



Severe anaphylactic reaction to atracurium

Amrita Gupta, Uma Srivastava, Avanish Saxena, Apurva Mittal, and Yogita Dwivedi

Department of Anesthesiology and Critical Care, S. N. Medical College, Agra, Uttar Pradesh, India
Correspondence to: Dr. Amrita Gupta, E-mail: amritagupta78@gmail.com

This is an open-access article distributed under the terms of the Creative Commons Attribution-Noncommercial-Share Alike 3.0 Unported, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Sir,

Anaphylaxis during general anesthesia is a rare event that can be frightening to deal with because of its severity and may lead to death even when appropriately treated.[1] We report a case of severe anaphylaxis following atracurium.

An 18-years-old female patient weighing 50 kg required emergency laparotomy for intestinal obstruction. She had no significant medical history, previous allergic reaction or asthma. Cardio respiratory examination revealed no abnormality. Abdomen was slightly distended with generalized tenderness. Pulse rate was 86/min, blood pressure was 130/80 mmHg, respiratory rate was 15/min and temperature was 37°C. Laboratory investigations including serum electrolytes, ECG and X-ray of chest were within normal limits. General anesthesia was planned. Patient was premedicated with glycopyrrolate 0.2 mg, midazolam 1 mg and fentanyl 100 µg. After 3 min of preoxygenation, rapid sequence induction was done using thiopental 250 mg and succinylcholine 75 mg intravenously. Endotracheal tube (PVC) of 7.5 mm diameter was inserted. Anesthesia was maintained with N₂O, O₂ and 1% halothane. About 15 min after giving thiopental and succinylcholine, intraoperative muscle relaxation was provided by atracurium (0.5 mg/kg). About 30 s after giving atracurium, manual ventilation of lungs became difficult and chest became silent with no audible sounds. Saturation dropped drastically from 99% to 50%, blood pressure dropped to 70/54 mmHg and pulse rate was 110/min. Generalized erythema appeared all over the body. Nitrous oxide and halothane were discontinued and we tried to ventilate the lungs with 100% oxygen. Despite increased intravenous fluids, systolic blood pressure further dropped to 50 mm Hg. Suspecting severe anaphylaxis due to atracurium, epinephrine 0.5 mg IM was given. The B.P. gradually responded and it increased to 84/55 mm Hg. Intravenous hydrocortisone (100 mg), and pheniramine (25 mg) was given and patient was nebulized with salbutamol 5 mg in 100% oxygen. Gradually, ventilation of lungs improved over 20 min. The SpO₂ improved to 98%, BP increased to 110/70 and pulse rate to 75/min. As it was an emergency case, surgery was carried out. During surgery, anesthesia was maintained with halothane, N₂O, O₂ and vecuronium. At the end of surgery, muscular blockade was antagonized with neostigmine 2.5 mg and glycopyrrolate 0.4 mg. The intraoperative period was uneventful and after endotracheal extubation the patient was shifted to ICU for observation. The patient was discharged on 10th post operative day without any further complications.

Anaphylactic reaction can range from mild reaction to severe anaphylactic shock and death.[2] Signs and symptoms include flushing, urticaria, hypotension, tachycardia, bronchospasm, cardiac arrest.[3] Neuro-muscular blocking agents, antibiotics and latex represent the most frequently involved substance in the perioperative period.[3] Reports of anaphylaxis due to thiopental are rare and occurs, immediately after administration of the drug. This patient presented with reaction about 15 min after thiopental and succinylcholine and immediately after atracurium. Hence atracurium was suspected to be the causal drug as antibiotics had not yet been given and the patient was intubated with P.V.C. tube. Causality analysis with Naranjo's scale was carried out giving a score of + 6 for atracurium.

Review of literature reveals few cases of reaction after atracurium.[4] Both these cases presented with urticaria, bronchospasm, hypotension, tachycardia and arterial desaturation within seconds after injection as seen in our patient.

Anaphylaxis to atracurium has been reported, but silent chest and impending cardiac arrest is a rare event. Epinephrine is the most useful drug as it is effective in both bronchospasm and cardiovascular collapse.[5] Anaphylactic reaction may take several hours to resolve and the patient must be closely observed and managed symptomatically until stable.[2] Antihistamines and corticosteroids are usually administered once the acute phase is over.[3] Every patient with suspected anaphylactic reaction during anesthesia should be investigated with skin pin prick test, radio immunoassays etc to identify the responsible drugs[3] because subsequent re-exposure can be disastrous.[5] As the facilities for these tests are unavailable at our institution, we could not carry out the tests; but the patient was provided with written instructions, so that if repeat anesthesia is required the use of atracurium can be avoided.

References

1. Florvaag E. Anaphylactic reactions during general anaesthesia. *New Horiz Allergy*. 2005;2:1–6.
2. Mertes PM, Laxenaire MC. Anaphylaxis during general anaesthesia. Prevention and management. *CNS Drugs*. 2000;14:115–33.
3. Mertes PM, Laxenaire MC. Allergy and anaphylaxis in anaesthesia. *Minerva Anaesthesiol*. 2004;70:285–91.
4. Siler JN, Mager JG. Atracurium: Hypotension, tachycardia and bronchospasm. *Anesthesiology*. 1985;62:645–6. [PubMed: 2581480]
5. Christopher M, Immanuel A, Cherian V, Jacob R. Anaphylaxis. *Update Anaesth*. 2000;14:1–3.

Articles from *Indian Journal of Pharmacology* are provided here courtesy of
Medknow Publications