] This study solicited information from a select group of behavioral health providers with a niche experience in an emerging therapy, so biases will certainly exist. This does not mean that the information is not valuable. Rather, it is precisely this type of investigation that can develop hypotheses which are so critical to advancing innovation in mental healthcare.

There are several strengths of this study. When conducting this qualitative study, close consideration was given to recommendations published elsewhere on a variety of factors influencing the survey design and response rate, including survey delivery, survey completion, and survey return.[19] Average response rates for online surveys in general range from 20% to 30%.[20] In this case, the response rate was almost 50%, which is consistent with response rates of counseling and clinical psychology surveys.[21]

There are several limitations to this study. As with survey designs in general, selection bias may occur due to a higher response rate in those clinicians with either favorable or unfavorable experiences with SGB. It can be difficult to ascertain if the 23 respondents truly represent the attitudes of the 53 clinicians we originally contacted. As SGB is still an emerging intervention in mental healthcare, relatively few locations in the world have experience with this procedure being used in conjunction with therapy for post-traumatic stress symptoms. Due to this, our sample size was small. Our survey did not solicit any information on patients other than their diagnosis; therefore, we have no demographic information to define our respondents' patients to help readers with generalizability. However, as the literature demonstrates, SGB has been used successfully in a wide variety of patient demographic groups, ages, and trauma history.[4 17]

The authors acknowledge that SGB should not be used in isolation, but rather as part of a comprehensive treatment plan involving various medical and behavioral health modalities.[22] Therefore, comparing the usefulness of SGB directly to other psychological interventions is intended to be illustrative only and not meant to recommend an 'either/or' strategy. These comparisons should be instructive to clinicians with experience in a variety of standard PTSD psychological interventions.

CONCLUSION

SGB has been used successfully over the past 10 years to treat thousands of patients suffering from post-traumatic stress, yet there is still no guidance to therapists on how to integrate this therapy into their treatment. Based on this survey of behavioral health clinicians with firsthand experience using SGB for their patients with trauma-related conditions, there are several valuable conclusions worthy of further investigation: (1) 96% of respondents identified 'Arousal/Reactivity' as the symptom cluster most improved with SGB, (2) 0 respondents characterized SGB as 'Harmful' or 'Not Helpful', and (3) among all of the psychological interventions in the 2017 APA CPG for the Treatment of PTSD in Adults, SGB was perceived to be at least as useful as the highest rated standard interventions.

Given the feedback from this study in addition to the evidence already published on this topic, behavioral health providers should consider using SGB in conjunction with standard trauma-focused care.

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