

Safety Comparison of Cisatracurium And Atracurium In Patients Undergoing General Anaesthesia

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Abstract: Non-depolarizing neuromuscular blocking agents like cisatracurium and atracurium differ in pharmacokinetic and pharmacodynamics parameters. **Aim:** To evaluate the safety profile and differences between cisatracurium and atracurium, widely used in adult patients for general anaesthesia. **Materials And Methods:** Adverse drug reactions (ADR) monitoring were performed. Regardless of the type of surgery, 80 patients were randomly divided into two equal groups to receive either cisatracurium or atracurium for general anaesthesia at Rajendra Institute of Medical Science, Ranchi, Jharkhand, India during Feb 2017 to Nov 2017. **Results:** There was no statistical difference in the ADR prevalence in both groups. The numbers of ADR within atracurium group was higher than cisatracurium group, but this distinction was not statistically significant. **Conclusions:** According to our study atracurium and cisatracurium had similar safety profile. In hemodynamic unstable patients the cisatracurium was the appropriate choice.

Keywords: Cisatracurium, Atracurium, General anaesthesia

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I. Introduction

Non-depolarizing NMB agents differ in the onset of action, duration of action, metabolic route, potency, adverse effects. Atracurium and Cisatracurium are two non-depolarizing NMB agents with intermediate duration of action. Cisatracurium is 3-4 times more potent than atracurium. Cisatracurium was associated with a less tendency to cause histamine release and has a longer onset time at equal doses as compared to atracurium. Hemodynamic instability is the most disadvantage of atracurium, particularly in patients with cardiovascular problems, neurosurgery patients and Intensive Care unit (ICU) patients. The main objective of this study is to Safety comparison of Cisatracurium and Atracurium in patients undergoing general

Table I. Sex distribution:

Gender	atracurium	cisatracurium	Total
Male	21	17	38
Female	24	18	42

II. Materials And Method

A prospective randomized study was designed to comparing adverse drug reactions (ADR) between two NMB agents (atracurium and cisatracurium) in patients undergoing elective surgery at Rajendra Institute of Medical Science, Ranchi, Jharkhand, India during Feb 2017 to Nov 2017 in 80 patients.

80 patients were randomly divided into two equal groups to receive either cisatracurium (0.15 mg/kg) or atracurium (0.6 mg/kg). General anaesthesia was induced with intravenous propofol 2 mg/kg and 1 mg/kg inj. butorphanol. Anaesthesia during surgery was maintained with isoflurane 1 to 1.5% and oxygen:nitrous oxide in 60:40 ratio. The patients were recovered from the block with administering neostigmine (50 mcg/kg) and atropine (15 mcg/kg). For each patient the ADR monitoring was performed and ADR form was completed.

III. Results

80 subjects were included in this study. The patients within two groups had similar demographic data. There was no significant difference in weight, age or gender in between the cisatracurium group and the atracurium group. The ADR findings related to NMB drugs are summarized in Table II.

Table II. Adverse drug reaction;

Adverse drug reaction	Atracurium	Cisatracurium
Bradycardia	2(5%)	0
Tachycardia	5(12.5%)	3(7.5%)
Hypertension	2(5%)	1(2.5%)
Hypotension	5(12.5%)	0
Flushing	2(5%)	0
Wheezing	2(5%)	1(2.5%)
Bronchial secretion	1(2.5%)	0
Bronchospasm	2(5%)	1(2.5%)
Erythema	6(15%)	4(10%)
Itching	1(2.5%)	0
Urticaria	4(10%)	1(2.5%)
Injection reaction	3(7.5%)	1(2.5%)

There was no statistical significant difference in the ADR prevalence in both groups. The numbers of ADR within atracurium group was higher than cisatracurium group, but this distinction was not statistically significant.

IV. Discussion

There are some important points when comparing two anesthetic drugs including adverse drug reactions, drug safety profiles. As it was mentioned before, safety profiles of both drugs are similar. Therefore, indirect effecting factors such as delayed recovery and treatment of adverse effects were negligible. Most anaesthetists at our Hospital believed that cisatracurium complications less than atracurium occurred. In this study, for both drugs, adverse drug reactions and drug safety profiles are the same. Differences between adverse reactions of these drugs, (atracurium and cisatracurium) statistically are negligible.

V. Conclusion

We recommend to analysis drugs cost respect to duration of anaesthesia in addition to other factors such as safety profile. According to our study it seems that atracurium and cisatracurium had similar safety profile. In patients with instability in hemodynamic parameters the cisatracurium was the appropriate choice.

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