Outcomes after spinal anesthesia in a tertiary care pediatric hospital: experience from the first 105 cases

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Methods

Inclusion criteria: All patients who underwent SA in our department between September 1st 2015 and October 15th 2016.

Primary outcome measure: Comparison of patients in which SA was successful to those in which spinal anesthesia failed. Success was defined as cases in which lumbar puncture (LP) and placement of the spinal were successful and conversion to general anesthesia (GA) was not necessary. Failure was defined as any case in which LP was not possible or conversion to GA was necessary.

Data collection: Demographic data, the local anesthetic (LA) and adjuvant(s) used, duration of surgery, the necessity of adding sedative agents or of converting to general anesthesia, perioperative complications and disposition at discharge.

Statistical analysis: Continuous data were compared using unpaired t-tests and categorical data were compared using Fisher’s exact tests.

Results

Table 1: Demographic data

<table>
<thead>
<tr>
<th>Gender</th>
<th>Spinal cases: N=105</th>
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</thead>
<tbody>
<tr>
<td>Male</td>
<td>104</td>
</tr>
<tr>
<td>Female</td>
<td>1</td>
</tr>
</tbody>
</table>

Average age (months): 7 ± 4 (range 19-24 months)
Average weight (kg): 8 ± 2 (range 3.5-11.7)

Success
Failure
N=93 (90%)
N=12 (10%)

No CSF was obtained
Secondary conversion to general anesthesia
- inability to place a peripheral IV
- incomplete motor block
- Agitation refusal to sedation
- Laryngospasm in the setting of URI

Patients received isobaric bupivacaine 0.5% 1 mg/kg (max dose in this cohort = 6 mg).
Clonidine added to the LA in 90/93 successful cases (97%).
Epinephrine 1:200,000 was used as an adjuvant to the LA in 25/93, while epinephrine wash was used in 60/93.

Table 2: Success/Failure of the spinal Anaesthesia

<table>
<thead>
<tr>
<th>Age (months)</th>
<th>Successful Group</th>
<th>Failed Group</th>
<th>P</th>
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<tr>
<td>7 ± 4</td>
<td>63</td>
<td>9.773</td>
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Duration of surgery (min):
Successful Group: 35 ± 17
Failed Group: 83 ± 34, p < 0.001

Inpatient admission:
Successful Group: 40/93
Failed Group: 3/12, p = 0.031

Eighteen patients in the successful group (19%) required supplemental sedation (dexmedetomidine ± fentanyl).
Two patients in the successful group developed postoperative complications (headache in one and CSF leak in another). Neither complication required intervention.

Discussion

Given concerns regarding the safety of GA in neonates, infants, and children, SA should be considered as an alternative to GA in appropriate cases.
In most cases, SA can be performed with little or no sedation.
The overall success rate of SA in the first year of our program was 89%, with an extremely low complication rate.
Successful LA allowed for earlier hospital discharge.

References


Acknowledgements

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