

# Apnoea caused by Glycopyrrolate as premedication; rare side effect

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## INTRODUCTION

Anaesthesia related central anticholinergic syndrome is most commonly associated with administration of atropine or scopolamine whereas glycopyrrolate is an extremely rare cause of central anticholinergic syndrome. Glycopyrrolate is a synthetic quaternary amine, it is available in oral, intramuscular and intravenous form. Glycopyrrolate when administered i.v. has an onset of action 2-3 minutes and duration of action of 30-60 minutes. It is poorly lipid soluble with minimal ability to cross blood brain barrier and produce CNS effects. Its elimination half life is 1.2 hours and nearly 80% of glycopyrrolate is excreted unchanged in urine. It is used mainly for premedication to reduce salivary, tracheobronchial and pharyngeal secretions and in combination with anticholinesterase drugs during pharmacologic antagonism of non-depolarizing neuromuscular blocking drugs. Side effects of glycopyrrolate are dry mouth, vomiting, mild constipation, stiffy nose and flushing. Respiratory arrest is not well known side effect. Here we describe two such cases in which glycopyrrolate caused apnoea and unconsciousness.

## CASE REPORT 1

56 year old male patient with suspected diagnosis of perforation peritonitis was planned for emergency exploratory laparotomy. Patient was conscious oriented with stable hemodynamics. Blood biochemistry and hemogram were normal. Chest X-Ray and ECG were in normal limits. Routine monitors were attached. I.V. access obtained with 18G cannula and RL drip started. Preoxygenation done with 100% oxygen. Premedication done with inj. Glycopyrrolate 0.2mg i.v. Patient started complaining of sudden chest pain and within 30 seconds, patient became apnoec. B.P.=150/98, PR-122/MIN, ECG – abnormal rhythm. Patient was then ventilated with bag and mask with 100% oxygen during that apnea period that lasts for 10 minutes. Patient started taking spontaneous respiration after 10 minutes and regained consciousness after 15 minutes. B.P. -130/90 PR-102/min, ECG-returns to normal sinus rhythm. Patient was observed for 30 minutes on table and surgery was postponed for that time.

## CASE REPORT 2

Case of young female patient of ASA grade 1 was posted for PCNL. Routine investigations were within normal limits. Routine monitors were attached. I.V. line secured and preoxygenation done with 100% oxygen for 3 minutes. On giving inj. Glycopyrrolate 0.2mg i.v., patient became unconscious and apnoec within five minutes. Patient was then ventilated with bag and mask with 100% oxygen and was observed on o.t. table. Patient regained consciousness and started breathing after 20 minutes. Surgery was postponed for a later date after discussion with the surgeons.

## DISCUSSION AND CONCLUSION

Glycopyrrolate is commonly used for premedication for its antisialogogue action. It reduces salivary, tracheobronchial and pharyngeal secretions. Glycopyrrolate injection can produce certain adverse effects, most of which are extensions of their pharmacologic actions, and respiratory arrest is one of them though very uncommon. There are studies, conducted by ehealth Me showing that out of 673 subjects who received glycopyrrolate 13(1.92%) had respiratory arrest. In another study the possibility of injecting odansetron causing respiratory arrest was shown. In this study out of 2832 subjects, 30(1.06%) had respiratory arrest but all the cases were associated with bradycardia. In the present case, patient became apnoec and there was an increase in heart rate from baseline following glycopyrrolate injection strongly suggests glycopyrrolate being

the cause of respiratory arrest. The possibility of accidental injection of neuromuscular blocking agents causing respiratory arrest was ruled out by rechecking the ampoules that were used. Genetic factors also play a major role in determining host response to certain drug.

Thus we conclude that glycopyrrolate is most likely to be the cause of respiratory arrest in these cases and anaesthesiologists should be aware of this life threatening adverse effect and need to be more cautious while administering this drug.

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