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ULTRASOUND-GUIDED 5-IN-1 BLOCK FOR THE MANAGEMENT OF CHRONIC NECK AND SHOULDER MYOFASCIAL PAIN: A PROSPECTIVE OBSERVATIONAL STUDY.

Dr. Adarsh U Thuppad[1], Dr. Divya G M[2]*.

[1]Senior Resident, Department of Orthopaedics, Srinivas Institute of Medical Sciences and Research Centre, Mangaluru, Karnataka, India.

[2]Assistant Professor, Department of Anaesthesiology, Srinivas Institute of Medical Sciences and Research centre, Mangaluru, Karnataka, India.

Correspondence:
Dr. Divya G M.
Assistant Professor, Department of Anaesthesiology, Srinivas Institute of Medical Sciences and Research centre, Mangaluru, Karnataka, India.

Email: divya1shama@gmail.com

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Abstract

Background: Chronic neck and shoulder pain is a common musculoskeletal condition associated with considerable functional impairment, reduced productivity and decreased quality of life. Myofascial pain syndrome involving the trapezius, levator scapulae, rhomboid, and cervical paraspinal muscles represents one of the most frequent causes of chronic cervicothoracic pain. The condition is characterized by myofascial trigger points, muscle hyperactivity, restricted range of motion and referred pain patterns. Conservative management including exercise therapy, ergonomic modification, analgesics, muscle relaxants, physiotherapy and isolated trigger point injections provides variable outcomes. The complex overlapping sensory innervation of the cervical and shoulder region suggests that targeting multiple pain generators simultaneously may provide superior analgesia. The ultrasound-guided 5-in-1 block combines targeted blockade of multiple peripheral nerve and myofascial structures involved in cervicothoracic pain transmission and may provide prolonged pain relief with functional improvement. ***Aim:*** To evaluate the clinical effectiveness of ultrasound-guided 5-in-1 block in patients with chronic neck and shoulder myofascial pain. ***Methods:*** A prospective observational study was conducted in 30 patients with chronic neck and shoulder myofascial pain lasting more than 3 months. Patients underwent an ultrasound-guided 5-in-1 block consisting of spinal accessory nerve block, dorsal scapular nerve block, and trigger point injections of the upper trapezius, levator scapulae, and rhomboid muscles. The procedure was performed using 0.125% bupivacaine with 40 mg triamcinolone acetonide under ultrasound guidance. Clinical outcomes were assessed using the Visual Analog Scale (VAS), Neck Disability Index (NDI), and Shoulder Pain and Disability Index (SPADI) at baseline and during follow-up at 1 week, 1 month, and 3 months. Statistical analysis was performed using appropriate comparative tests, with $p < 0.05$ considered statistically significant. ***Results:*** The mean baseline VAS score decreased significantly from 7.3 ± 1.0 to 2.6 ± 1.2 at 3 months ($p<0.001$). Mean NDI improved from 34.2 ± 7.8 pre-procedure to 14.8 ± 6.2 at 3 months ($p<0.001$). SPADI score improved significantly from 61.5 ± 11.6 to 26.4 ± 10.1 ($p<0.001$). No major complications were observed. ***Conclusion:*** Ultrasound-guided 5-in-1 block is an effective and safe minimally invasive procedure for chronic neck and shoulder myofascial pain. By simultaneously addressing multiple nociceptive pathways, this technique provides significant pain reduction and functional improvement.

Keywords: Chronic neck pain, shoulder pain, myofascial pain syndrome, ultrasound-guided block, suprascapular nerve block, trigger point injection, regional aesthesia.

INTRODUCTION

Chronic neck and shoulder pain is one of the most prevalent musculoskeletal disorders encountered in clinical practice and represents a major cause of disability, reduced work capacity, and impaired quality of life. Epidemiological studies indicate that neck pain affects a large proportion of the adult population, with a significant number of patients developing recurrent or persistent symptoms requiring prolonged medical management.[1] The close anatomical and biomechanical relationship between the cervical spine, scapula, and shoulder complex contributes to overlapping pain patterns and functional limitations.[2]

Myofascial pain syndrome (MPS) is considered one of the most common causes of chronic cervicothoracic pain. It is characterized by the presence of myofascial trigger points, which are hyperirritable regions located within taut bands of skeletal muscle. These trigger points produce local tenderness, referred pain, muscle stiffness, restricted movement, and

impaired function.[3] The trapezius, levator scapulae, sternocleidomastoid, rhomboid, and cervical paraspinal muscles are frequently involved due to repetitive strain, poor posture, occupational stress, and altered biomechanics.[4]

The pathophysiology of myofascial pain is multifactorial and involves abnormal endplate activity, local ischemia, inflammatory mediator release, peripheral sensitization, and central nervous system amplification. Shah et al. demonstrated increased concentrations of inflammatory substances, neuropeptides, and biochemical mediators within active myofascial trigger points, supporting the role of peripheral nociceptive activation in chronic pain generation.[5] Persistent activation of these pathways may result in chronic pain even after the initial mechanical insult has resolved.

Management of chronic neck and shoulder myofascial pain remains challenging. Conservative treatment includes ergonomic modification, exercise therapy, physiotherapy, stretching, manual therapy, analgesics, muscle relaxants, and behavioural interventions. Although these approaches are effective in many patients, a subset develops persistent symptoms requiring interventional treatment. Clinical practice guidelines emphasize a multimodal approach combining rehabilitation and targeted pain interventions for chronic neck pain management.[6]

Trigger point injections and dry needling have been widely used for myofascial pain syndrome. These interventions may reduce pain by disrupting abnormal muscle activity, decreasing local inflammatory mediators, and interrupting the pain cycle. However, isolated treatment of trigger points may not completely address chronic cervicothoracic pain because multiple neural and anatomical structures contribute to symptom generation.[7]

The cervical and shoulder regions have complex sensory innervation involving multiple peripheral nerves and fascial structures. The suprascapular nerve, dorsal scapular nerve, cervical plexus branches, and occipital nerves contribute significantly to sensory transmission from the shoulder girdle and cervical region.[8] Due to this overlapping innervation, targeting a single pain pathway may provide incomplete or temporary relief.

The spinal accessory nerve (SAN), the eleventh cranial nerve, plays a crucial role in the motor innervation of the sternocleidomastoid and trapezius muscles, which are essential for cervical posture, scapular stabilization, and shoulder girdle movement. Dysfunction or irritation of the spinal accessory nerve may result in trapezius muscle weakness, altered scapular biomechanics, shoulder dysfunction, and persistent myofascial pain involving the neck and shoulder region. Ultrasound-guided spinal accessory nerve block has been increasingly utilized in the management of chronic trapezius myofascial pain, postoperative neck and shoulder pain, and accessory nerve neuropathy, with studies demonstrating significant improvement in pain scores, shoulder function and quality of life.9

The dorsal scapular nerve supplies the levator scapulae and rhomboid muscles and plays an important role in scapular stabilization. Dysfunction of these structures can contribute to persistent periscapular and cervicothoracic pain. Anatomical studies and clinical reports suggest that dorsal scapular nerve involvement should be considered in patients with chronic shoulder girdle pain.[10]

Recent advances in ultrasound-guided regional anaesthesia and pain medicine have improved the accuracy of peripheral nerve and fascial plane interventions. Ultrasound guidance allows direct visualization of nerves, muscles, vessels, and fascial planes, thereby improving procedural accuracy and reducing complications.[11] Fascial plane blocks have gained increasing attention because local anaesthetic can spread along anatomical planes containing multiple sensory branches, providing broader analgesic effects.[12] Ultrasound-guided 5-in-1 block consists of spinal accessory nerve block, dorsal scapular nerve block, and trigger point injections of the upper trapezius, levator scapulae, and rhomboid muscles.
The present study evaluates the effectiveness and safety of ultrasound-guided 5-in-1 block in patients with chronic neck and shoulder myofascial pain.

AIM OF THE STUDY

The aim of this study is to evaluate the clinical effectiveness and safety of ultrasound-guided 5-in-1 block in patients with chronic neck and shoulder myofascial pain by assessing pain reduction and improvement in functional outcomes.

OBJECTIVES OF THE STUDY

1. To evaluate the effectiveness of ultrasound-guided 5-in-1 block in reducing pain intensity in patients with chronic neck and shoulder myofascial pain using the Visual Analog Scale (VAS).
2. To assess improvement in neck-related functional disability following the intervention using the Neck Disability Index (NDI).
3. To evaluate improvement in shoulder pain and functional status using the Shoulder Pain and Disability Index (SPADI).
4. To assess overall clinical response and changes in cervical and shoulder range of motion following the procedure.
5. To evaluate the safety profile and procedure-related complications associated with ultrasound-guided 5-in-1 block.

MATERIALS AND METHODS

Study Design: This was a prospective observational clinical study conducted to evaluate the effectiveness of an ultrasound-guided 5-in-1 block in patients with chronic neck and shoulder myofascial pain. The study was conducted at a tertiary care hospital in Davangere.

Study Duration: The study was conducted over a period of 6 months from September 2023 to February 2024

Sample Size: A total of 30 patients diagnosed with chronic neck and shoulder myofascial pain were included in the study.

Ethical Approval: The study protocol was reviewed and approved by the Institutional Ethics Committee. Written informed consent was obtained from all participants before enrolment and before performing the intervention.

Patient Selection: Patients presenting with chronic neck and shoulder pain were evaluated clinically. Diagnosis of myofascial pain syndrome was made based on history, physical examination, and presence of characteristic myofascial trigger points.

Inclusion Criteria

Patients fulfilling the following criteria were included:

1. Patients aged > 18 years.
2. Presence of chronic neck and shoulder pain lasting for more than 3 months.
3. Clinical diagnosis of myofascial pain syndrome involving cervical and shoulder girdle muscles.
4. Presence of active myofascial trigger points in upper trapezius, levator scapulae, rhomboid muscles and cervical paraspinal muscles
5. Baseline pain intensity of VAS score ≥5/10.
6. Failure of conservative treatment including medication and physiotherapy for at least 4 weeks.
7. Ability to understand and complete outcome assessment questionnaires.

Exclusion Criteria

Patients were excluded if they had:

1. Cervical radiculopathy or cervical myelopathy.
2. Significant cervical canal stenosis requiring surgical treatment.
3. Acute traumatic injury to cervical spine or shoulder.
4. Full-thickness rotator cuff tear or structural shoulder pathology requiring surgery.
5. Active infection at injection site.
6. Bleeding disorders or ongoing anticoagulant therapy.
7. Known allergy to local anaesthetics or corticosteroids.
8. Pregnancy.
9. Malignancy-related neck or shoulder pain.
10. Previous cervical or shoulder surgery within the previous 6 months.

Pre-procedure Assessment: All patients underwent detailed clinical evaluation which included demographic data and history (age, sex, duration of symptoms, side of involvement) and clinical examination (location and character of pain, presence of trigger points, cervical and shoulder range of motion, neurological examination)

Baseline outcome measurements were recorded:

1. Visual Analog Scale (VAS) - Pain intensity was assessed using a 10-point scale: 0 = No pain, 10 = Worst imaginable pain
2. Neck Disability Index (NDI) - NDI was used to assess functional limitation related to neck pain. The questionnaire consists of 10 sections evaluating: 1. Pain intensity, 2. Personal care, 3. Lifting, 4. Reading, 5. Headache, 6. Concentration, 7. Work, 8. Driving, 9. Sleeping, 10. Recreation
3. Shoulder Pain and Disability Index (SPADI) - SPADI was used to assess shoulder-related pain and disability. It consists of pain component and disability component. Higher scores indicate greater disability.
4. Range of movements assessment.

Ultrasound-Guided 5-in-1 Block Technique: All procedures were performed under strict aseptic precautions with the patient in a comfortable sitting position, with the head slightly flexed and rotated away from the side being treated. A 23G spinal needle and high-frequency linear ultrasound transducer (6–13 MHz) was used for accurate identification of the

targeted nerves, muscles, and fascial planes. The 15ml injectate consisted of 0.125% bupivacaine combined with 40 mg triamcinolone acetonide (TCA), prepared under sterile precautions and divided among the target sites.

The 5-in-1 block consisted of ultrasound-guided blockade of two peripheral nerves (spinal accessory nerve and dorsal scapular nerve) combined with trigger point injections of three major myofascial pain-generating muscles (upper trapezius, levator scapulae, and rhomboid muscles). The spinal accessory nerve was identified as a small hypoechoic structure in the fascial plane between the trapezius and rhomboid minor. Under continuous ultrasound visualization, a needle was advanced using an in-plane technique from medial to lateral, and the injectate was deposited around the nerve. The dorsal scapular nerve was identified in the fascial plane between the levator scapulae, rhomboid minor and serratus posterior muscle using ultrasound guidance. After confirming the nerve location and avoiding adjacent vascular structures, the needle was advanced into the fascial plane, and the injectate was deposited around the nerve to achieve adequate perineural spread.

The muscular component included ultrasound-guided trigger point injections of the upper trapezius, levator scapulae, and rhomboid muscles. The upper trapezius was examined in the transverse plane, and clinically symptomatic trigger points were identified as focal areas of tenderness within taut muscle bands. The needle was advanced under ultrasound guidance, and small aliquots of the injectate were delivered using a peppering technique. The rhomboid muscles were approached medial to the scapula, with ultrasound identification of the trapezius and underlying rhomboid muscle layers, followed by targeted injection into symptomatic areas.

A total volume of approximately 15 ml of 0.125% bupivacaine with 40 mg triamcinolone acetonide was used and distributed among the spinal accessory nerve, dorsal scapular nerve, upper trapezius, levator scapulae, and rhomboid muscles. Continuous visualization of the needle tip was maintained throughout the procedure to ensure accurate drug deposition and minimize complications. Following the intervention, patients were observed for immediate adverse effects and were advised to continue structured rehabilitation consisting of stretching exercises, scapular stabilization exercises, and postural correction. This combined neural and myofascial approach was intended to reduce nociceptive input from both peripheral nerves and affected muscle groups contributing to chronic neck and shoulder myofascial pain.

Following completion of the ultrasound-guided 5-in-1 block, all patients were observed in the procedure area for approximately 60 minutes to monitor for immediate adverse effects related to the injection procedure, local anaesthetic administration, or corticosteroid use. During this observation period, patients were assessed for vital signs, neurological status, allergic reactions, excessive pain, dizziness, vasovagal symptoms, and any signs of local anaesthetic systemic toxicity. The injection sites were examined for bleeding, hematoma formation, or local swelling.

Patients were advised to avoid strenuous activities involving the cervical spine and shoulder girdle for the first 24 hours following the procedure. They were instructed to continue routine daily activities as tolerated and were encouraged to initiate or continue a structured rehabilitation program after the initial post-procedure period. The rehabilitation protocol included gentle cervical range-of-motion exercises, stretching of the upper trapezius and levator scapulae muscles, scapular stabilization exercises, strengthening of periscapular muscles, and ergonomic/postural correction strategies. Patients were advised regarding proper workplace ergonomics and avoidance of prolonged static postures that could aggravate symptoms.

All patients were followed up clinically at predefined intervals of 1 week, 1 month, and 3 months after the intervention. At each follow-up visit, a detailed clinical assessment was performed, and outcomes were compared with baseline measurements. Pain intensity was evaluated using the Visual Analog Scale (VAS), where patients were asked to rate their average pain level over the preceding week on a 0–10 scale. Functional improvement related to neck pain was assessed using the Neck Disability Index (NDI), while shoulder-related pain and functional limitations were evaluated using the Shoulder Pain and Disability Index (SPADI).

Any complications occurring during the follow-up period were documented, including infection, persistent injection site pain, allergic reaction, hematoma, neurological symptoms, or steroid-related adverse effects. The duration of pain relief and any requirement for additional analgesic medication or further intervention were also recorded.

Statistical Analysis: Data were analyzed using appropriate statistical software. Continuous variables were expressed as mean ± standard deviation (SD), and categorical variables were presented as frequencies and percentages. Pre- and post-procedure changes in VAS, NDI, and SPADI scores were analyzed using the paired t-test. Repeated measures analysis was used to evaluate changes over the follow-up period (baseline, 1 week, 1 month, and 3 months). A p-value <0.05 was considered statistically significant. All statistical tests were performed with a 95% confidence interval.

RESULTS

Patient Characteristics: A total of 30 patients with chronic neck and shoulder myofascial pain fulfilling the inclusion criteria were enrolled in the study. All patients underwent ultrasound-guided 5-in-1 block and were followed up for a period of 3 months. The demographic characteristics of the study population are summarized in Table 1.

Table 1: Demographic and Baseline Characteristics of Study Participants (n=30)

Variable	Value
Total number of patients	30
Mean age (years)	46.8 ± 11.2
Age range (years)	24–68
Male patients	17 (56.7%)
Female patients	13 (43.3%)
Duration of symptoms (months)	18.6 ± 9.4
Right-sided pain	16 (53.3%)
Left-sided pain	10 (33.3%)
Bilateral pain	4 (13.4%)

The majority of patients belonged to the 41–60 years age group. Chronic symptoms were present for a mean duration of approximately 18 months before intervention.

Primary Outcome: Pain Reduction (VAS Score) Pain intensity was assessed using the Visual Analog Scale (VAS) ranging from 0 (no pain) to 10 (worst imaginable pain). The mean baseline VAS score was 7.3 ± 1.0. A progressive reduction in pain scores was observed after the 5-in-1 block. At 3 months follow-up, the mean VAS score decreased to 2.6 ± 1.2, representing a mean reduction of 4.7 points. The improvement was statistically significant at all follow-up intervals ($p < 0.001$).

Table 2: Change in VAS Pain Score Following 5-in-1 Block

Follow-up period	Mean VAS score ± SD	Mean difference from baseline	p-value
Baseline	7.3 ± 1.0	—	—
1 week	3.1 ± 1.1	4.2	<0.001
1 month	2.8 ± 1.2	4.5	<0.001
3 months	2.6 ± 1.2	4.7	<0.001

Statistical test: Paired t-test

Secondary Outcome 1: Neck Disability Index (NDI): Functional disability related to neck pain was assessed using the Neck Disability Index. Baseline mean NDI score was 34.2 ± 7.8, indicating moderate functional limitation. At 3 months follow-up, the mean NDI score improved to 14.8 ± 6.2. The reduction in disability was statistically significant ($p < 0.001$).

Table 3: Change in Neck Disability Index (NDI)

Follow-up period	Mean NDI score ± SD	Mean improvement	p-value
Baseline	34.2 ± 7.8	—	—
1 week	22.1 ± 7.2	12.1	<0.001
1 month	17.6 ± 6.8	16.6	<0.001
3 months	14.8 ± 6.2	19.4	<0.001

Statistical test: Paired t-test

Secondary Outcome 2: Shoulder Pain and Disability Index (SPADI): Shoulder function was assessed using the Shoulder Pain and Disability Index (SPADI). The mean baseline SPADI score was 61.5 ± 11.6. A significant reduction was observed at each follow-up interval, with a mean SPADI score of 26.4 ± 10.1 at 3 months.

Table 4: Change in SPADI Score Following Intervention

Follow-up period	Mean SPADI score ± SD	Mean improvement	p-value
Baseline	61.5 ± 11.6	—	—
1 week	39.8 ± 10.8	21.7	<0.001
1 month	30.6 ± 10.4	30.9	<0.001
3 months	26.4 ± 10.1	35.1	<0.001

Statistical test: Paired t-test

Overall Clinical Response: Clinical improvement was assessed based on reduction in VAS score and patient-reported functional improvement. At 3 months:

- Excellent response (>75% pain reduction): 12 patients (40%)
- Good response (50–75% pain reduction): 13 patients (43.3%)
- Moderate response (25–50% reduction): 4 patients (13.3%)
- Poor response (<25% reduction): 1 patient (3.4%)

Table 5: Overall Clinical Outcome at 3 Months

Outcome category	Number of patients	Percentage
Excellent response	12	40%
Good response	13	43.3%
Moderate response	4	13.3%
Poor response	1	3.4%

Range of Motion Assessment: Improvement was observed in cervical and shoulder movements.

Table 6: Functional Improvement After Intervention

Parameter	Baseline	3 months	p-value
Cervical rotation (degrees)	48.5 ± 9.2	68.4 ± 8.7	<0.001
Cervical flexion (degrees)	38.2 ± 7.5	51.6 ± 6.9	<0.001
Shoulder abduction (degrees)	122.5 ± 18.6	158.4 ± 16.2	<0.001

Complications and Safety Analysis: No major complications were observed.

Table 7: Procedure-Related Complications

Complication	Number (%)
Local injection site pain	2 (6.7%)
Temporary numbness	3 (10%)
Vasovagal symptoms	0
Infection	0
Hematoma	0
Neurological deficit	0
Local anesthetic toxicity	0

All minor complications resolved spontaneously without additional intervention.

Results Summary: The present study demonstrated that ultrasound-guided 5-in-1 block produced significant improvement in pain intensity and functional outcomes in patients with chronic neck and shoulder myofascial pain. Significant reductions were observed in VAS, NDI, and SPADI scores at all follow-up intervals compared with baseline values. The beneficial effects were maintained throughout the 3-month follow-up period. The procedure was found to be safe, with only minor transient adverse effects and no major complications.

Table 8: Summary of Outcome Measures

Outcome measure	Baseline	3 months	Mean change	p-value
VAS	7.3 ± 1.0	2.6 ± 1.2	-4.7	<0.001
NDI	34.2 ± 7.8	14.8 ± 6.2	-19.4	<0.001
SPADI	61.5 ± 11.6	26.4 ± 10.1	-35.1	<0.001

DISCUSSION

The present study evaluated the clinical outcomes of ultrasound-guided 5-in-1 block in patients with chronic neck and shoulder myofascial pain. The results demonstrated significant reduction in pain intensity and improvement in functional outcomes over a 3-month follow-up period. The mean VAS, Neck Disability Index (NDI), and Shoulder Pain and Disability Index (SPADI) scores showed statistically significant improvement following intervention, suggesting that a multi-target approach may be effective in managing complex cervicothoracic pain syndromes.

Chronic neck and shoulder pain is frequently multifactorial, involving muscular, neural, fascial, and biomechanical components. The persistence of symptoms despite conservative treatment may be explained by continued activation of peripheral nociceptors and development of central sensitization.[1,2] The present findings support the hypothesis that addressing multiple pain generators simultaneously may provide superior clinical outcomes compared with isolated interventions. Myofascial trigger points represent an important source of chronic musculoskeletal pain. Travell and Simons described trigger points as areas of abnormal muscle activity capable of producing local and referred pain.[3] Biochemical studies by Shah et al. demonstrated elevated inflammatory mediators and neurochemical substances within active trigger points, indicating that these regions represent active sources of nociceptive input rather than simple muscular tenderness.[5]

In our study, the trigger point component of the 5-in-1 block likely contributed to reduction in local muscle pain and improved muscle relaxation. Previous studies have demonstrated that dry needling and trigger point injections can reduce pain intensity by disrupting abnormal endplate activity and decreasing peripheral sensitization.[7] However, chronic cervicothoracic pain cannot be attributed exclusively to muscular pathology. The shoulder and neck region contains multiple overlapping sensory pathways, and persistent symptoms may arise from combined neural and muscular dysfunction.[8] This provides the rationale for incorporating peripheral nerve blocks into the treatment strategy.

The dorsal scapular nerve component addresses another important contributor to cervicothoracic pain. Dysfunction of the levator scapulae and rhomboid muscles can result in scapular dyskinesis and persistent medial scapular pain. Sultan et al. highlighted the clinical relevance of dorsal scapular nerve involvement in shoulder pain syndromes and described targeted blockade as a useful therapeutic approach.[10] In the current study, inclusion of dorsal scapular nerve blockade may have contributed to improvement in periscapular pain and shoulder movement. The cervical fascial plane component of the procedure represents an important aspect of the 5-in-1 block. Fascial planes provide pathways for spread of local anaesthetic and contain multiple small sensory nerve branches. Recent literature supports the role of ultrasound-guided fascial plane injections in chronic pain management by providing broader analgesic coverage.[12]

The use of ultrasound guidance was an essential component of this technique. Compared with landmark-based procedures, ultrasound-guided interventions allow accurate identification of anatomical structures and real-time needle visualization. Narouze and Peng emphasized that ultrasound guidance improves procedural precision and safety in interventional pain procedures.[11] The absence of major complications in our study supports the safety profile of this approach. The sustained improvement observed at 3 months may be explained by multiple mechanisms. Local anaesthesia provides immediate interruption of nociceptive transmission, while corticosteroid reduces inflammatory activity around irritated tissues. Additionally, pain reduction enables patients to participate more effectively in physiotherapy and strengthening programs, which may contribute to long-term functional improvement.

Functional improvement is an important outcome because chronic neck and shoulder pain affects daily activities, occupational performance, sleep, and psychological well-being. In our study, significant improvement in NDI and SPADI scores indicates that the intervention produced clinically meaningful benefits beyond simple pain reduction. The findings are consistent with current recommendations supporting multimodal management of chronic neck pain. Blanpied et al. emphasized that successful treatment requires integration of exercise, education, and appropriate interventions rather than reliance on a single modality.[6] The 5-in-1 block may serve as an effective adjunct by reducing pain sufficiently to allow participation in rehabilitation.

The study has several limitations. The sample size was small (30 patients), and the absence of a control group prevents comparison with alternative treatments such as physiotherapy alone, isolated nerve blocks, or trigger point injections. The follow-up duration was limited to three months, and longer-term outcomes require further evaluation. Future randomized controlled trials with larger sample sizes are required. Despite these limitations, this study provides preliminary evidence supporting the role of ultrasound-guided 5-in-1 block as a comprehensive intervention for chronic neck and shoulder myofascial pain. By addressing multiple anatomical pain generators simultaneously, this technique represents a mechanism-based approach to chronic pain management.

CONCLUSION

The present study demonstrates that the ultrasound-guided 5-in-1 block (spinal accessory nerve block, dorsal scapular nerve block, and trigger point injections of the upper trapezius, levator scapulae, and rhomboid muscles) is an effective and safe intervention for patients with chronic neck and shoulder myofascial pain. The procedure resulted in significant reduction in pain intensity, as evidenced by improvement in Visual Analog Scale (VAS) scores, along with significant improvement in functional outcomes measured by the Neck Disability Index (NDI) and Shoulder Pain and Disability Index (SPADI) at 1 week, 1 month, and 3 months follow-up. The combined neural and myofascial approach provided sustained pain relief and improved cervical and shoulder function.

Ultrasound guidance enabled accurate identification of anatomical structures, precise delivery of medication, and reduced the risk of procedure-related complications. The technique was associated with minimal adverse effects and was well tolerated by patients. The 5-in-1 block may therefore be considered a useful minimally invasive treatment option for chronic cervicothoracic and shoulder myofascial pain, particularly in patients who have inadequate response to conservative management. However, larger randomized controlled studies with longer follow-up are required to further validate its long-term efficacy and establish its role in routine clinical practice.

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