ORIGINAL ARTICLE

Efficacy of Suprascapular-Axillary Nerve Block versus Interscalene Brachial Plexus Block for Postoperative Pain Management in Shoulder Surgery

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Abstract

Background: Shoulder surgeries are commonly associated with significant postoperative pain. Adequate pain management is essential for optimal patient outcomes. Conventionally, interscalene brachial plexus block is used for shoulder surgery, but it is associated with potential complications, such as phrenic nerve palsy, direct intrathecal injection. The combined suprascapular-axillary nerve block technique may offer a safe alternative with a more targeted analgesic effect, potentially reducing complications and allowing early recovery. The main objective was to compare the analgesic efficacy of combined suprascapular-axillary nerve block with interscalene brachial plexus block for postoperative pain management in shoulder surgery.

Methods: This prospective, randomized controlled trial was carried out in the Orthopedics operation theatre, Bangladesh Medical University. Sixty patients scheduled for elective shoulder surgery were enrolled. Participants were randomized into two groups: Group SA received combined suprascapular axillary nerve block and Group I received interscalene brachial plexus block. Postoperative pain scores were assessed using the Visual Analogue Scale (VAS) immediately at recovery, 4h, 8h, 12h, and 24h. Time to rescue analgesic, opioid consumption, respiratory rate and hemodynamic parameters were recorded and patient satisfaction were assessed on a 5-point Likert scale after 24 hours.

Results: Postoperative pain intensity by Visual Analogue Scale (VAS) score was higher in Group SA compared to Group I at 8 hours (3.07±0.82 vs 3.50±0.63, p=0.04) & at 24 hours pain remained lower in the group SA compared to the group I (1.57±0.62 vs 1.90±0.40, p=0.010), both was statistically significant, at other point of VAS scores are non-significant. Time of first rescue analgesic request was longer in Group I compared to Group SA (495 minutes vs.352.5 minutes, p=0.559), but difference was not statistically significant and postoperative 24-hour morphine consumption were similar in both groups. Hemodynamic parameters remained stable and comparable throughout the perioperative period but at 24 hours postoperatively, the group I showed a significantly higher MAP than the group SA (90.0±5.72 vs. 84.83±12.39 mmHg, p=0.003). The respiratory rate remained stable and comparable between both groups. Patient satisfaction scores did not differ significantly between the groups.

Conclusion: Suprascapular-axillary block is comparable to interscalene brachial plexus block in providing effective postoperative pain relief following shoulder surgery.

Key words: Postoperative pain management, Suprascapular nerve block, Axillary block, Interscalene brachial plexus block, Shoulder surgery

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Introduction

Shoulder surgery is one of the most common orthopaedic procedures[1]. Variety of shoulder pathologies, such as glenohumeral arthritis, fractures, osteonecrosis and posttraumatic sequelae has been facilitated by the evolving prostheses, procedures, and instruments[2].

Because of the shoulder's complex anatomy and abundant innervation, it can cause severe pain following shoulder surgery[3]. Effective pain management is essential for promoting patient comfort and achieving successful rehabilitation[1]. Timely and effective analgesia is essential as moderate to severe pain is known to persist for more than 48 hours following shoulder surgery[4,5,6]. Effective pain control in shoulder surgery facilitate the early discharge of patients who would have otherwise required an overnight inpatient stay[4]. Additionally, the management of the patient's discomfort is a critical aspect of the overall recovery process[6]. Optimal postoperative pain management impacts the duration of hospital stay, recovery time, patient satisfaction, postoperative mobilization and surgical outcome. In addition, adequate postoperative analgesia reduces postoperative complications and permits adequate sleep and physiotherapy[9].

A multimodal analgesic approach is recommended for better pain management and to reduce opioid use[10]. Various regional anaesthetic techniques are commonly used as part of multimodal analgesia techniques for postoperative pain relief after shoulder surgery, such as interscalene brachial plexus block, supraclavicular block, suprascapular block, and local infiltration of the surgical site[2].

The interscalene block is conventionally applied for postoperative analgesia in shoulder surgeries. However, it is important to note that there are potential complications associated with this technique, including phrenic nerve paralysis, subarachnoid injection, Horner's syndrome, recurrent laryngeal nerve injury, intravascular injection, vascular injury, etc[11]. Injecting as little as 1 to 2 ml of local anaesthetic into the vertebral artery can lead to seizures[12]. Moreover, patients with bronchial asthma, restrictive lung illness, chronic obstructive pulmonary disease, contralateral phrenic nerve palsy, and a high body mass index interscalene brachial plexus block need to be avoided[13]. Interscalene block anesthetizes the shoulder joint by blocking the C5 and C6 nerve roots, which also supply the majority of the nerve supply to the suprascapular and axillary nerves and most of the sensory innervation of the shoulder is attributed to these two peripheral nerves[14].

Combined suprascapular and axillary nerve blocks may be a safe alternative to the interscalene brachial plexus block for shoulder surgery, as these nerves carry most of the sensory innervation to the shoulder and it provides diaphragm-sparing nature block with fewer complications[14,15]. Few recent studies compare these two techniques, but the results are inconclusive[14]. Therefore, this study aimed to compare postoperative analgesic efficacy of combined suprascapular and axillary nerve block to interscalene brachial plexus block following shoulder surgery.

Methods

This single blind randomized controlled trial was conducted between July 2024 to June 2025 in the Orthopedics operation theatre, Bangladesh Medical University, Dhaka. Patients aged more than 18 years, American Society of Anesthesiologists (ASA) physical status I, II and undergoing elective shoulder surgery were included in this study. Patients with history of allergy or adverse effects with local or regional anesthetics, local infection at the site of injection, bleeding diathesis, preexisting neuropathy, anatomical deformities were excluded from this study.

After obtaining approval from the Institutional Review Board of Bangladesh Medical University (BMU), 60 patients were enrolled and randomized into two groups Group SA- Suprascapular and axillary nerve block group & Group I- interscalene brachial plexus block group using a computer-generated sequence of random numbers in a 1:1 ratio. The sequence was stored in a sealed, opaque envelope and opened by the anesthesiologist just before performing the nerve block in the operation theatre and patient was blinded to group allocation.

All block administered by same anaesthesiologist expert in regional anaesthesia.

Study procedures

All participants were instructed on how to report the visual analogue scale (VAS) score and its usage in the study. The patients were shifted to the operating room thirty minutes before surgery. Intravenous access was established, and a patient monitor was attached to record the baseline vital parameters, i.e., noninvasive blood pressure (NIBP), heart rate, and SpO_2. Oxygen was administered via nasal cannula at 4 L/min. The nerve blocks were administered using ultrasound (US) guidance (Esaote MylabX6 ultrasound machine).

Group SA

After taking all aseptic precautions for the suprascapular nerve block, the patient was positioned in a semi-recumbent position with the operating arm on the contralateral shoulder. The linear probe was placed over the scapular spine to identify the trapezius and supraspinatus muscle. It was then moved laterally to identify the concavity of the supraspinatus fossa and the hyper-echoic fascia of the supraspinatus muscle. In the concavity of the fossa, the suprascapular artery and nerve were identified running in proximity. A 22-gauge 10 cm needle was used in plane technique for the block. After confirming extravascular placement of the needle by Doppler and negative aspiration, 1 to 2 ml of saline was injected to verify proper needle placement and then 5 ml of 0.375% ropivacaine was injected [16].

For the axillary nerve block, the transducer was placed in a sagittal orientation over the posterior aspect of the upper arm, midway between the acromion and axillary fold. The transducer was slide in a proximal-to-distal direction to image the neck of the humerus in the long axis. The needle was inserted in-plane until bone contact, next to the artery. After confirming extravascular placement of the needle by Doppler and negative aspiration, 1 to 2 ml of saline was injected to verify proper needle placement. Then, 5 ml of 0.375% ropivacaine was injected[16].

Group I

After taking all aseptic precautions, the patient was placed in a supine position, and the head was turned to the contralateral side. The C5 and C6 roots were identified by ultrasound scanning with a linear probe in the horizontal plane. Using an in-plane technique, a 22-gauge needle was inserted in a lateral-to-medial direction. After careful aspiration, 1 to 2 ml of saline was injected to verify proper needle placement, and then 10 ml of 0.375% ropivacaine was injected[16].

Anaesthetic management

Following the blocks, all patients received general anaesthesia using standard techniques. Anaesthesia was maintained with isoflurane in nitrous oxide 70% and oxygen 30%. Patients were kept on controlled ventilation. Before extubation, 1g paracetamol IV was given and continued 6 hourly at recovery. Dexamethasone 5 mg as adjuvant were administered intravenously. Following extubation, patients were transferred to recovery.

Follow up at recovery

In recovery, patients were assessed immediately for postoperative pain at rest and during movement using VAS scores, followed by assessments at 4 h, 8 h, 12 h, and 24 h after surgery. Injection morphine 3 mg IV slowly was administered when the patient demanded rescue analgesia and when the VAS score reached ≥4. The time of first rescue analgesic, the total dose of opioid (morphine) consumption, the incidence of respiratory distress assessed by respiratory rate and SpO_2, perioperative haemodynamic parameters were all also recorded. Patient’s satisfaction scores were assessed on a 5-point Likert scale after 24 hours. One anaesthesia resident was responsible for data collection.

Outcome measures

Visual analogue scale (VAS):

10 cm Visual analogue scale was used to rate the intensity of pain. A straight line is drawn between two extremes with one end meaning “no pain” at 0 and the other end meaning “maximum pain” at 10. The patients

were asked to rate their pain by placing a mark along the scale between these two extremes [17].

Rescue analgesic time: It is measured in minutes, between the administration of the initial analgesic dose in the operating room and the first request for additional analgesic by the patient in the postoperative recovery period when the VAS score was ≥4[18].

Patient satisfaction: Assessment of the level of patient satisfaction on the anaesthetic and analgesic care of the patient on a 1-5 Likert scale. (Very dissatisfied-1, dissatisfied-2, neutral-3, satisfied-4, very satisfied 5)[19].

Statistical analysis

Data analysis done with statistical Package for the Social Sciences (SPSS) version 25.0. Quantitative variables were presented as mean ± standard deviation (SD) or Median (IQR) in appropriate. Continuous parameters were analyzed using Student's t-test or the Mann-Whitney U test, depending on the distribution of the data. Qualitative variables were analyzed using the chi-square test or Fisher's exact test. A p-value of ≤0.05 was considered statistically significant.

Results

This study included sixty patients who were scheduled for shoulder surgery and randomized into two equal groups. The baseline characteristics of the study participants are presented in table I. No statistically significant difference were found in case of demographic variables.

Table I: Demographic Characteristics of the study participants (n = 60)

Variables	Group SA n = 30	Group I n = 30	p-value
Age (in years)	18-27	14 (46.7)	11 (36.7)
Mean±SD	31.83+12.47	36+14.31	
Gender			
Male	23 (76.7)	17 (56.7)	
Female	7 (23.3)	13 (43.3)	
BMI (kg /m^2))			
Mean±SD	23.05+ 3.56	23.14+4.97	0.266

Values are expressed as Mean±SD and within parenthesis percentage (%) over column in total.

Figure 1 depicted the postoperative VAS score of the study participants. At baseline (immediate at recovery), the mean VAS score was slightly higher in the group SA (5.47±1.81) compared to the group I (4.87±1.57), but the difference was not statistically significant (p=0.125). At 4 hours, pain scores were nearly identical between the groups (4.47±0.93 vs. 4.57±1.04, p=0.772). At 8 hours, the group I reported higher pain scores (3.50±0.63) compared to the group SA (3.07±0.82), with the difference reaching statistical significance (p=0.049). At 12 hours, both groups showed similar reductions in pain (2.10±0.48 vs. 2.17±0.46, p=0.491). By 24 hours, pain remained lower in the group SA (1.57±0.62) compared to the group I (1.90±0.40), and this difference was statistically significant (p=0.010).

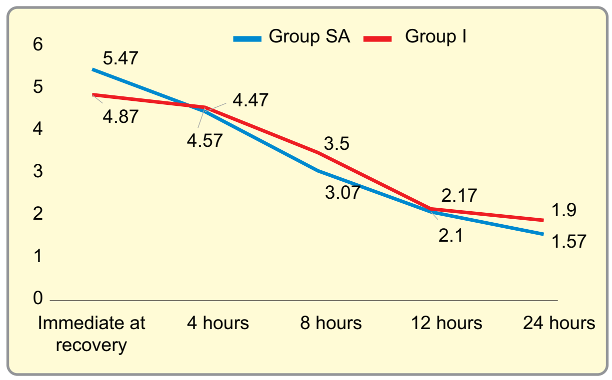

Figure 1: Postoperative VAS score of study participants

The median time to the first request for postoperative analgesia was identical in both groups, with a median of 10 minutes and a range of 10–245 minutes. Although both Group SA and Group I showed the same median value, the difference between them was not statistically significant (p = 0.172), indicating that the type of intervention did not significantly influence the time to first analgesic requirement after surgery.

The comparison of postoperative morphine consumption within 24 hours between the two groups showed that almost all patients required opioids, with 93.3% in the group SA and 100% in the group I, though this difference was not statistically significant (p=0.492). The mean total morphine consumption was slightly higher in the group SA (6.85±2.08 mg) compared to the group I (6.30±1.82 mg), but the difference did not reach statistical significance (p=0.180). (Table II).

Table II: Postoperative morphine consumption in 24 hours of the study participants (n = 60)

Variables	Group SA n = 30 Frequency (%)	Group I n = 30 Frequency (%)	p-value
Number of patients required morphine	28 (93.3)	30 (100)	ᶠ0.492
	Mean±SD	Mean±SD	
Total dose of morphine (mg)	6.85±2.08	6.30±1.82	
Median (Range)	7.0 (2-10)	6.0 (3-10)	0.180

Data presented as frequency and percentage over the columns. P-value reached through a Fisher's exact test. Mean±SD and Median (Range) over the rows. P-value reached through a Mann Whitney u-test. p-value less than <0.05 considered as significant

The comparison of heart rate trends between the group SA and group I showed no statistically significant differences at any time point before, during, or after surgery (Figure 2). Before induction, the mean heart rate was comparable between the two groups (77.93±8.58 vs. 80.90±14.15 bpm, p=0.495). After induction and throughout the intraoperative period at 15, 30, 45, 60, 75, 90, and 120 minutes, the heart rates of both groups followed a similar declining trend, with no significant intergroup differences (all p>0.05). Postoperatively, the immediate heart rate was slightly higher in the group SA (96.83±9.30 vs. 94.60±8.38 bpm, p=0.333), but subsequent measurements at 4, 8, 12, and 24 hours remained comparable between the groups (all p>0.05). Overall, both nerve block techniques maintained stable heart rate profiles, with no significant hemodynamic differences observed during the perioperative periods.

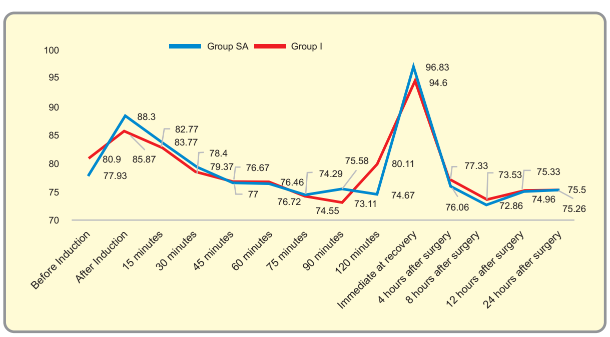

Figure 2: Heart rate trends of the study participants over perioperative period

The mean arterial pressure (MAP) remained comparable between the group SA and group I throughout the most perioperative and postoperative periods, with no statistically significant differences at baseline or intraoperatively. Before induction, MAP values were nearly identical (90.50±8.08 vs. 89.97±8.10 mmHg, p=0.888). Following induction and during the intraoperative period up to 120 minutes, both groups demonstrated stable MAP levels with parallel fluctuations, none of which reached statistical significance (all p>0.05). In the immediate postoperative period (0–12 hours), MAP values were also comparable across groups. However, at 24 hours postoperatively, the group I showed a significantly higher MAP than the group SA (90.0±5.72 vs. 84.83±12.39 mmHg, p=0.003). (Figure 3)

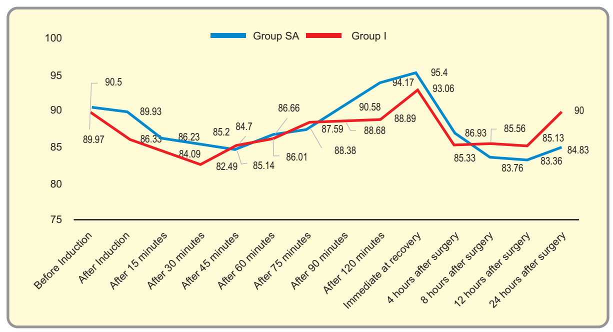

Figure 3: MAP trends of the study participants over perioperative period

The respiratory rate (RR) and oxygen saturation (SpO_2) remained stable and comparable between the group SA and group I during the perioperative period, showing no statistical difference.

Patient satisfaction levels were similar between the groups SA and group I, with no statistically significant difference (p = 0.609). In group SA, 23.3% were dissatisfied, 33.3% were neutral, 23.3% were satisfied, and 20.1% were very satisfied, compared to 16.7%, 23.3%, 36.7%, and 23.3%, respectively, in group I. (Figure 4)

No statistically significant differences were found between the group SA and group I regarding duration of surgery and anaesthesia (all p > 0.05). (Table III)

No statistically significant differences were found between the group SA and group I regarding intraoperative complications (all p > 0.05). Delayed

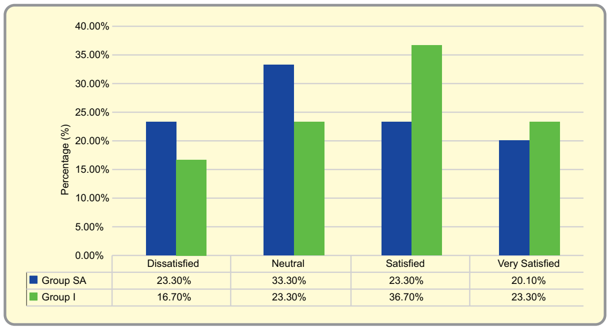

Figure 4: Patient satisfaction of the study participants (n = 60)

recovery occurred in 16.7% vs. 3.3%, bradycardia in 0% vs. 16.7%, hypertension in 10.0% vs. 6.7%, and hypotension in 6.7% vs. 10.0% of participants in the respective groups.(Table IV).

Table III: Duration of surgery and anaesthesia of the study participants (n = 60)

Variables	Group SA n=30	Group I n=30	p-value
Duration of surgery (min)	80.60±29.69	84.67±25.67	
Median (Range)	85.0 (35-125)	90.0 (35-130)	0.635
Duration of anaesthesia (min)	96.67±30.32	99.83±25.81	
Median (Range)	105.0 (45-140)	105.0 (50-150)	0.824

Data presented as Median (Range) over the rows. P-value reached through a Mann Whitney u-test. p-value less than <0.05 considered as significant

Table IV: Intraoperative Complications of the study participants (n = 60)

Variables	Group SA n=30 Frequency (%)	Group I n=30 Frequency (%)	p-value
Delayed recovery	5 (16.7)	1 (3.3)	0.195
Bradycardia	0	5 (16.7)	0.052
Hypertension	3 (10.0)	2 (6.7)	>0.99
Hypotension	2 (6.7)	3 (10.0)	>0.99

Data presented as frequency and percentage over the columns. P-value reached through a Fisher's exact test. p-value less than <0.05 considered as significant

Discussion

Adequate postoperative pain control plays a significant role in surgical outcome as it affects postoperative mobility, duration of hospital stays, patient satisfaction, and overall clinical outcomes [20,21]. The intensity of pain may still vary depending on the surgical approach, the type of surgery, the anesthetic technique used, the initial shoulder injury and the severity of preoperative pain. Postsurgical pain severity may also be influenced by patient factors, including gender, age and anxiety[22,23,24]. In this study, analgesic efficacy, safety and patient satisfaction in patients undergoing shoulder surgery were assessed. This study assigned patients to two treatment arms: the group SA received suprascapular-axillary nerve block while the group I received interscalene brachial plexus block.

No statistically significant difference was observed between the two group with respect to demographic characteristics age, sex, BMI and ASA classification. Similarly, no statistically significant differences were noted in relation to comorbidities.

The findings of this study revealed that VAS scores progressively declined over 24 hours in both groups, indicating effective pain control. Immediate recovery, VAS scores were slightly higher in Group SA compared to Group I, though this difference did not reach statistical significance (p=0.125). At 8 hours post-surgery, the interscalene group reported higher VAS scores, which were statistically significant (p=0.049). By 24 hours, Group SA reported significantly lower VAS scores compared to Group I, with this difference also proving statistically significant (p=0.010). This findings was consistent with a previous study, where rebound phenomenon developed approximately 12 hours after the initial block[25].

DeMarco et al.[26] reported a rebound phenomenon of increased pain occurring 20 hours after the interscalene block (ISB) had worn off. However, in this study, the rebound phenomenon developed approximately 8 hours after the initial block. This may be due to the use of mixed local anaesthetics, a smaller local anaesthetic volume, plasma half-life and the differences in formulation compared to other studies.

This study shows, first rescue analgesic was almost similar in the both groups and overall pain control was more sustained at 24 hours. The median time was longer in Group I compared to group SA, though the difference was not statistically significant (p=0.172). The time to the first rescue analgesic in this study showed no significant difference between the two groups (p=0.172). These findings align with Rhyner et al.'s study, where the median time was 255 minutes after suprascapular axillary block and 655 minutes after interscalene block (p=0.60) [27]. Both studies indicate that the timing of the first analgesic request does not significantly distinct between the block techniques, suggesting that the type of block may not affect early postoperative opioid use.

In this study, a higher percentage of participants in Group I required morphine compared to Group SA. However, this difference was not statistically significant (p=0.492), indicating that both groups had a similar overall need for opioid analgesia.

The study by Neuts et al., showed that suprascapular-axillary nerve block is not inferior to interscalene (ISB) in terms of analgesia, a finding that aligns with the present study. The use of suprascapular axillary nerve block also led to reduced opioid requirements in the immediate postoperative period, which was associated with a lower incidence of dyspnoea and discomfort [28].

This study reveals that before induction, the mean RR was slightly higher in Group SA than in Group I, but the difference was not statistically significant (p=0.591). During the intraoperative period, RR remained stable at 14 breaths per minute in both groups with no variation due to controlled ventilation. However, after surgery, Group SA showed a significantly higher RR than Group I immediately postoperatively and again at 24 hours (p=0.008). our findings contradicts with previous study, where, SSNB with ANB considered a safer alternative to other nerve blocks, such as the interscalene block, because it is specifically designed to avoid complications associated with the phrenic nerve, which can lead to respiratory compromise and shortness of breath[29].

However, respiratory rate and oxygen saturation trends provide an important point of contrast. The group SA exhibited higher postoperative respiratory rates and better immediate postoperative SpO, , whereas group I was associated with slightly reduced respiratory rates and lower SpO, in the immediate recovery phase. This aligns with multiple studies demonstrating increased respiratory complications with group I. For instance, Dogan et al. showed a significantly higher incidence of diaphragmatic dysfunction in the interscalene group[30], and Sinha et al.[31]. reported that superior trunk blocks and suprascapular nerve block preserved diaphragmatic function far better than interscalene brachial plexus block. Similarly, Saini et al.[15] noted that dyspnea and motor weakness occurred only in interscalene block recipients, highlighting the diaphragmatic-sparing advantage of suprascapular axillary or shoulder blocks. Therefore, group SA may be more suitable for patients at risk of respiratory compromise.

Patient satisfaction levels were similar between both groups, with no statistically significant difference (p = 0.609). Patient satisfaction was comparable between groups in our study, which is supported by Boekel et al.[32] and Mohammad et al.[33], where both interscalene and suprascapular axillary groups achieved similar satisfaction levels, though higher side effects and patient reluctance for repeat regional anesthesia were observed in interscalene recipients.

The analysis of heart rate trends across the perioperative period revealed no statistically significant differences between both groups. Pre-induction heart rates were comparable (p=0.495), and both groups maintained stable heart rates throughout the intraoperative period, with no significant variation at multiple time points (p>0.05). Postoperatively, while group SA exhibited a slightly higher immediate heart rate and the difference was not statistically significant (p=0.333). Furthermore, heart rates at 4, 8, 12, and 24 hours following surgery were similar between the two groups, indicating that both groups exhibited comparable cardiac responses throughout the perioperative period.

This study findings was consistent with a previous study where all patients administered with ultrasound guided shoulder block (suprascapular and axillary nerve) and intraoperatively maintained their vitals in normal range[34].

The analysis of systolic blood pressure (SBP) changes across the perioperative period showed no significant differences between both groups prior to induction in our study. Pre-induction SBP was similar in both groups (p=0.645), and both exhibited stable SBP throughout the intraoperative period, with no significant variation at any time point. Postoperatively, group SA showed a higher immediate SBP which was statistically significant (p=0.023). Peripheral nerve blocks not only block sensory and motor functions but also inhibit sympathetic nerve activity, potentially reducing the physiological effects of surgery-induced nociceptive transmission. The higher immediate SBP in the group SA (p=0.023) may result from a less effective sympathetic blockade in suprascapular axillary group, leading to less vasodilation and higher postoperative blood pressure compared to group I. However, SBP at subsequent postoperative intervals (4, 8, 12, and 24 hours) did not differ significantly between the two groups. Similarly, Pitombo and others observed Cardiocirculatory stability, as measured by systolic blood pressure (SBP), diastolic blood pressure (DBP), and heart rate (HR), was maintained in both groups of SSNB with ANB and ISNB, throughout the perioperative period, with no statistically significant differences observed between the groups[35].

The changes in diastolic blood pressure (DBP) across the perioperative period, showing no significant differences between the two groups prior to induction, (p=0.897).

Throughout the intraoperative period, DBP fluctuations were similar between the groups, with no statistically significant differences observed (all p>0.05). However, at 24 hours postoperatively, group I exhibited significantly higher DBP values compared to group SA (p=0.001). An interscalene nerve block (ISB) can lead to an increase in diastolic blood pressure, along with a rise in systolic and mean arterial pressures[36]. This transient hypertensive response is thought to result from factors such as the blockade of carotid baroreceptors. Although it is generally a rare complication, the response is more pronounced in right-sided blocks and is typically temporary in nature[37].

The changes in mean arterial pressure (MAP) across the perioperative period, prior to induction, MAP values were nearly identical between the two groups, (p=0.888). Throughout the intraoperative period, MAP remained stable for both groups, with no significant differences observed. However, at 24 hours postoperatively, group I exhibited a significantly higher MAP compared to suprascapular (p=0.003), highlighting a notable divergence between the groups at this later time point. However, these findings reaffirm the hemodynamic stability of both blocks, consistent with the safety profiles reported in literature.

This study demonstrated no significant differences in heart rate (HR), systolic (SBP), diastolic (DBP), or mean arterial pressure (MAP) between the two groups at most time points, except for slightly higher DBP and MAP at 24 hours in the group I.

This experimental study demonstrated that both regional anesthesia techniques provided comparable perioperative hemodynamic stability, adequate analgesia, and similar levels of patient satisfaction, although few differences were observed in pain intensity, respiratory rate and opioid consumption.

Collectively, these findings, when compared with global evidence, suggested that the longer duration of analgesia in group SA and faster onset with early analgesia in case of group I. Patients with compromised pulmonary functions such as bronchial asthma, COPD under ASA 2 or concern for phrenic nerve involvement, group SA offers a safer alternative with adequate postoperative analgesia for first 24 hours. Furthermore, combining suprascapular axillary appears to yield optimal results, as evidenced by our study and reinforced by Zhao et al.[38].

Both groups are effective and safe techniques for regional anesthesia in shoulder surgeries. While group I provides rapid early pain relief and slightly reduced immediate opioid requirements. On the other hand, group SA offers superior pain control in the later postoperative period, better preservation of respiratory function, and comparable patient satisfaction. These findings, in conjunction with existing literature, combined suprascapular axillary nerve block as a clinically advantageous and safer alternative to interscalene block in most shoulder surgery.

Conclusion

Under the condition of present study, it can be concluded that, suprascapular-axillary nerve block is as effective as interscalene brachial plexus block in providing effective postoperative pain relief following shoulder surgery.

Declaration

Ethics approval: The study was approved by the Institutional Review Board of BMU (Reg no. 5285; BSMMU/2025/67). Informed written consent was taken from the participants before inclusion.

Author contributions

Conception and development of the idea PS, AKMA, KMA
Writing PS, PD, KMA
Data analysis PS, KMA, MAM, SIM
Data collection MAA, SK, MSA,
Review and Editing KMA, AKMA
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