SUMMARY

Since the introduction of suxamethonium by Thesleff and Foldes et al in 1952, it has been widely used, as a muscle relaxant of choice for facilitating tracheal intubation. But, its use is associated with various side effects, some of which are inconvenient while others may be potentially harmful. Provision of muscle relaxation for endotracheal intubation demands a relatively safer drug than suxamethonium, that can provide good intubating conditions as early as possible with minimal side effects and stable haemodynamic profile. Intermediate acting drugs like vecuronium and atracurium are, to a major extent, free from various side effects encountered with suxamethonium, however onset time is relatively longer as compared with that of suxamethonium. Rocuronium bromide, is a new non-depolarizing blocker, which fills the gap for an agent, with rapid onset while lacking the potentially adverse features associated with suxamethonium, retaining a medium duration of action and meeting most of the requirements of an ideal neuromuscular blocking agent.

The present study was aimed at evaluating the intubating conditions and cardiovascular effects of rocuronium and compare it with suxamethonium and vecuronium.

The study was conducted on 120 patients from different surgical specialities, scheduled for various elective surgeries under general anaesthesia. All the patients were subjected to a thorough preanaesthetic checkup and an informed and written consent was obtained. Patients were then divided randomly into three groups of forty each, on the basis of muscle relaxant used for tracheal intubation.
Group A - Received an intubating dose of rocuronium, 0.6 mg/kg

Group B - Received an intubating dose of suxamethonium, 1.5 mg/kg

Group C - Received an intubating dose of vecuronium, 0.08 mg/kg

All the patients were premedicated with 0.2 mg glycopyrrolate and anaesthesia was induced by thiopentone sodium 2.5%, 4-5 mg/kg given intravenously. After the abolition of eyelash reflex, intubating dose of respective muscle relaxant was used to facilitate tracheal intubation. The patients were then maintained on N₂O : O₂ mixture (66.6% & 33.3%) and intermitted injection of vecuronium. Analgesics and halothane were given intermittently as required. IPPV was given by Bain circuit.

The following parameters were observed:

1) Onset of action (assessed by onset of apnoea).

2) Intubating conditions –
   i) Laryngoscopy : Jaw relaxation
      Vocal cord position
      Vocal cord movement
   ii) Response to intubation – Coughing
      Limb movement

3) Cardiovascular response:
   Pulse rate, blood pressure and oxygen saturation (SpO₂) were recorded immediately after intubation and 10 minutes later.

4) Fasiculations

5) Duration of action, (assessed by the interval from onset of apnoea to the return of first respiratory effort)
On completion of the study and analysis of available data following conclusions were derived –

1) The demographic profile were comparable in all the three groups.

2) There was a definite rise in both the mean pulse rate and blood pressures (systolic and diastolic) just immediately after intubation which slowly settles after some time, otherwise, cardiovascular stability was well maintained throughout the procedure.

3) The oxygen saturation (SpO$_2$) was well maintained throughout the procedure.

4) Onset of action of rocuronium was slightly longer than suxamethonium but far shorter than vecuronium.

5) The duration of action of rocuronium was similar with that of vecuronium, but was much more longer than that of suxamethonium.

6) Fasiculations was absent with both rocuronium and vecuronium but was seen with suxamethonium.

7) Intubating conditions after rocuronium was comparable with that of suxamethonium, and it provided better intubating conditions than with vecuronium at shorter intubation time.

8) None of the patients developed complication of any type during the procedure.
It is thus concluded from the above study that rocuronium can very well substitute suxamethonium for tracheal intubation when a rapid return to spontaneous respiration is not desired. It thus fills the gap between suxamethonium and non-depolarizing neuromuscular blocking agents and is a step ahead in search for an ideal neuromuscular blocking drug.