CASE REPORT

Parkinson's Disease – An Unusual Case of Prolonged Invasive Home Ventilation

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ABSTRACT

Parkinson's disease is a neurodegenerative disorder characterized by muscle rigidity, tremor, slowing or loss of physical movement. The impact of the disease is indicated by the fact that mortality is two to five times as high among affected persons as among age matched controls resulting in reduction in life expectancy. Amongst the motor dysfunction, swallowing disturbances can lead to drooling and impaired ability to swallow. These could cause aspiration pneumonia and death. We report a case of prolonged invasive home ventilation. Patient needs four hours of ventilation a day and uses Passy Muir Valve PMV 2000 for speech. JMS 2013;16(2):97-98

Keywords: Invasive Home Ventilation, Parkinson's disease, Tracheotomy

INTRODUCTION

Parkinson's disease is a neurodegenerative disorder that impairs the sufferer's motor skills and speech.¹ Parkinson's disease (PD) named after English physician James Parkinson, is characterized by tremor, rigidity, bradykinesia or akinesia. Age is the single most consistent risk factor. Mortality is two to five times higher among affected persons as compared to age matched controls.² Motor dysfunction with impaired swallowing can cause aspiration pneumonia and death. We present a case of prolonged invasive home ventilation in a patient of PD for more than 18 months. In absence of a favorable outcome, this has huge financial and social implications.

CASE REPORT

60 years old woman with Parkinson's disease for last 15 years was admitted in July 2007 with complaints of breathlessness and fever with chills for three days. She was being treated with a combination of levodopa, carbidopa and ropinirole. On examination, she was conscious, pulse rate was 100/min and blood pressure was 120/70 mmHg.

She had shallow breathing, few crepitations were present at lung bases. On neurological examination she had bradykinesia and increased muscle tone. Cranial nerve function was intact. Sensory and cerebellar functions were intact. Chest X Ray revealed haziness in both bases. Arterial Blood Gas analysis revealed type II respiratory failure. A diagnosis of Parkinson's disease with sepsis due to aspiration pneumonia was made.

Patient's Glasgow Coma Scale Score dropped to 3/15. Patient was shifted to the Intensive Care Unit (ICU), ventilated with Synchronized Intermittent Mandatory Ventilation mode, and sedated with midazolam and morphine. Antibiotics (ceftriaxone, azithromycin, moxifloxacin) were started. Nasogastric (NG) tube, an indwelling arterial and a right internal jugular venous triple lumen catheter were put in. NG tube feeding, antacid prophylaxis and thrombo - prophylaxis was started. Baseline investigations were unremarkable, and Thyroid Function Tests were normal.

Tracheostomy was performed under general anesthesia. Patient was weaned off to Pressure Support Ventilation (PSV) and Continuous Positive Airway Pressure (CPAP) mode. PS was gradually reduced and oxygen enriched air was given. She would need PSV and CPAP for 2 – 4 hours during night. NG tube, central line and urinary catheter were removed. Patient was given normal diet, was ambulatory

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with support and maintained oxyhemoglobin saturation of 92% on room air. She had no cough reflex. Patient could speak using Passy Muir speaking valve. The relatives bought a ventilator and other necessary equipment to look after her at home. She was shifted home after approximately 150 days in ICU. January 2009, the patient continues to be on invasive home ventilation. She needs four hours of assistance during the night. She is brought to the ICU once a month for changing the tracheostomy tube.

DISCUSSION

Amongst the motor dysfunction in PD, impaired ability to swallow can cause choking and aspiration pneumonia that can lead to death. Ventilation in PD is impaired due to reduction in maximum voluntary ventilation, mid expiratory flow rate and forced expiratory volume in one second³. Impairment in ventilation was reported in 87% patients with PD⁴. Airway obstruction may be present in PD due to increased parasympathetic tone⁵. The defect in ventilation in PD appears to be due to rigidity and weakness of respiratory muscles⁶. The results of a prospective study indicated that the central neural mechanism subserving the recruitment of motor units during voluntary and reflex cough are impaired in patients with PD⁷. Impairment in the control of the epiglottic, laryngeal, and pharyngeal musculature lead to disordered swallowing⁸, making these patients silent aspirators and in combination with defective motor control of coughing, highly susceptible to aspiration pneumonia. This has been described as the most common cause of death in PD⁹.

Our patient presented to the hospital with respiratory failure secondary to aspiration pneumonia. Although she was resuscitated and ventilated in ICU, she never could cough out secretions from the respiratory tract. This led to unsuccessful attempts to wean her off the mechanical ventilation. She occupied a bed in ICU for five months leading at times to cancellation of routine cardiac and neurosurgical procedures. The relatives came to our rescue who arranged equipment and manpower support to shift her home. Invasive home ventilation without a favorable outcome has huge financial and social implications, causing

a drain on resources of the family as well as psycho-social problems in looking after such a patient at home. We request the readers to comment on the pros and cons of this case and critically comment on our decision to ventilate such a patient. Since euthanasia is not practiced in most countries in the world, would denial of respiratory support to such a patient be accepted or after prior counseling of the relatives, should "Do Not Resuscitate" orders have been in place?

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