

Emergency anaesthetic management of a severely anaemic, chronic schizophrenic patient with history of neuroleptic malignant syndrome

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ABSTRACT

Administering anaesthesia to a patient with chronic schizophrenia is a challenge due to the increased risk of various perioperative complications. Neuroleptic agents are highly effective drugs used for the treatment of psychiatric disorders, but are rarely associated with neuroleptic malignant syndrome (NMS). Here, we describe the successful anaesthetic management of a patient of chronic schizophrenia with past history of NMS who presented in emergency with active bleeding per rectum and haemoglobin of 3 gm%.

Key words: Anaemia, anaesthesia, Neuroleptic malignant syndrome, schizophrenia

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INTRODUCTION

Schizophrenia, the most common psychotic disorder accounting for approximately 20% of all mental illnesses, is characterised by thought disorders, delusions and hallucinations.^[1] Drugs used for the treatment of schizophrenia include neuroleptic drugs, which are dopamine receptor blockers.

Neuroleptic malignant syndrome (NMS) is a relatively rare but potentially fatal complication of neuroleptic drugs. NMS is caused by dopamine depletion or dopamine receptor blockade, which results in abnormal central thermoregulation and muscle rigidity.^[2]

We describe the anaesthetic management of a case of catatonic schizophrenia with past history of NMS who presented in emergency with active bleeding per rectum and haemoglobin of 3 gm%.

CASE REPORT

A 44-year-old male with history of bleeding per rectum since the previous night was admitted to the surgical ward with stable vital parameters. He was diagnosed with catatonic schizophrenic 6 years ago and had a history of NMS following start of treatment with antipsychotic drugs, which had been managed symptomatically then. Presently, he was taking tablet ziprasidone 20 mg TDS (atypical antipsychotic and a serotonin–dopamine blocker).

He was agitated, uncooperative and violent when approached by any personnel, making all examination impossible. On restraining, it was possible to draw a venous blood sample for haemoglobin estimation and blood grouping, cross-matching. No other blood tests were performed. Haemoglobin was 3 gm%. On referral in view of violence, the psychiatrist was unable to increase the dose of antipsychotic medications or add any newer medication due to past history of NMS.

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However, due to critically low haemoglobin, he had to be taken up for surgery on an emergency basis to determine the aetiology of the active bleeding per rectum and further management.

After confirming nil by mouth status, informed written ASA Grade III consent was taken from his relatives, with cross-matched blood ready. Despite his agitation, the patient was coaxed into the operation theatre and made to lie on the operating table. He was unwilling for any procedure, including the attachment of monitors, and insisted on lying prone. Anaesthesia was induced in that position, with a mixture of oxygen–nitrous oxide–sevoflurane, with a hand on pulse. Following induction, he was made supine and monitors were attached for pulse rate, blood pressure, electrocardiogram, oxygen saturation and end tidal carbon dioxide (ETCO₂). Two 20G intravenous access lines were secured on both upper extremities. Whole blood transfusion was started along with maintenance fluids. Inj. pentazocine 30 mg, midazolam 2.5 mg and ondansetron 8 mg were given intravenously (IV). Anaesthesia was maintained with oxygen–nitrous oxide–sevoflurane mixture, spontaneous with intermittent assisted ventilation, using Magill's circuit. On per rectal examination, there was a large bleeding haemorrhoid, which was tackled surgically. The entire procedure took 35 min, with no untoward events intraoperatively. Inj. diclofenac 75 mg intravenous provided postoperative analgesia.

In the recovery room, oxygen was supplied with Hudson's mask, when he woke up to an agitated state and pulled out one IV line and had to be sedated with intravenous diazepam in titrated doses till a total of 10 mg diazepam, to gradually calm him down. Blood transfusion was continued. The patient was discharged 4 days later, after uneventful postoperative period.

DISCUSSION

Administering anaesthesia to schizophrenics poses a great challenge because of impaired biological response to stress and increased risk for medical illnesses involving the cardiovascular and respiratory system, and diabetes mellitus.^[1]

Preoperatively, anaesthetists may be confronted with difficulties in patient communication similar to that experienced by us. Concomitant medical conditions associated with chronic schizophrenics and interaction between antipsychotics and anaesthetics have to

be kept in mind, as drugs used for the treatment of schizophrenia include neuroleptics like dopamine receptor blockers.

An unusual, lethal side-effect of these antipsychotics is NMS, characterised by an acute increase in body temperature, muscle rigidity and autonomic nervous system instability. Prevalence is between 0.02 and 2.4%.^[3] Our patient had one such episode 6 years ago. NMS is supposedly caused by dopamine depletion or dopamine receptor blockade in the hypothalamus, nigrostriatal and spinal pathways. The dopamine depletion theory is supported by a case reported by Henderson and Wooten 30 years ago about a patient who had never been on neuroleptics, who developed NMS when L-dopa/carbidopa were withdrawn abruptly.^[4] This has also been proven by the fact that dopamine agonists like bromocriptine and amantidine have shown efficacy in NMS treatment.^[5]

NMS was first described by Delay and colleagues in 1960^[6] after the introduction of neuroleptics into medical practice. They called it "akinetic hypertonic syndrome". A differential diagnosis to NMS is a clinically similar condition called malignant hyperthermia (MH). These two entities have a common pathophysiology, and the possibility of patients with a history of NMS developing MH should be considered, especially when administering general anaesthesia.^[7,8] Drugs to be avoided include droperidol, succinylcholine, prochlorperazine, promethazine and metoclopramide.

We employed the technique of inhalational induction to overcome the patient's lack of cooperation. Studies have shown that isoflurane or sevoflurane is not associated with hypotension, arrhythmias or seizures, and is safe.

Patients on antipsychotics often have increased heart rate and risk of hypotension due to increasing age and individual sensitivity to anaesthetics. Keeping this in mind, we adjusted the anaesthetic dose judiciously according to his response. Adverse responses during anaesthesia to be borne in mind include arrhythmias, hypotension, hyperpyrexia, prolonged narcosis, coma, postoperative paralytic ileus and postoperative confusion.^[1]

These patients have higher pain thresholds^[9] due to hypofunctioning N-methyl D-aspartate (NMDA)

receptors, with abnormal immune system, pituitary–adrenal–autonomic dysfunction and risk of water intoxication.

Postoperatively, pain is an important risk factor for postoperative confusion; hence, controlling inflammatory cytokines, norepinephrine and cortisol levels during and after anaesthesia is important. Laposta *et al.* noted that agitated delirium in schizophrenics is associated with sudden death.^[10] Chute *et al.* speculated that the etiology of this sudden death may be due to an agitated mental state resulting in imbalances between sympathetic and parasympathetic discharge.^[11] Hence, it is imperative to avoid postoperative confusion and agitation with judicious use of benzodiazepines.

CONCLUSION

Chronic schizophrenics are at increased risk for developing various perioperative complications; hence, prevention becomes important for the clinician. Neuroleptics are effective medications with widespread use in medicine and psychiatry, but with associations with NMS in about 0.2% of the patients. We have presented the successful anaesthetic management of a chronic schizophrenic with history of NMS in emergency.

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