Title: A COMPARISON OF PROPOFOL WITH THIOPENTONE FOR INDUCTION OF ANESTHESIA IN UNPREMEDICATED CHILDREN.

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Introduction
Propofol ([D]-isopropylphenol) has been shown to possess attractive features such as lack of excitation and rapid recovery with minimal side effects. This makes it a useful induction agent for day-care surgical patients. The present randomized study was undertaken to compare propofol with thiopentone in unpremedicated healthy children, scheduled to undergo day-care surgery.

Methods
The study population consisted of 60 children, ASA 1, comprising 3 age groups of 20 children each: 1) 3-6 yr, 2) 6-10 yr and 3) 10-15 yr with a weight range of 13-23, 21-40 and 26-64 kg, respectively. Approval of the medical ethical committee and informed parental consent were obtained. There were 44 boys and 16 girls, the imbalance being due to the type of day-care surgery performed. Half the number of children of each age group were given propofol, the other half thiopentone. On arrival in the induction room baseline measurements of blood pressure, pulse rate and respiratory rate were taken. Noninvasive pulse oximetry (Biox 3700 Ohmeda) is part of our routine monitoring. Intravenous access was established mostly in the dorsal of the hand using a 22G or 20G cannula. An equipotent dose of either thiopentone (5 mg/kg) or propofol (2.5 mg/kg) was administered over 20 seconds. Blood pressure, respiratory rate and pulse rate were measured at 30 seconds, 60 seconds and 120 seconds. Pain on injection, excitatory effects and the breathing pattern were observed. Anesthesia was then continued with neuromuscular blockade, narcotics, regional analgesia or inhalational agents as appropriate for the type of surgery. All objective measurements and observations were made by an independent assessor.

Data were analyzed using Student's T-test and Chi-square analysis with Yates' correction for small numbers as appropriate. Data were considered significant when P reached < 0.05.

Results
Age, weight and gender of the patients were similar for the two medication groups as shown in table 1.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Thiopentone</th>
<th>Propofol</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of patients</td>
<td>10 10 10</td>
<td>10 10 10</td>
</tr>
<tr>
<td>Age (years)</td>
<td>3-5 6-9 10-15</td>
<td>3-5 6-9 10-15</td>
</tr>
<tr>
<td>Mean</td>
<td>5.0 8.3 11.9</td>
<td>5.0 8.3 11.9</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>14-23 21-38 28-64</td>
<td>13-20 24-40 34-64</td>
</tr>
<tr>
<td>Mean</td>
<td>17.9 28.6 41.7</td>
<td>18.5 28.6 41.7</td>
</tr>
<tr>
<td>Sex (M/F)</td>
<td>7/3 6/5 10/0</td>
<td>6/4 9/1 7/3</td>
</tr>
</tbody>
</table>

Patients with Excit. eff. 11(10%) 11(10%) 0 5(50%)* 3(30%)* 1(10%)*
Pain on Injection 0 0 0 2(20%)* 2(20%)* 2(20%)*
Apnea < 1' 5 7 7 3 5 6
Apnea > 1' 0 2 2 1 3 3

Excitatory effects occurred more in the propofol than in the thiopentone group and more so in the younger age group. Pain on injection was obvious and sometimes severe.

Discussion
Regardless of age, pain on injection occurred more frequently with propofol than with thiopentone. It was noted that pain did not present immediately upon injection but only after a short delay. The manufacturers of propofol recommend injection in a big vein, which poses problems in pediatric practice. Consequently the dorsum of the hand, being the preferred site of injection in our department, propofol is not the induction agent of choice in unpremedicated children.

Excitatory effects occurred more frequently with propofol than with thiopentone. A larger dose of propofol may be required to suppress these excitatory phenomena, especially in younger children. Further study is required to establish the proper induction dose of propofol in the various age groups.

References: