

Mivacron in ear nose and throat pediatric day-surgery: a comparison vs. atracurium

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1. Introduction

Tonsillectomy and adenoidectomy are considered minor surgery and can be performed under local anesthetic. But these operations, when performed under local anesthesia in children can provoke psychological shock, because of the sight of the operating room and the medical staff. We operate under general anesthesia when the patient is a child, thus avoiding psychological trauma as well as the coercive immobilization manoeuvres necessary to safely manage the patient [1].

For these reasons the authors have studied and compared two non-depolarizing muscle relaxant drugs: the new drug mivacurium chloride (MIVACRON) and the classic atracurium besilate (TRACRIUM) in ear, nose and throat Pediatric Day Hospital Surgery. The most interesting features of these two drugs in a Day Hospital setting is their rapid onset time and their equally rapid recovery time [2]. Our aim was to evaluate the two drugs and to decide which was more suitable for use in Pediatric Day Hospital Surgery.

2. Methods

50 pediatric patients, 36 male and 14 female, aged from 4 to 12 years old, with mean weight of 33 ± 16 kg, that underwent tonsillectomy and/or adenoidectomy have been studied. The 50 patients were randomly assigned in two groups: G.A. (group atracurium) and G.M. (Group mivacurium) of 25 units each. Surgery mean time was 25 ± 5 min. The anaesthetic technique used was common in both groups: premedication with atropine 0.01 mg/kg and diazepam 0.15 mg/kg effectuated with thiopental (TPS) 4–5 mg/kg per i.v. way followed, per maintenance, from isoflourane 1% in

$O_2 + N_2O$ at 1:2 proportion. Neuromuscular blockade (NMB) was obtained, in G.A., with atracurium 0.5 mg/kg followed eventually by 0.05 mg/kg boli. In G.M. mivacurium chloride (MIVACRON) was utilized 0.2 mg/kg, in NaCl 0.9% at 1:1 proportion, infused in 30–40 s immediately before TPS and followed by 0.1 mg/kg boli per maintenance. The E.C.E.; H.R.; M.A.P.; T.O.F. 95 and 25–75% were monitored. Intubation, in the preoperative period, by Mallampati test and in induction of NMB by Cormack score and Wilson modified scale were evaluated. Two muscle relaxant drugs were administered during the maintenance period. The characteristics of intubation were evaluated by the anaesthetist using a four step score (excellent, very good, tolerable and difficult). The eventual phenomena of histamine release and side effects were recorded in both groups.

Female	14
Male	36
Age	4–12 years
Mean weight	33 ± 16 Kg

3. Results

All children showed Mallampati test of status I–II; in 43 patients (86%) the Cormack score was grade I and in 7 patients (14%) grade II. For all patients the Wilson modified scale was of A grade. In both groups, that were homogeneous, abduction of the vocal cords was very good/excellent for all patients and occurred in max 120 s with easy subsequent intubation. The vital parameters did not show variations due to muscle relaxant drugs and remained normal in all patients. The total consumption of MIVACRON, in maintenance period, was 2 boli in 7 patients (28%) and 3 boli in 11

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(44%), whereas in 7 younger patients (28%) the induction bolus alone was sufficient, since they were adapted to a mechanical ventilator and showed no activity because of the isoflourane NMB effect. In G.M., recovery occurred in a mean of 12 min from the last dose of the drug, whereas in G.A. mean recovery time was 45 min max from last dose. No further doses of the drug were necessary in G.A. because the inductive dose and the isoflourane were enough to maintain the N.M.B. effect. It should be emphasized that flushing due to histamine releasing occurred in 21 patients in G.A. (84%) whereas in no patients in G.M. no flushing occurred. After a maximum of 6 h from the end of surgery patients achieved complete psycho-aptitudinal recovery and were released. Total consumption of muscle relaxant drugs in boli after induction dose:

Mivacron	Atracurium
17 Pts (28%)	10 Pts (100%)
27 Pts (28%)	20 Pts (100%)
311 Pts (44%)	30 Pts (100%)

4. Conclusion

From the data obtained we can assert that, in O.R.L. Pediatric Day Surgery, the MIVACRON represents a significant pharmacological improvement. It allows us to effect general anaesthesia without the long postoperative period of surveillance which was necessary when other muscle relaxant drugs were utilized. Compared to atracurium, we prefer to utilize MIVACRON because it is more wieldy and especially, because it creates no phenomena of histamine release. Moreover, it should be emphasized, that likewise with atracurium, it is not necessary to utilize neostigmine to antagonize NMB. In conclusion, at present, MIVACRON represents the ideal choice for the NMB in O.R.L. Pediatric Day-Surgery.

References

- [1] Shorten G. *Anesthesiology* 1995;83:3A9.
- [2] Wierda JMHK. *Anaesthesia* 1995;50:393–396.