COMPARISON OF SEIZURE DURATION USING SUCCINYLCHOLINE VS. CISATRACURIUM IN ANESTHESIA DURING ECT IN PEDIATRIC

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Abstract
Background: Succinylcholine is commonly used as a muscle relaxant in patients who are candidates for receiving electroconvulsive therapy (ECT). Our objective was to compare the variations caused by two drug regimens of cisatracurium and succinylcholine on seizure duration during ECT. Hemodynamic values were also observed for probable alterations.

Methods: Consent was obtained from all legal guardians and the research was approved by the institutional ethics committee. The study was a randomized, double blinded clinical trial conducted on 64 patients, divided into two groups of 32 patients, using simple randomization method. The muscle relaxant cisatracurium was used in the first group and succinylcholine was used in the second group undergoing ECT. The durations of the tonic phase, clonic phase and seizure duration were compared in the two groups.

Findings: The mean duration of the tonic phase in the cisatracurium and succinylcholine groups were 6.87 ±1.98 and 27.37 ±4.99 seconds, respectively which was significantly shorter in the cisatracurium group(P=0.001). On the other hand, the mean duration of the clonic phase in the succinylcholine and cisatracurium groups were 15.78 ±5.96 and 29.84 ±6.55 seconds respectively, which was significantly shorter in the succinylcholine group (P=0.001).

Discussion: Although cisatracurium is considered a muscle relaxant with intermediate duration of action, its low dose administration in ECT is not only without any limitations, but may also be a more appropriate alternative to succinylcholine. On the other hand, if the duration of seizures is reduced in ECT, it may no longer be an effective treatment, and as a result, since cisatracurium increases the seizure duration, it could have better therapeutic effects in ECT and prevent undesirable complications of succinylcholine.

Key words: electroconvulsive therapy, tonic phase, clonic phase, cisatracurium, succinylcholine

References:
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Table 1 | Mean (SD), seizure duration, tonic phase, and clonic phase

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
<th>Dis (n = 32)</th>
<th>Suc (n = 32)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seizure duration (s)</td>
<td>36.7±6.09</td>
<td>27.3±4.99</td>
<td>&lt;0.001</td>
<td></td>
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<tr>
<td>Tonic phase (s)</td>
<td>6.87±1.98</td>
<td>11.59±3.47</td>
<td>&lt;0.001</td>
<td></td>
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<tr>
<td>Clonic phase (s)</td>
<td>29.84±6.55</td>
<td>15.78±5.96</td>
<td>&lt;0.001</td>
<td></td>
</tr>
</tbody>
</table>

*Independent t-test
S, second