la Prilocaine Hyperbare
Pourquoi Quand Comment

E. GUNTZ MD, PhD
Hôpital Braine l’Alleud Waterloo
Charleroi 23 novembre 2013
The journal editors consider all human studies unethical that test drugs intrathecally that have not formally been tested for lack of neurotoxicity. I do agree that some drugs that are used intrathecally on a daily basis and worldwide have never been formally tested for neurotoxicity. Prilocaine does definitely not belong to these drugs.

I suggest you invest time and energy in valid animal studies that provide convincing evidence that IT prilocaine is not neurotoxic. We would be very interested in publishing such data.
Introduction

Regional Anaesthesia VS General Anaesthesia

Difficult intubation
Difficult ventilation
Full stomach
Old patient
High ASA score
Obésity
Pregnancy

Benefices-Risks Balance
Introduction

**Spinal Anesthesia**
- Rapid onset
- Predictable onset
- Suitable duration of sensory block
- Rapid recovery
- Minimal side effects

**General Anesthesia**
- Propofol
- Remifentanil
Introduction

Small-dose bupivacaine

Failure, Inadequate block height
Urinary retention
Excessively long time-course to block resolution

Hyperbaric Lidocaine

40 years
Transient Neurological Symptoms (TNS)
10%

Gupta Acta Anaesthesiol Scand 2003
Hampl Anesthesiology 1998
Kamphuis Anesthesiology 1998
Ben David Anesth Analg 1997
**Introduction**

TNS are characterized by moderate to severe pain in the buttocks and legs.

Symptoms develop within a few hours and up to 24 hours after anaesthesia.

They last, in most cases, up to two days (<5 days).

Incidence of TNS are increased by:

- Patient Position **Lithotomy-arthroscopy**
- Early deambulation

**NOT ADAPTED TO ONE DAY SURGERY**
Introduction
**Alternatives**

The new old local anesthetics

**Short-acting LA**
- Surgical spinal block 60–90 min

**Intermediate-acting LA**
- Surgical spinal block 90-150 min

- **Chloroprocaine**: 1950
  - Nesacaine®
  - **Amino-ester**, Normobaric
  - Preservative and anti-oxydant free
    (Na⁺ bisulfite)

- **Articaine**: 1970
  - Astracaine®, Ultracaine®
  - Amino-amide, Normobaric

- **Mepivacaine**: 1962
  - Carbocaine®, Scandicaine®
  - Amino-amide, Hyperbaric
  - **TNS**

- **Prilocaine**: 1965
  - Citanest
  - **Takipril® Prilotekal®**
  - Amino-amide, **Hyperbaric**

Förster Current Opinion Anesth. 2011
Transient neurologic symptoms (TNS) following spinal anaesthesia with lidocaine versus other local anaesthetics (Review)

Zaric D, Pace NL

16 Randomized controlled trials included (RCTs)
1467 patients
125 TNS

The main clinical question addressed by this review is whether lidocaine used for spinal anaesthesia causes symptoms of TNS more frequently than with other local anaesthetics. The answer to this question is: YES.
Alternatives

Forest plot of comparison: 1 Lidocaine versus other local anaesthetic, outcome: 1.1 Transient Neurologic Symptoms.

When mepivacaine is excluded
The Relative Risk of Lidocaine Induced TNS is: 7.31
Alternatives

Cousins Neural Blockade 3rd ed.

FIG. 4-2. Relation between pKa and onset of anesthesia (left side of figure) and relation between protein binding and duration of anesthesia (right side of figure).
Alternatives

Comparative Spinal Neurotoxicity of Prilocaine and Lidocaine

Tomomune Kishimoto, M.D.*, Andrew W. Bollen, D.V.M., M.D.,† Kenneth Drasner, M.D.‡

90 rats intrathecal perfusion through catheter  T. Yaksh model
Alternatives

Intrathecal Mepivacaine and Prilocaine Are Less Neurotoxic Than Lidocaine in a Rat Intrathecal Model

Tamie Takenami, M.D., Saburo Yagishita, M.D., Yoshihiro Nara, and Sumio Hoka, M.D.

All rats receiving 20% mepivacaine and 20% prilocaine could walk without limitation within 3 hours after the injections.

No rats receiving 20% lidocaine could walk even at 4 days after the injection.
Alternatives

**Transient Neurologic Symptoms after Spinal Anesthesia**

A Lower Incidence with Prilocaine and Bupivacaine than with Lidocaine

Karl F. Hampil, M.D.*, Sidone Heinzmann-Wiedmer, R.A.,† Igor Lugnbiel, M.D., Christoph Harms, M.D.,* Manfred Seeberger, M.D.,* Markus C. Schneider, M.D.,§ Kenneth Drasner, M.D.,†

Anesthesiology 1998; 88:629–33

<table>
<thead>
<tr>
<th>Incidence (%)</th>
<th>% (95% CI)</th>
<th>% 13%</th>
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<tbody>
<tr>
<td>Postoperative day 1 (95% CI)</td>
<td>(15–49%)</td>
<td>(0.1–17%)</td>
<td>(0–12%)</td>
</tr>
<tr>
<td>Postoperative day 2 (95% CI)</td>
<td>2 (12%)</td>
<td>1 (3%)</td>
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<tr>
<td>Postoperative day 3</td>
<td>0</td>
<td>0</td>
<td>1 (3%)</td>
</tr>
<tr>
<td>Postoperative day 4</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Postoperative day 5</td>
<td>0.75</td>
<td>5</td>
<td>NA</td>
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<tr>
<td>Maximum degree of discomfort induced by TNS (VAS)†</td>
<td>1–7</td>
<td>5</td>
<td>NA</td>
</tr>
<tr>
<td>Time of onset of TNS (min after regression of sensory block to 52)†</td>
<td>140 (30–770)</td>
<td>150</td>
<td>NA</td>
</tr>
<tr>
<td>Location</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buttocks</td>
<td>5 (17%)</td>
<td>1 (3%)</td>
<td>0</td>
</tr>
<tr>
<td>Thighs back</td>
<td>4 (13%)</td>
<td>1 (3%)</td>
<td>0</td>
</tr>
<tr>
<td>Thighs front</td>
<td>1 (3%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lower limbs</td>
<td>3 (10%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Localized pain at site of puncture</td>
<td>3 (10%)</td>
<td>5 (17%)</td>
<td>5 (17%)</td>
</tr>
</tbody>
</table>

**Incidence of Transient Neurologic Symptoms after Hyperbaric Subarachnoid Anesthesia with 5% Lidocaine and 5% Prilocaine**

Rafael Martinez-Bourio, M.D.,* Mikel Arzuaga, M.D.,* Jose M. Quintana, M.D.,† Luciano Aguillera, M.D., Ph.D.,‡ Javier Aguirre, M.D.,* José L. Sáez-Eguía, M.D.,* Antonio Arzuaga, M.D.*

Anesthesiology 1998; 88:624–8

Symptoms suggestive of TNs developed in four patients (4.1%) in the lidocaine group and in one patient (1%) in the prilocaine group (P = 0.2). There were no differences between patients with and without TNs.

2 groups of 30 patients
Absence of transient radicular irritation after 5000 spinal anaesthetics with prilocaine

Retrospective correspondance

In 1992, we changed to use plain 2% prilocaine at a dosage of approximately 1mg.kg\(^{-1}\)

Since then, approximately 5000 spinal anaesthetics using prilocaine have been performed in our institution

but no further cases of transient radicular irritation have been observed

W. König D. Ruzicic Anaesthesia 1997
District Hospital Aarberg. CH.
Neurological injuries can occur with every LA

TNS can occur with every LA

Incidence of neurological injuries and TNS is very low with hyperbaric prilocaine
Prilocaine

Amide
hyperbaric
Safe
Rapid onset
Short duration
Rare side effects

Summary

1965?
Unstable
Loss of safety
Loss of efficiency

Why a sudden interest?
Takipril-Priloketal seems stable at room temperature (3 years)

Additional actual factors
Duration of surgeries are constantly reduced
Economy: one day surgery represent 80% of hospitalizations (USA)
Social: patients ask for one day surgery

Is Prilocaine able to answer to these obligations?
IAAS 2009
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>30</td>
<td>100</td>
<td>34</td>
<td>50</td>
<td>36</td>
</tr>
<tr>
<td>Solution</td>
<td>7% in glucose 7.5%</td>
<td>5% in glucose</td>
<td>7% plain</td>
<td>2% plain</td>
<td>2% plain</td>
</tr>
<tr>
<td>Prilocaine (mg)</td>
<td>50</td>
<td>68.6 (9.7)</td>
<td>80</td>
<td>80</td>
<td>50</td>
</tr>
<tr>
<td>Assessment of sensory block</td>
<td>Cold sensation</td>
<td>Pupruck</td>
<td>Pupruck in 17 patients</td>
<td>Cold sensation</td>
<td>Cold sensation</td>
</tr>
<tr>
<td>Block height [median (range)]</td>
<td>T6 (T1–T10)</td>
<td>T10 (T5–T12)</td>
<td>T11 (T5–L3)</td>
<td>T10 (T12–T1)</td>
<td>T10 (C7–L2)</td>
</tr>
<tr>
<td>Time to two dermatome regression (median, range or mean, sd) (min)</td>
<td>—</td>
<td>—</td>
<td>127 (59)</td>
<td>123 (42)</td>
<td>56 (20–133)</td>
</tr>
<tr>
<td>Duration of motor block [mean (sd)] (min)</td>
<td>165 (37)</td>
<td>—</td>
<td>Time until onset of regression: 166 (45) (measured in 17 patients only)</td>
<td>197 (42)</td>
<td>184 (45)</td>
</tr>
<tr>
<td>Time to spontaneous voiding [mean (sd)] (min)</td>
<td>253 (55)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>227 (45)</td>
</tr>
<tr>
<td>TNS (number of patients)</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>
REGIONAL ANAESTHESIA

Plain articaine or prilocaine for spinal anaesthesia in day-case knee arthroscopy: a double-blind randomized trial

M. P. Hendriks1, C. J. M. de Weert1, M. M. J. Snoeck1, H. P. Hu2, M. A. L. Pluim3 and M. J. M. Gielen4

Table 2 Sensory and motor block evolution and time to spontaneous voiding after intrathecal injection of 50 mg (20 mg ml⁻¹) plain articaine or prilocaine. Data are presented as median (range) or mean (sd). *P<0.001

<table>
<thead>
<tr>
<th></th>
<th>Articaine</th>
<th>Prilocaine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puncture level</td>
<td>20/16</td>
<td>23/13</td>
</tr>
<tr>
<td>L1 sensory block obtained</td>
<td>36</td>
<td>35</td>
</tr>
<tr>
<td>Time to reach L1 sensory block (min)</td>
<td>2 (2–15)</td>
<td>2 (2–10)</td>
</tr>
<tr>
<td>Time to surgical block (min)</td>
<td>3 (2–15)</td>
<td>3 (2–15)</td>
</tr>
<tr>
<td>Maximal extension of sensory block</td>
<td>T10 (T3–L1)</td>
<td>T10 (C7–L2)</td>
</tr>
<tr>
<td>Time to maximal sensory block (min)</td>
<td>10 (2–43)</td>
<td>10 (2–40)</td>
</tr>
<tr>
<td>Time to two-dermatome regression (min)</td>
<td>61 (24–104)</td>
<td>56 (20–153)</td>
</tr>
<tr>
<td>Time to full motor recovery legs (min)</td>
<td>140 (33)</td>
<td>184 (45)*</td>
</tr>
<tr>
<td>Time to spontaneous voiding (min)</td>
<td>184 (39)</td>
<td>227 (45)*</td>
</tr>
</tbody>
</table>

Fig 1 Maximum extension of sensory block. Each circle represents one patient.
Prilocaine

Transient Neurologic Symptoms after Spinal Anesthesia
A Lower Incidence with Prilocaine and Bupivacaine than with Lidocaine

Table 3. Characteristics of Spinal Block

<table>
<thead>
<tr>
<th></th>
<th>2% Lidocaine (n = 30)</th>
<th>2% Prilocaine (n = 30)</th>
<th>0.5% Bupivacaine (n = 30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 mg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peak dermatomal level</td>
<td>Th6 (Th2–Th12)</td>
<td>Th6 (Th1–Th13)</td>
<td>Th5 (Th2–Th12)</td>
</tr>
<tr>
<td>(median range)</td>
<td>(2–4)</td>
<td>(1–4)</td>
<td>(1–4)</td>
</tr>
<tr>
<td>Motor blockade</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>(min) (range)</td>
<td>(76–190)</td>
<td>(66–213)</td>
<td>(85–230)</td>
</tr>
<tr>
<td>Time to sensory block to S2</td>
<td>127 ± 33</td>
<td>128 ± 38</td>
<td>172 ± 42*</td>
</tr>
<tr>
<td>(min) (range)</td>
<td>(75–190)</td>
<td>(66–213)</td>
<td>(85–230)</td>
</tr>
<tr>
<td>Time to ambulate</td>
<td>155 ± 40 (Bromage = 0)</td>
<td>155 ± 37</td>
<td>200 ± 48*</td>
</tr>
<tr>
<td>(min) (range)</td>
<td>(91–260)</td>
<td>(66–235)</td>
<td>(125–365)</td>
</tr>
<tr>
<td>Time to void</td>
<td>238 ± 57 (min) (range)</td>
<td>253 ± 55</td>
<td>299 ± 85*</td>
</tr>
<tr>
<td>(min) (range)</td>
<td>(125–420)</td>
<td>(138–405)</td>
<td>(150–465)</td>
</tr>
</tbody>
</table>

All times are calculated from the time of subarachnoid injection.
* P < 0.05, bupivacaine versus lidocaine and prilocaine.
Prilocaine

A Prospective, Double-Blinded, Randomized, Clinical Trial Comparing the Efficacy of 40 Mg and 60 Mg Hyperbaric 2% Prilocaine Versus 60 Mg Plain 2% Prilocaine for Intrathecal Anesthesia in Ambulatory Surgery

Claudio Camponovo, MD,* Andrea Fanelli, MD,† Daniela Ghisi, MD,† Daniela Cristina, MD,∗ and Guido Fanelli, MD†

Table 2. Efficacy Variables (Minutes) per Treatment: Onset of Motor Block (\(T_{mb}\)), Time to Maximum Level of Sensory Block (\(T_{sbMAX}\)), to Unassisted Ambulation Defined as Bromage’s Score = 0 (\(T_{mb} = 0\)), to End of Anesthesia Defined as Resolution of Sensory Block (\(T_{ea}\)), Time to Void (\(T_{uv}\)), and Time to Eligibility for Home Discharge (\(T_{hd}\))

<table>
<thead>
<tr>
<th>Treatment</th>
<th>(T_{mb})</th>
<th>(T_{sbMAX})</th>
<th>(T_{mb} = 0)</th>
<th>(T_{ea})</th>
<th>(T_{uv})</th>
<th>(T_{hd})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group hyperbaric 60</td>
<td>8 ± 3(^a)</td>
<td>18 ± 13(^a)</td>
<td>118 ± 37(^a)</td>
<td>132 ± 34(^a)</td>
<td>218 ± 56(^a)</td>
<td>256 ± 85</td>
</tr>
<tr>
<td>Group hyperbaric 40</td>
<td>8 ± 5(^a)</td>
<td>15 ± 7(^b)</td>
<td>92 ± 36(^b)</td>
<td>102 ± 35(^b)</td>
<td>195 ± 60(^b)</td>
<td>208 ± 68(^b)</td>
</tr>
<tr>
<td>Group plain 60</td>
<td>12 ± 5</td>
<td>25 ± 18</td>
<td>157 ± 41</td>
<td>103 ± 42</td>
<td>277 ± 85</td>
<td>299 ± 101</td>
</tr>
</tbody>
</table>

Values are mean ± SD. \(^a\) Hyperbaric\(_{60}\) versus plain\(_{60}\), level of significance: \(T_{mb}\) (\(p = 0.0091\)), \(T_{sbMAX}\) (\(p = 0.0297\)), \(T_{mb} = 0\) (\(p = 0.0004\)), \(T_{ea}\) (\(p = 0.0029\)), \(T_{uv}\) (\(p = 0.0013\)). \(^b\) Hyperbaric\(_{40}\) versus plain\(_{60}\), level of significance: \(T_{mb}\) (\(p = 0.0097\)), \(T_{sbMAX}\) (\(p = 0.0183\)), \(T_{mb} = 0\) (\(p < 0.0001\)), \(T_{ea}\) (\(p = 0.0002\)), \(T_{uv}\) (\(p = 0.0002\)), \(T_{hd}\) (\(p = 0.0004\)).
Prilocaine

Spinal anaesthesia for ambulatory arthroscopic surgery of the knee: a comparison of low-dose prilocaine and fentanyl with bupivacaine and fentanyl

A. S. Black¹*, G. N. Newcombe¹, J. L. Plummer¹, D. H. McLeod¹ and D. K. Martin²

20 mg HP-20 µg fentanyl vs 7.5 mg HB-20 µg fentanyl
21 prilocaine spinal injections: 21 arthroscopic knee surgeries

**Table 2** Median times (in minutes) for regression of sensory block to L4

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of subjects</th>
<th>Median time (95% confidence intervals)</th>
</tr>
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<tbody>
<tr>
<td>P</td>
<td>22</td>
<td>97 (90–115)</td>
</tr>
<tr>
<td>B</td>
<td>26</td>
<td>280 (207 – not computable)</td>
</tr>
</tbody>
</table>
Prilocaine

Urinary retention after spinal anaesthesia with hyperbaric prilocaine 2% in an ambulatory setting

60 mg

J. Kreutziger¹*, B. Frankenberger², T. J. Luger¹, S. Richard³ and S. Zbinden⁴

Fig 1 Study population.
Onset time

- Fast
- Median
- Slow

Duration

- Short
- Median
- Prolonged

Urinary retention

- Rare
- Median
- Frequent

TNS

- Rare
- Median
- Frequent

HP

Lidocaine

Bupivacaine

Based on symposium ESA 2012
Determiniation of the ED 90 of hyperbaric prilocaine for intrathecal anaesthesia in day case knee arthroscopy.
Determination of the ED 90 of hyperbaric prilocaine for intrathecal anaesthesia in day case knee arthroscopy.

Observational study 50 patients

Spinal anesthesia was performed with 40 mg of HP. This dose allowed the surgery for 46 patients.

Percentage of complete motor blocks Bromage III

Percentage of sensory block at T12 dermatome level.
The time to reach L1 dermatome level is 5 minutes
ED 90 Prilocaine

Determination of the ED 90 of hyperbaric prilocaine for intrathecal anaesthesia in day case knee arthroscopy.

Maximal extension of the sensory block
Determination of the ED 90 of hyperbaric prilocaine for intrathecal anaesthesia in day case knee arthroscopy.

Observational study 50 patients

<table>
<thead>
<tr>
<th></th>
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<th>DSB</th>
<th>TT</th>
<th>BS</th>
<th>DS</th>
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<tbody>
<tr>
<td>Mean</td>
<td>87,38</td>
<td>205,09</td>
<td>5</td>
<td>15,4</td>
<td>21</td>
</tr>
<tr>
<td>SD</td>
<td>23,92</td>
<td>36,14</td>
<td>2</td>
<td>3,9</td>
<td>8</td>
</tr>
</tbody>
</table>

**DMB**: duration of motor block (time to obtain a Bromage score of 0): **1H30**

**DSB** duration of sensory block (time to obtain the complete resolution of the sensory block): the patient is ready to leave hospital **3H00**

**TT**: time between the injection of HP and the inflation of the tourniquet: **5min**

**BS**: beginning of surgery **15 min**

**DS**: Duration of surgery ?
Determination of the ED 90 of hyperbaric prilocaine for intrathecal anaesthesia in day case knee arthroscopy.

88 Patients

- No hypotension
- No bradycardia
- No urinary retention
- No TNS
Determination of the ED 90 of hyperbaric prilocaine with 1µg sufentanil for intrathecal anaesthesia in day case knee arthroscopy.

No pruritus
No Urinary retention
Determination of the ED 90 of hyperbaric prilocaine with 1µg sufentanil for intrathecal anaesthesia in day case knee arthroscopy.

Observational study 30 patients
Determination of the ED 90 of hyperbaric prilocaine with 1µg sufentanil for intrathecal anaesthesia in day case knee arthroscopy.

Observational study 30 patients

Peak level of the sensory block: cold-test
Determination of the ED 90 of hyperbaric prilocaine with 1µg sufentanil for intrathecal anaesthesia in day case knee arthroscopy.

<table>
<thead>
<tr>
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<th>DSB</th>
<th>TT</th>
<th>BS</th>
<th>DS</th>
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<td>Moyenne</td>
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<td>169</td>
<td>9</td>
<td>19</td>
<td>17</td>
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<tr>
<td>Ecart-type</td>
<td>20,4</td>
<td>57,3</td>
<td>3,3</td>
<td>4,8</td>
<td>8,1</td>
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<table>
<thead>
<tr>
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<th>DSB</th>
<th>TT</th>
<th>BS</th>
<th>DS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
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<td>205,09</td>
<td>5</td>
<td>15,4</td>
<td>21</td>
</tr>
<tr>
<td>SD</td>
<td>23,92</td>
<td>36,14</td>
<td>2</td>
<td>3,9</td>
<td>8</td>
</tr>
</tbody>
</table>

**DMB:** duration of motor block (time to obtain a Bromage score of 0): **1H00**

**DSB** duration of sensory block (time to obtain the complete resolution of the sensory block): the patient is ready to leave hospital **< 3H00**

**TT:** time between the injection of HP and the inflation of the tourniquet: **9min**

**BS:** beginning of surgery **20 min**

**DS:** Duration of surgery ?
Determination of the ED 90 of hyperbaric prilocaine with 1µg sufentanil for intrathecal anaesthesia in day case knee arthroscopy.

55 Patients

No hypotension
No bradycardia
No urinary retention
No TNS
1 pruritus
Cases and recipies

Knee Arthroscopy: 40 mg
30 mg + 1µg sufentanil

Saphenectomy: 60 mg
48 mg + 3µg sufentanil

Uterin revision: 20 mg + 2.5µg sufentanil

Hysteroscopy, cystoscopy: 30-40 mg

Clou gamma, triple vissage: 40 mg
30 mg + 1µg sufentanil

Césarienne?

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**Prilocaine**

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*Acta Anaesthesiol Scand 2013; 57: 249–256*
Prilocaine vs Chloroprocaine?

<table>
<thead>
<tr>
<th>Type of operation</th>
<th>Procedure type</th>
<th>2-Chloroprocaine dose (mg)</th>
<th>Adjuvants</th>
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<tr>
<td>Orthopedic</td>
<td>Knee arthroscopy</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Biopsy/excision of lower</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Lower extremity mass</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
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<tr>
<td>General</td>
<td>Inguinal hernia repair</td>
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<td>Perirectal procedure</td>
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<td>Hysteroscopy</td>
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<tr>
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<td>Dilatation and curettage</td>
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<td>Cervical laser procedures</td>
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<tr>
<td>Genitourinary</td>
<td>Cystoscopy</td>
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<td>Transvaginal sling</td>
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<td>TURBT/TURP</td>
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<tr>
<td></td>
<td>Ureteroscopy</td>
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<td>Total</td>
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<td>85</td>
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TURBT = transurethral resection of bladder tumor; TURP = transurethral resection of prostate.

* Includes one patient with 10 µg of fentanyl.

† Includes one patient with 20 µg of fentanyl (all other patients who received fentanyl as an adjunct received 40 mg of chloroprocaine).

Anesth Analg 2004;99:553–8
Prilocaine vs Chloroprocaine?

There is a Place for Chloroprocaine AND Prilocaine

Fine-tuning spinal anesthesia

Patient

Surgery-Surgeon
Prilocaine vs Chloroprocaine?
Local evolution
Conclusion

Doses

Chloro-procaine NB: Fast

Prilocaine HB: Medium

Marcaine HB: Long

Adjuvants

Baricity-Positions

Indications
Conclusion

Surgeon
Local organization
Nurses

Anesthesiologists feel free to perform adapted spinal anesthesia

the right dose of the right drug in the right place

For the right surgery and with the right

(Editorial BJA 2005)
a comparative study of

PRILOCAINE AND MEPIVACAINE
IN LUMBAR PERIDURAL BLOCKS

ALBERT van STEENBERGE, M.D.
Wezembeek, Belgium

All patients who received 600 mg. of prilocaine showed clinical evidence of methemoglobinemia, with bluish lips and dusky fingernail beds. This became apparent within 40 minutes following the injection. No dyspnea, tachycardia, or hypotension accompanied this cyanosis, which disappeared spontaneously after 2 to 3 hours. As we could not determine the methemoglobin levels in blood or verify our diagnosis by spectrography, we took color slides of the patients 50 minutes after the 30-ml. injection of prilocaine and of mepivacaine, as proof of the cyanotic state after prilocaine. None of the cyanotic patients were aware of this situation, nor did they feel any other untoward effect.

Hyperbaric Prilocaine??

Thank you for your attention