



COMPARISON OF QUALITY OF REVERSAL BETWEEN I/V SUGAMMADEX AND NEOSTIGMINE -GLYCOPYROLATE MIXTURE, IN THE MORBIDLY OBESE - A PRELIMINARY STUDY

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ABSTRACT

Sugammadex is a selective binding agent specifically developed for rapid reversal of non- depolarizing neuromuscular blockade induced by Steroidal drugs, like rocuronium and vecuronium. Traditionally, Neostigmine has been used to reverse induced paralysis. Increased risk of residual paralysis further complicating patients having obstructive sleep apnea may lead to disastrous consequences, unless titrated carefully over a period of time.

KEYWORDS :

INTRODUCTION –

Sugammadex is a modified γ -cyclodextrin which forms tight complexes in a ratio 1:1 with steroidal neuromuscular blockers (Rocuronium > Vecuronium). It is used in dose of 2 mg/kg or 4 mg/kg or 16 mg/kg. it is stored between 15-30°C. When not protected from light, the vial should be used within 5 days. It is given as a Single rapid bolus i/v injection (within 10 seconds). There is no effect on acetylcholinesterases .

AIMS AND OBJECTIVES –

- To compare the two drugs as post operative reversal agents following GA in the morbidly obese patients.

MATERIALS AND METHODS -

Study design – retrospective case control study

Study centre: Mohak Hitech Speciality Hospital, Bariatric Unit

Study Duration: From March to October 2023

Sample size- Total sample size was 80 with 40 participants each in group A and group B

Selection of cases– Patients willing to give consent and fulfilling the following inclusion criteria –

- ASA grade II
- BMI > 30 kg/m²

Method of collection of data –

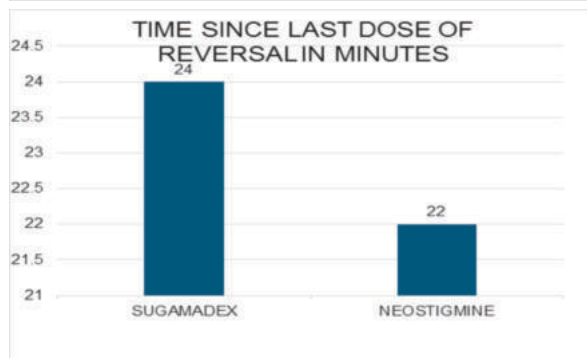
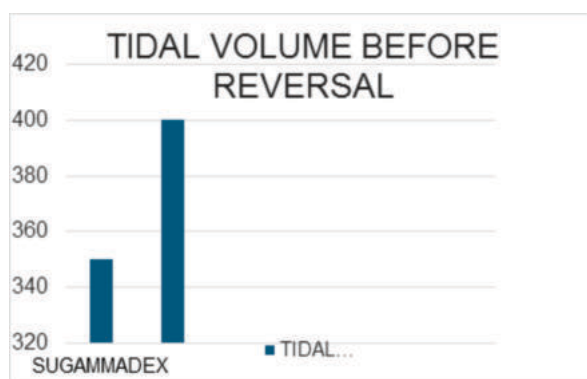
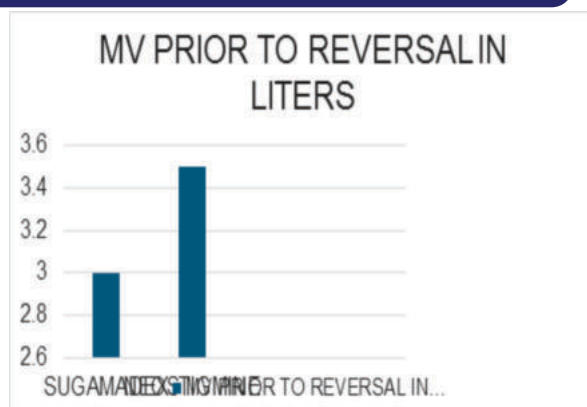
Patients undergoing laparoscopic Bariatric surgeries were included in the study, after obtaining clearance from the review board

Methodology –

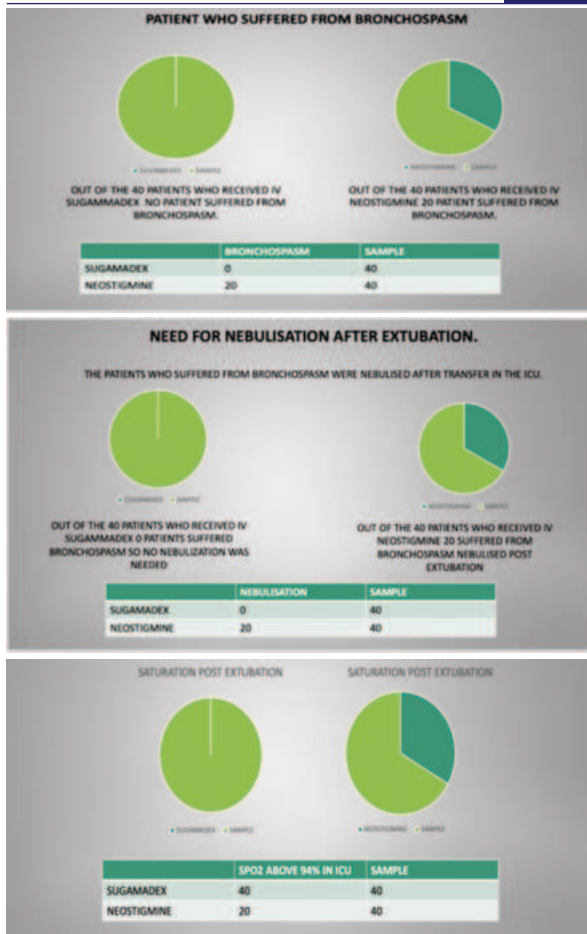
A pre-anaesthetic checkup was done. Special attention was given to the neck circumference, BMI and STOPBANG score. This helped in assessing the need for difficult bag and mask ventilation and difficult intubation.

- NBM of 8 hours prior to procedure
- I/V line was secured.
- Saturation probe, ECG leads and BP Cuff were attached.
- Drugs for General Anaesthesia were prepared as per ideal body weight.
- Inj Glycopyrolate (0.4 mg) Inj Propofol 2mg/kg Inj Vecuronium 0.1mg/kg or Inj Rocuronium 1.2 mg/kg as per ideal body weight were used for induction.

Statistical Analysis –



DISCUSSION:



CONCLUSION -

With the existing evidence base, we found that sugammadex use was associated with a faster time to recovery of TOF ≥ 0.9 compared to neostigmine, along with a reduced incidence of residual NMB and side effects such as pain, bradycardia, and PONV. Sugammadex was also associated with faster discharge from the PACU in our analysis.

REFERENCES-

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- A complete recovery of neuromuscular function is crucial to maintain a patent airway and adequate upper airway reflexes in MO patients because of their sometimes-borderline respiratory physiology and OSA.
- Post operative residual curarization(PORC), defined as residual paresis after emergence from general anaesthesia with neuromuscular blocking drugs, can occur in up to 41% of the general surgical population[1]
- PORC occurs more often in MO patients than in nonobese surgical populations (33% vs. 26%). Even a small degree of PORC increases the incidence of critical respiratory events such as acute respiratory failure.
- It increases the risk of aspiration due to impaired activity and coordination of the pharyngo-esophageal muscles. [2]
- Neostigmine and Sugammadex have different mechanisms of NMB reversal. Neostigmine acts by inactivating the enzyme acetyl cholinesterase in the neuromuscular junction, increasing the concentration of acetylcholine to displace rocuronium from the receptors. This indirect mechanism of competitive antagonism results in unpredictable and inadequate reversal of NMB and a risk of PORC[3]
- Johnson *et al.* found that patients reversed with Sugammadex had a significantly higher postoperative peak expiratory flow rate (PEFR) than those reversed with neostigmine & glycopyrrolate.
- Cardiovascular adverse events such as bradycardia and other cardiac arrhythmias occur more frequently with the use of neostigmine compared to sugammadex.[4]
- Castro *et al.* found that the use of sugammadex was associated with less pain in the PACU than neostigmine. This has huge implications in postoperative pain management due to its potential to reduce rescue opioids and associated respiratory and gastrointestinal adverse effects.