Improvement in postoperative pain control by combined the use of IV dexamethasone with IV dexmedetomidine after interscalene brachial plexus block for arthroscopic shoulder surgery: A randomized controlled trial

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Background

- Intravenous (IV) usage of dexamethasone or dexmedetomidine is reported to prolong the duration of analgesia after single-shot interscalene brachial plexus block (ISBPB).
- The effect of co-administration of dexamethasone and dexmedetomidine on the duration of analgesia has not been evaluated.
- The aim of this study is to evaluate the difference in time to the first rescue analgesic request in patients receiving co-administration of IV dexamethasone and dexmedetomidine (D2) versus the patients receiving IV dexamethasone only (D1) after single-shot ISBPB for arthroscopic shoulder surgery.

Materials & Methods

- A randomized controlled trial
- Inclusion criteria
 - 66 patients who underwent arthroscopic shoulder surgery with ISBPB (15 ml of 0.5 % ropivacaine with 1:200,000 epinephrine, ultrasound guided)
- Allocation of patients
 - IV 0.9 % normal saline (control, n=22)
 - IV dexamethasone 0.11 mg.kg⁻¹ (D1, n=22)
 - IV dexamethasone 0.11 mg.kg⁻¹ + IV dexmedetomidine 1.0 µg.kg⁻¹ (D2, n=22)
- The primary outcome was the time to first rescue analgesic request

Results & Discussion

- Time to first rescue analgesic request was significantly longer for the D2 group
	Control	D1	D2	P
Time to first rescue analgesic request (hr)	10.9
[10.1-12.2]	66.3
[23.3-72]	17.4
[14.9-36]	0.002
- Postoperative cumulative IV morphine equivalent consumption at 24 h was significantly lower in the D2 group compared with control group ($P=0.014$).
 - Postoperative VAS score at 24 h was also significantly lower in D2 group compared with control group ($P=0.024$).
 - Compared with control, groups receiving dexamethasone experienced less sleep disruption on the first postoperative night (D1, $P=0.035$; D2, $P=0.022$, respectively).
 - No significant elevations in blood glucose levels at 24 h in patients receiving dexamethasone ($P=0.872$). No patients reported block-related complications.

Conclusions

Co-administration of IV dexamethasone with IV dexmedetomidine significantly delayed the time to first rescue analgesic request after single-shot ISBPB in patients undergoing arthroscopic shoulder surgery.

Figure 1. Flow diagram of study