

## Awake Caudals in Young Infants Using Chloroprocaine as the Sole Anesthetic: A Retrospective Review

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### Introduction

- When used as the sole anesthetic technique, awake caudals offer advantages of reducing opioid and volatile agent requirements
- Chloroprocaine is a local anesthetic with rapid action onset/offset and short half-life, making it a viable alternative for use in neonates and infants undergoing short duration procedures
- Dosing recommendations for chloroprocaine caudal blocks are poorly established with infusion ranges from 6.75 to 45mg/kg/hr (1, 2) and 30mg/kg bolus with 30mg/kg/hr infusion (3)
- Currently, there is a paucity in dosing, safety, and efficacy data of awake single injection caudal blocks. We therefore present our institutional experience with this technique in infants undergoing brief lower extremity procedures.

### Methods

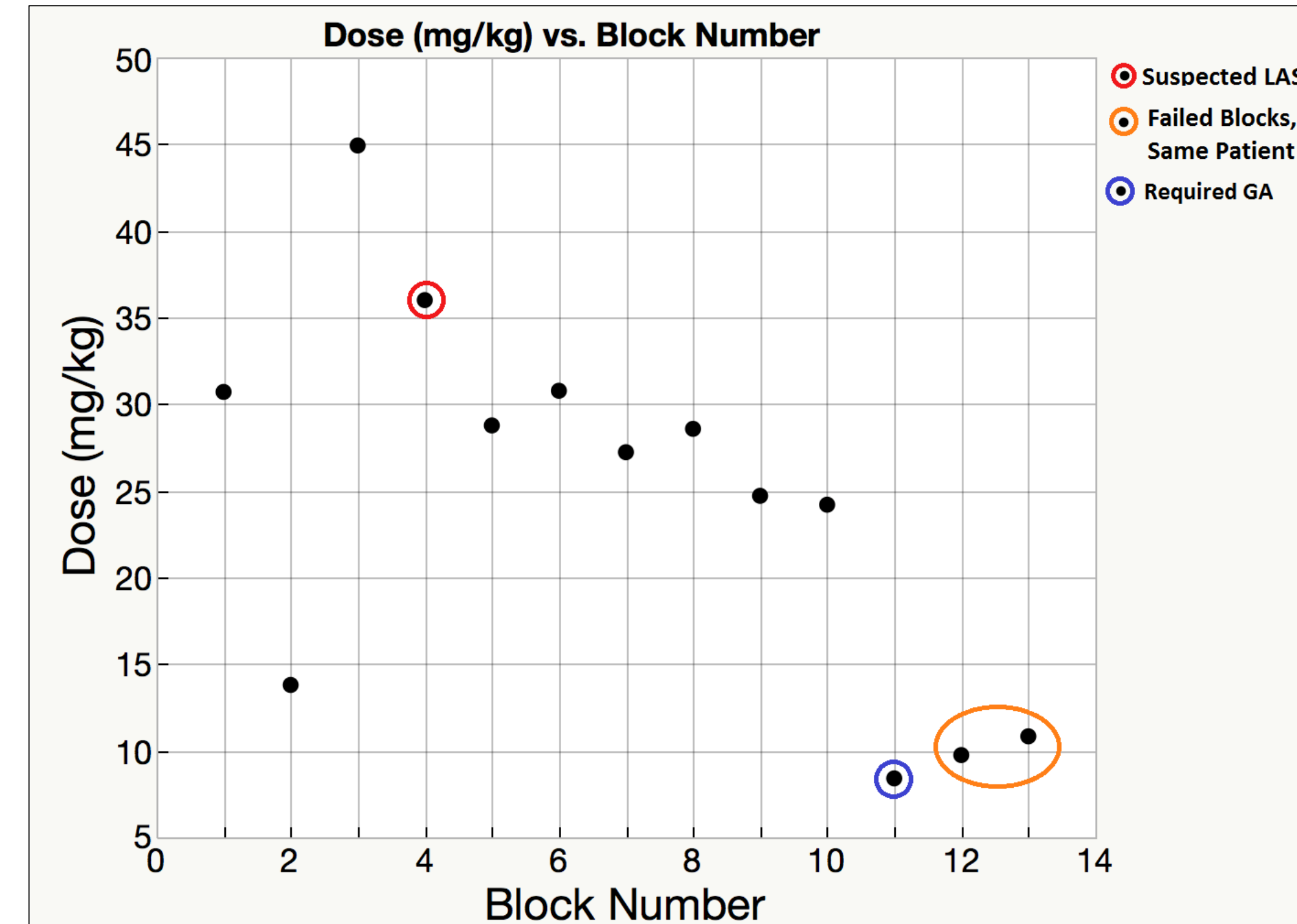
- After IRB approval, the medical records of infants who received single-shot caudal anesthesia with chloroprocaine for tendo-achilles lengthening were reviewed
- Surgical duration, chloroprocaine dosage, complications, and postoperative pain scores were abstracted
- The primary outcome was the efficacy of caudal blockade

**Table 1: Patient and Procedure Characteristics**

	N=12, [IQR] (Range)
Patients	
Age (days)	55 [53-68] (45-128)
Weight (kg)	5.4 [4.7-5.5] (3.9-7.3)
ASA, 1 / 2	10 / 2
Gender, Male / Female	9 / 3
Procedure	
Tendo-achilles lengthening, Cast application	
Single / Bilateral	8 / 4
Surgical Duration (min.)	20 [14-26] (12-65)
Surgeon Infiltration, Yes / No	3 / 9

### Results

**Figure 1: Dosing of Single-Shot Caudal Injections in Infants**



**Table 1: Block Characteristics**

	N = 13
Dose (mg/kg)	27.2 [13.8-30.7] (8.4-44.9)
Volume (3%)	4.0 [3.5-6] (1.5-7)
Test Dose, Yes/ No	6 / 7
Epinephrine, Yes/ No	2 / 11

**Table 2: Complications and Efficacy**

	N = 12
Complication, Yes/ No	3 / 9
PACU Recovery Med, None/ Tylenol	12 / 0
Additional Inpatient Med, None/ Tylenol	9 / 3
Highest FLACC Score (N=11), 0/1/2/3	8/0/2/1

**Table 3: Summary of Block Complications**

Suspected LAST, Seizure	Staff assist called, pt. mask ventilated with 100% FiO2, PIV access started, event self-resolved within 30 seconds
Blood Aspiration	Blood aspirated prior to block.
Failed Blocks	22g angiocatheter inserted to depth of 1mm. No blood aspiration, no test dose performed. 1.8 mL of 3% Chloroprocaine without epinephrine injected. Block repeated with 22g caudal cannula inserted to a depth of 2mm with an additional 2mL injected; again deemed unsuccessful. Case completed with GA and local infiltration by surgeon.

- Twelve infants were included in the analysis. In 11 patients, a rapid onset of motor and sensory block in the lower extremities and provided adequate operating conditions
- A seizure potentially due to LAST was the major complication in one infant, and failed block requiring GA in another
- Dosing regimens varied and ranged from 8.4 mg/kg to 44.9 mg/kg.
- In the case of failed neuraxial technique requiring conversion to GA, a lower dose of 9.75 mg/kg was used. In the case of suspected LAST, a higher dose of 36 mg/kg was used.
- Postoperatively, all patients had a pain score of 0 at the time they discharged from Phase 1 recovery. No patients required additional medications for analgesia immediately postoperatively.

### Conclusion/Discussion

- Awake caudal anesthesia with chloroprocaine can be used as the sole anesthetic in shorter surgical procedures of the lower extremities
- A range of doses provided rapid onset of motor and sensory block, with toxicity and failed block occurring at the upper and lower ranges, respectively.
- A dose of 30 mg/kg of 3% Chloroprocaine is likely a safe and effective dose in providing adequate regional anesthesia to patients undergoing lower extremity surgeries of duration up to 30 minutes.
- Future up and down dosing studies should be conducted to determine the lowest dosage resulting in effective anesthesia.

### References

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