Intra-operative effect of interscalene brachial plexus block for arthroscopic rotator cuff repair

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Arthroscopy of the subacromial space has two unique aspects

- Tourniquet use is not possible
- Subacromial space is only a potential space with no synovial lining to restrict fluid extravasation

How to Control bleeding, fluid extravasation
Hypothesis

Conducting IBPB (interscalene brachial plexus block) before anesthesia

↓

Prevent excessive rise of BP

Keep balance between Surgical field pressure and SBP

↓

Establish clear visual field

Shortening duration of surgical procedure
Materials & Methods


Material: Patients who underwent arthroscopic rotator cuff repair due to medium sized tear

Exclusion:
- hypertension, coagulopathy, cardiovascular disease
- medication of anti-platelet or anti-coagulation agents

Group: B – performed IBPB before surgery
C – Control
SBP, DBP, HR - Every 5 minute during the surgery

Administered Medication

Analgesics (Fentanyl)

Hypotensive agents

(β-blocker, Calcium channel blocker)

VCS (Visual clarity scale) check

Grade 1: no impairment

Grade 2: some impairment of during procedure

Grade 3: significant impairment, interfere of progression
Result

Intra operative hemodynamic factors

Systolic Blood Pressure (mmHg)

- Group C
- Group B

Diastolic Blood Pressure (mmHg)

- Group B
- Group C

Heart Rate (beats/min)

- Group B
- Group C
Administered medication

- Analgesics
  - Group B: 0.19
  - Group C: 0.53

- Hypotensive agent
  - Group B: 0.67
  - Group C: 0.85

P = 0.003 (Analgesics)
P = 0.287 (Hypotensive agent)
Result

Duration of surgical procedures

No significant difference (P = 0.704)

VCS

significant difference except stage 1

stage 1 (p = 0.032)  stage 2 (p < 0.001)
stage 3 (p = 0.002)  stage 4 (p = 0.012)

Hemodynamic factors Peaked
during stage of the Acromioplasty
Conclusion

Interscalene brachial plexus block (IBPB) before anesthesia administration

Despite using a smaller amount of Analgesics

(P = 0.003)

Significantly lower systolic and diastolic blood pressures and heart rates intra-operatively

(P < 0.001)
Conclusion

Interscalene brachial plexus block (IBPB) before anesthesia administration

Effectively controlled the hemodynamic changes and visual clarity that occurred during arthroscopic shoulder surgery.
Limitation

Other parameters of visual clarity

- Volume of irrigation fluid used
- Hb concentration in the irrigation fluid

Inclusion of subjects expansion

Limitation Medium size tear → Large, Massive tear
Reference

