

Timing of intravenous dexamethasone for prolongation of analgesia after brachial plexus block

A randomized, double-blind, placebo-controlled trial

PRESENTER:
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BACKGROUND

Intravenous dexamethasone is frequently used to prolong analgesia after brachial plexus block following upper extremity surgery. However, the optimal timing for its administration has not been previously examined.

METHODS

- 1. Double-blind, randomized, placebo-controlled trial conducted at a single tertiary academic health sciences center
- 2. Patients: 18-80 years old, ASA 1-3, BMI <35 kg/m², undergoing unilateral upper extremity surgery with a supraclavicular brachial plexus block
- 3. Standardized supraclavicular block: intertruncal technique, 15ml bupivacaine 0.5% with 1:200,000 epinephrine mixed with 15ml lidocaine 2%
- 4. Intervention: Intravenous dexamethasone 8 mg administration randomized 1:1:1:1 to:
 - 1 hour before
 - during
 - 1 hour after
 - 2 hours after the block
- 5. Placebo (saline) was infused at the other time points to blind patients, providers, investigators
- 6. Primary outcome: time from block to first postoperative pain (pain diary)

RESULTS

- 414 patients were screened, 220 patients provided consent, 23 excluded. The remaining 197 patients were enrolled, randomized, received the study intervention.
- However, 39 patients could not be reached for follow-up after hospital discharge. 158 patients with full data sets were included for outcome analysis.

The timing of intravenous dexamethasone does not affect the duration of analgesia after brachial plexus block

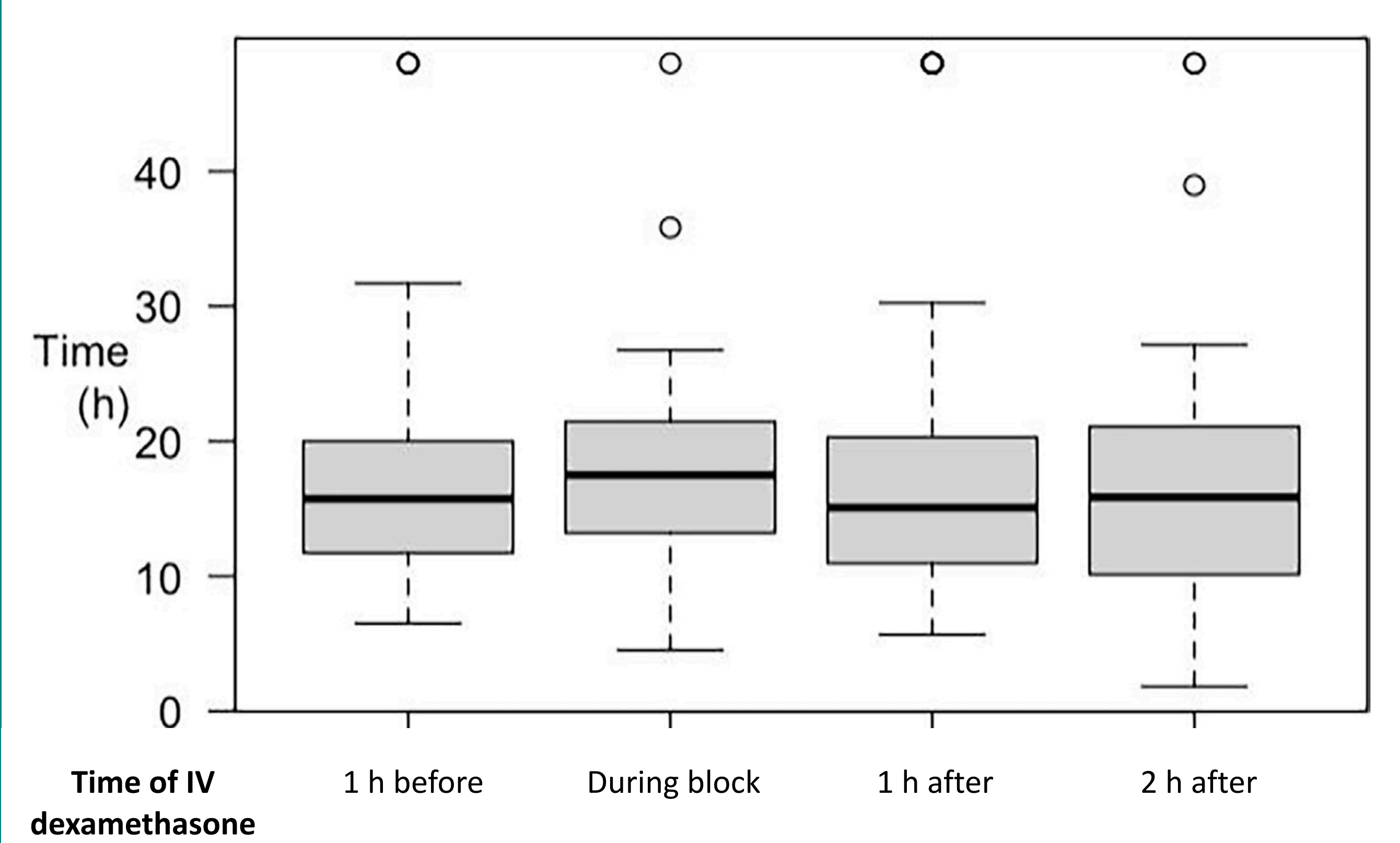


Figure 1: Time to first pain onset by group

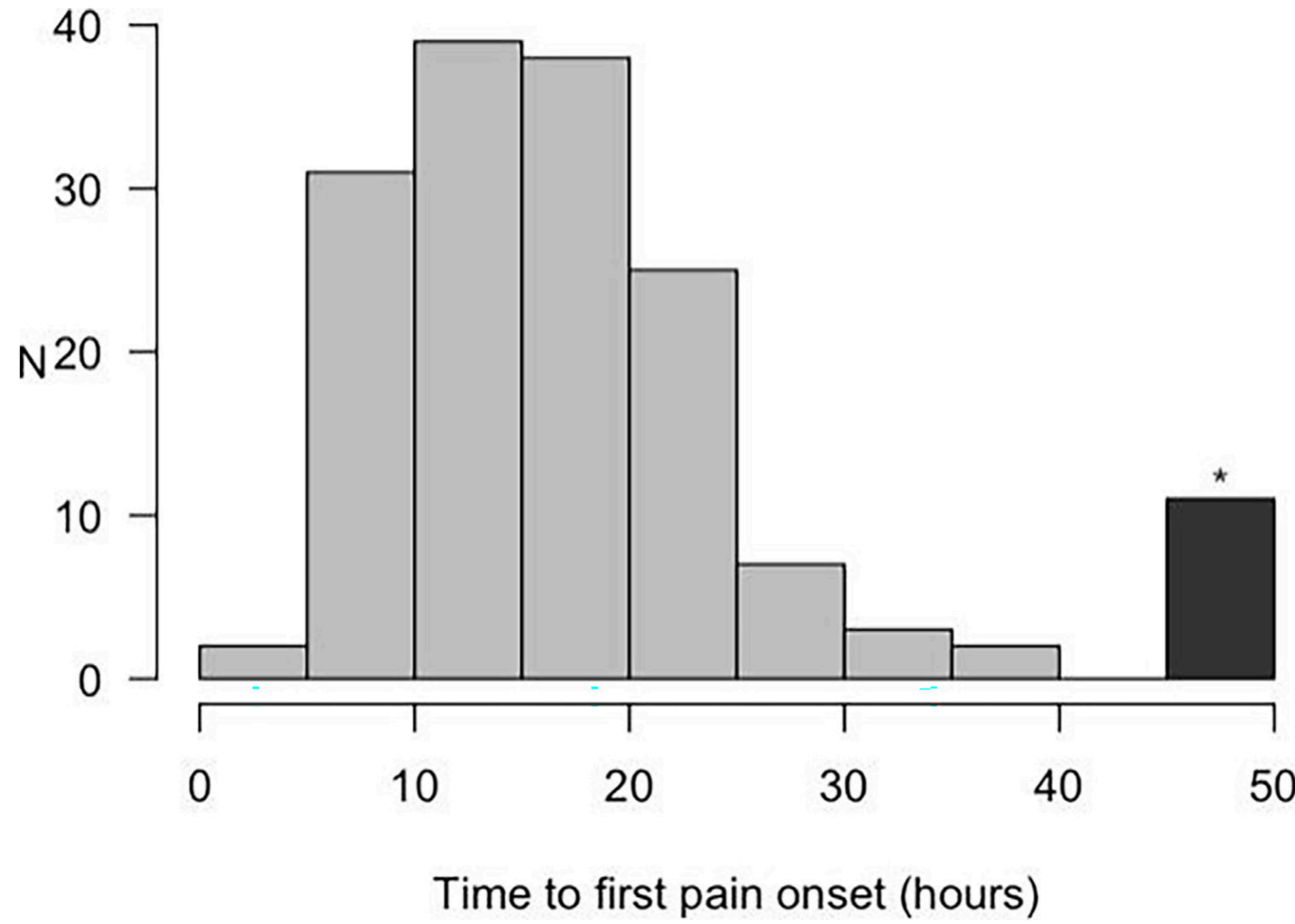


Figure 2: Distribution of time to first pain onset for the entire cohort. N=Number; *Represents those patients who were pain-free for the first 48 hours

- There was no difference in the primary outcome measure, time to first postoperative pain, between the groups (p=0.90); see Figure 1
- There were no differences in demographic or other outcome measures between the groups including patient satisfaction, block onset, pain scores, opioid consumption, nausea, sensory or motor deficit at 3 months.
- Given the relatively high percentage of missing values of the primary outcome (n=39 or 19.8%), linear regression and sensitivity analysis were used to assess for confounding and differences between the groups. These showed that the missing primary outcome data are not a concern and that our results are robust despite the missing values.

DISCUSSION

- The results from this randomized, double- blind, placebo-controlled study suggest that the timing of intravenous administration of dexamethasone between 1 hour before and 2 hours after a brachial plexus block has no impact on the duration of postoperative analgesia

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