

# Anaesthetic Management of a Patient with Parkinsonism Posted for Cataract Surgery: A Case Report

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## Case Report

**Abstract:** Parkinson's disease is degenerative disease of CNS caused by loss of dopaminergic fibres in basal ganglia of brain. Typical clinical features are secondary to depletion of dopamine from basal ganglia. There is increase in spontaneous movements, cog-wheel rigidity of extremities, rhythmic tremors at rest, seborrhoea, sialorrhoea, diaphragmatic spasm, oculogyric crisis, mental depression and bladder dysfunction. Autonomic dysfunction is common as manifest as oesophageal dysfunction (prone for aspiration) and orthostatic hypotension. L-dopa and Carbidopa combination is the most common available treatment for Parkinsonism. Postoperatively these patients may develop confusion. Therefore anaesthetic management is challenging.

**Key words:** Parkinsonism, Propofol, Cataract

## Introduction

Parkinsonism is a syndrome characterised by tremor, bradykinesia, rigidity and postural instability. The aetiology of Parkinson's disease is unknown, but Parkinsonism may be precipitated by drugs (eg: neuroleptic agents) or be post traumatic/postencephalitic. Parkinsonism is due to imbalance of the mutually antagonistic dopaminergic and cholinergic systems of the basal ganglia. Pigmented cells in the substantia nigra are lost, leading to reduced dopaminergic activity and there is no reduction in cholinergic activity. Drug therapy of Parkinsonism is aimed at restoring this balance by either increasing dopamine or dopamine-like activity or reducing cholinergic activity within the brain. Drug therapy in Parkinsonism is limited by severe side effects (nausea and confusion), especially in the elderly and up to 20% of patients will remain unresponsive to drug therapy.<sup>[1]</sup> L-dopa is an inactive form of dopamine, which is converted by decarboxylases to dopamine within the brain. It is more useful in patients with bradykinesia than tremor and is usually administered with decarboxylase inhibitors (eg: carbidopa) that do not cross into the brain, reducing peripheral conversion into dopamine. Other drugs used in treatment of parkinsonism are Monoamine oxidase B (MAO-B) inhibitors (eg: selegiline), Ergot derivatives (eg: bromocriptine, cabergoline), entacapone and anticholinergic drugs (eg:

benzotropine, procyclidine)<sup>[1,2]</sup> Anaesthesia in a case of Parkinsonism is challenging because of sialorrhoea, postural hypotension, Drug induced arrhythmias, respiratory function compromised by bradykinesia and muscle rigidity, confusion, depression and hallucinations.<sup>[1]</sup>

## Case Report

A 68 years old female, suffering from Parkinson's disease was scheduled for cataract surgery. She was on regular treatment with levodopa. She had resting tremors of upper limbs and neck and she had excessive salivation (sialorrhoea). She had history of angioplasty done 5 years back. She was also a known diabetic since 25 years on regular treatment with insulin, Fasting BSL on the morning of surgery was 199mg/dl. Her blood urea and serum creatinine values were 33 and 2mg/dl respectively. Her 2.D ECHO was suggestive of Ischemic heart disease (Inferior wall hypokinesia) with ejection fraction 50%. Levodopa was continued on the day of surgery. She was premedicated with glycopyrolate 0.2mg and ondansetron 4mg. Peribulbar block was given with plain lignocaine by the operating surgeon. Cataract surgery of Right eye, was done under conscious sedation with propofol and monitored anaesthesia care. Her peri-operative period was uneventful. Such patients should not be refused surgery because improved vision will lead on to increased physical activity and a better social life. Conscious sedation with propofol is a simple and effective technique. Such patients may have difficulty in hearing as well. Hence, sedation should not lead to communication gap with the patient. Our patient was sedated with 20mg propofol but was arousable on verbal stimuli. Heavy sedation may cause tongue to fall back that may lead to respiratory respiration. This can be easily managed by introduction of oral airway. However, in our patient sedation was just adequate with no tongue fall. There was no hypotension during the intraoperative period. Inadequate sedation may also lead to enhancement of

involuntary movements. Oxygen supplementation was given by nasal prongs under the drapes.

### Discussion

L-dopa was continued on the day of surgery as its half life is very short. Distressing symptoms may develop as little as 3 hours after a missed dose and acute withdrawal of drugs may precipitate neuroleptic malignant syndrome<sup>[1]</sup> Side effects of L-dopa include depletion of myocardial norepinephrine stores, peripheral vasoconstriction, hypovolemia and orthostatic hypotension<sup>[3]</sup> Our patient was premedicated with Glycopyrolate to overcome the risk of aspiration due to excess salivation and ondansetron to avoid perioperative nausea and vomiting. Atropine can also be used but it was not given to avoid tachycardia. Prochlorperazine, metoclopramide are avoided as it can produce extrapyramidal side effects or worsen Parkinsonism symptoms.<sup>[1]</sup> Plain local anaesthetic solution without adrenaline (Lignocaine) was used for peribulbar block as adrenaline can sensitise the heart for arrhythmias.<sup>[2]</sup> Propofol has numerous advantages, viz. clear-headed recovery with no residual sedation, anti-emetic effect, short duration of action and easy titration of dose. The hemodynamic effects of propofol viz. decrease in heart rate, blood pressure, respiratory rate and tidal volume can be minimized by decreasing the dose by half in geriatric patients<sup>[4]</sup>, as we did in our patient. However, some prefer midazolam to propofol because of better preservation of respiratory and hemodynamic function. Midazolam causes both sedation and amnesia but with longer dissipation of its effects when infusions are terminated. Superiority of one drug over other has not been established. Both agents should always be titrated downward to maintain sedation as required.<sup>[5]</sup>

Fentanyl should not be used in higher doses as it can aggravate already present muscle rigidity. Ketamine, Halothane are avoided as the former causes central nervous system excitation and later can produce L-dopa induced cardiac arrhythmias.<sup>[2]</sup> There was no incidence of hypotension in this case but relative hypovolemia, catecholamine depletion and autonomic instability can cause hypotension in these patients. They can be treated with small doses of direct acting Vasopressors like phenylephrine.

### Conclusion

Geriatric patients suffering from dementia and involuntary movements should not be deprived of cataract surgery. Cataract surgery can be safely conducted under monitored anaesthesia care and conscious sedation with propofol or midazolam. It brings new rays of light and better hopes from life.

### References

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