

## Bentall Procedure in a Patient with Parkinson Disease

The Editor,

A 65-year-old male weighing 60 kg presented with chest pain for 1 week. He was a known hypertensive and diabetic for past 19 years, and suffering from Parkinson disease (PD) for past 5 years. Echocardiography and computed tomography scan of the chest revealed acute Type 1 aortic dissection and moderate ventricular dysfunction. The patient was on tablet telmisartan, metoprolol, ramipril, glimepiride, syndopa plus (carbidopa 25 mg and levodopa 100 mg), trihexyphenidyl, and clonazepam. Pulmonary function test could not be done because of acuteness of the condition. His attendants were explained about the possibility of hemodynamic instability and additional neurological problems during the postoperative (PO) period due to the PD and levodopa therapy.

He was asked to continue all the drugs on the morning of surgery except telmisartan, ramipril, and glimepiride. Injection ranitidine and ondansetron was given 1 h before surgery. The patient was induced with intravenous (IV) glycopyrrolate 0.2 mg, fentanyl 5 µg/kg, etomidate 0.3 mg/kg, and rocuronium 0.06 mg/kg. Anesthesia was maintained with continuous infusion of dexmedetomidine and atracurium bromide. The intraoperative monitoring as well as cardiopulmonary bypass (CPB) techniques were similar to that of any other patients undergoing Bentall procedure. The patient was weaned off from CPB with nitroglycerine 0.5 µg/kg/min, dobutamine 10 µg/kg/min, and adrenaline 0.05 µg/kg/min. Echocardiography revealed normal prosthetic valve function, mild left ventricular dysfunction, and no regional wall motion abnormality. He had several episodes of atrial fibrillation leading to hemodynamic instability which was managed with bolus dose of esmolol followed by amiodarone infusion. PD medications were restarted once he shifted to Intensive Care Unit. On PO day 1, he developed exaggerated Parkinson tremors in the limbs for which syndopa CR and pramipexole were added to the therapy. Analgesia was managed with IV fentanyl during the first 24 h and IV paracetamol and tramadol thereafter. Gradual wean off from the ventilator was started after 24 h, and he was extubated on the 6<sup>th</sup> PO day. He remained drowsy, developed some delusions and hallucinations which were intense till day 15 and subsided gradually by day 19. He was discharged on 21<sup>st</sup> PO day.

### Discussion

The authors describe a case of PD who underwent Bentall procedure which is a challenging one with major anesthesia concerns. This will be the first kind of such case described in English literature.

PD is a neurodegenerative disease occurs due to the destruction of dopamine-containing nerve cells in the substantia nigra of basal ganglia causing an imbalance of acetylcholine and dopamine. It is characterized by hypokinesia, rigidity, tremor, and shuffling gait.<sup>[1]</sup> Autonomic dysfunction is an important concern in PD more so in the perioperative period. It can lead to sialorrhea which needs anticholinergic premedication. We preferred glycopyrrolate as it does not cross blood brain barrier hence no interaction with levodopa. Orthostatic hypotension and exaggerated changes in blood pressure (BP) lead to severe hemodynamic instability.<sup>[2,3]</sup> We preferred etomidate and midazolam as the anesthetic agent of choice because both these drugs does not interact with levodopa to produce any adverse effect. Hypotension is exaggerated and poorly tolerated in PD patients, especially in long-standing hypertensive in whom cerebral autoregulation would be shifted to the right. Meticulous control of BP was warranted and achieved by titrated infusion of vasodilator and vasoconstrictor. The recurrent arrhythmias which are common in these patients with use of catecholamines were prevented with timely use of esmolol and amiodarone.

PD patients have increased the risk of aspiration pneumonia due to the presence of restrictive airway that is further aggravated by chest wall rigidity. Our ventilator strategy mainly aimed at improving the compliance, recruitment of collapsed alveoli, improving functional residual capacity, preventing ventilator-associated pneumonia, maintaining adequate oxygenation, and preventing barotraumas at the same time. Pressure control mode was employed to achieve tidal volume of 6–8 ml/kg, and peak end-expiratory pressure was applied. The patient was started on empirical antibiotics, nursed in propped up position, and intensive chest physiotherapy was given. Prolonged opioid therapy was avoided to prevent chest wall rigidity. These patients have increased the tendency of gastric stasis and gastroesophageal reflux for which preoperative acid aspiration prophylaxis as well as ondansetron was given.

Exaggerated neuropsychiatric symptoms have been well documented in patients with PD undergoing general surgery.<sup>[3]</sup> We too experienced similar problem which was again a challenging diagnostic issue because cerebral complications are not uncommon in aortic surgery patients. In spite of routine and timely PD medication during the PO period, we need to add additional drug therapy to control the symptoms. Strict monitoring of glucose levels and insulin infusion was started in PO period to prevent wound infection and worsening of neurological injury if present.

## Summary and Conclusion

PD patient undergoing Bentall procedure requires a holistic management approach with coordination between treating physician, cardiac anesthesiologist, surgeon, and attending nursing staff. One should be prepared for prolonged ventilator support and long duration of stay in ICU due to related complications.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

**Nanditha Sreedhar, Minati Choudhury,  
K Pradeep, V Devagourou**

*Cardiothoracic Sciences Centre, AIIMS, New Delhi, India*


*Address for correspondence: Dr. Minati Choudhury,  
Department of Cardiac Anaesthesia, Cardiothoracic and Neuro  
Sciences Center, AIIMS, New Delhi, India.  
E-mail: minatichoudhury2002@yahoo.co.in*

## References

1. Kalenka A, Schwarz A. Anaesthesia and Parkinson's disease: How to manage with new therapies? *Curr Opin Anaesthesiol* 2009;22:419-24.

2. Roizen MF, Fleisher LA. Anesthetic implications of concurrent diseases. In: Miller RD, editor. *Miller's Anaesthesia*. 7<sup>th</sup> ed. New York: Churchill-Livingstone; 2010. p. 1167-70.
3. Pérez-Vela JL, Ramos-González A, López-Almodóvar LF, Renes-Carreño E, Escribá-Bárcena A, Rubio-Regidor M, *et al*. Neurologic complications in the immediate postoperative period after cardiac surgery. Role of brain magnetic resonance imaging. *Rev Esp Cardiol* 2005;58:1014-21.

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

Access this article online	
<b>Quick Response Code:</b> 	<b>Website:</b> <a href="http://www.annals.in">www.annals.in</a>
	<b>DOI:</b> 10.4103/aca.ACA_82_17

**How to cite this article:** Sreedhar N, Choudhury M, Pradeep K, Devagourou V. Bentall procedure in a patient with parkinson disease. *Ann Card Anaesth* 2017;20:383-4.

© 2017 Annals of Cardiac Anaesthesia | Published by Wolters Kluwer - Medknow