Plain chloroprocaine 1% for low dose spinal anaesthesia in minor, outpatient perianal surgery

Gebhardt V.¹, Mueller-Hansen L.¹, Schwarz A.¹, Weiss C.², Schmittner M.D.¹

¹Department of Anaesthesiology and Surgical Intensive Care Medicine, University Medical Centre Mannheim, Germany (UMM)

²Department of Medical Statistics, University Medical Centre Mannheim, Germany (UMM)

Introduction

Spinal anaesthesia (SPA) in saddle block technique with small amounts of local anaesthetics induces a sufficient block for minor perianal surgery. In 2014, chloroprocaine 1% was admitted for intrathecal injection in Germany. Due to its short duration of action, a good pharmacological profile and low incidences of side effects chloroprocaine seems to be a promising substance for SPA in this indication. The purpose of this study was to determine the optimal dosage of chloroprocaine 1% for low-dose SPA in minor perianal outpatient surgery.

Methods

- Ethics approval: 2014-571N-MA, Medical Ethics Committee II, Mannheim, international registration (DRKS-ID: DRKS00007121)
- Inclusion criteria: Patients undergoing minor perianal surgery (m/f, ASA I-III, 18-80 years)
- Exclusion criteria: Contraindications for SPA, allergies against chloroprocaine or NSAIDs
- preoperative randomization 1:1:1 to either 10, 20 or 30 mg chloroprocaine 1% (1.0, 2.0 or 3.0 ml)
- SPA: upright sitting position, G-27 pencil-point needle, L₃-L₄ interspace, patients stayed upright sitting for at least 10 min
- Lithotomy position, postoperatively 600 mg ibuprofen supp. and 6 mg cinchocaine supp.
- Assessment: *preoperative*: expansion of sensory and motor block; *intraoperative*: surgery possible?; *postoperative*: time span until voiding and discharge
- Statistics: SAS System (Version 9.2, SAS Institute Inc, Cary, NC, USA)

Results

- 120 patients (40 per group) were enrolled and included in analysis
- no significant differences between groups ($p \geq 0,2001$)
- in total more men than women ($p = 0.0019$)
- operative procedure in SPA was possible in 116 patients

Demographic Data (n = 120)

Sex (m / f)	ASA (I / II / III)	Age (years)	Height (cm)	Weight (kg)	BMI (kg / m ²)
77 / 43	91 / 28 / 1	41.7 ± 12.3	176.0 ± 9.8	80.2 ± 18.8	25.8 ± 5.2

1. Motor Block

Fig. 1: Modified Bromage Score
0 = no block, 1 = able to bend the knee, 2 = able to dorsiflex the foot, 3 = complete motor block

Fig. 2: Help for positioning
Need of help for the transfer to operating table

no significant difference between 10mg- and 20mg- group, $p = 0.1084$

2. Sensory Block

Injected Volume (mg)	10	20	30
Sensory block: Number of anaesthetized dermatomes counting from S ₅ upwards	3,5	5	7
Median	(2 - 5)	(4 - 6)	(6 - 10)
(lower - upper quartile)			

($p \leq 0.0005$)

Perioperative Complications

10 mg:
Complete block failure: n=1
Insufficient block, additional local anaesthesia necessary: n=2
Intraoperative discomfort alleviated by moderate sedation (no nociceptive pain): n=5
20mg:
No perioperative complications
30mg:
Complete block failure: n=1

3. Duration of stay at the day-surgery centre

Fig. 4: Time span until discharge with or w/o voiding starting from intrathecal injection

- discharge criteria:
- walk without assistance
- pain control
- PADSS ≥ 9 points

(no significant difference between 10mg- and 20mg- group, $p = 0.1157 / 0.2471$)

1. Motor Block:

A relevant motor block only occurred at a dosage of 30mg

2. Sensory Block:

The expansion correlates positively with an increasing dosage at a highly significant level. Insufficient blocks (n=2) and discomfort (n=5) in 10 mg group.

3. Duration of stay:

The duration of stay in the 30 mg group is significantly longer compared to both other groups

Conclusion

Chloroprocaine 1% can safely be applied in low dosages for SPA in minor perianal surgery. Due to a sufficient sensory block combined with a clinically irrelevant motor block and an insignificantly prolonged stay at the day-surgery centre, **20 mg** plain chloroprocaine 1% seems to be the recommendable dosage for patients undergoing minor perianal outpatient surgery.