

Case Report

Psychosocial Aspects of Post-Infectious Bronchiolitis Obliterans and the Impact on Academic Survival

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Abstract— Post-infectious bronchiolitis obliterans (PIBO) is a chronic lung disease involving fibrosis and obstruction of the terminal bronchioles. Possible infective aetiologies are commonly adenovirus, respiratory syncytial virus (RSV), influenza, and parainfluenza virus. A 25-year-old student was diagnosed with this condition in infancy and is dependent on 24-hour oxygen for the last 12 years. He was planning on pursuing a law degree in a local public institution. Due to the rarity of this chronic and debilitating illness, the physician attending his check-up must decide on the factors that could affect his academic survival or performance. However, this was overcome with careful risk-benefit considerations and support from family, peers, and physicians. This case highlights the psychosocial aspect to be considered that could impact the academic survival of such a case.

Keywords— Bronchiolitis obliterans, chronic lung disease, education, university, student.

I. INTRODUCTION

Post-infectious bronchiolitis obliterans (PIBO) is a relatively rare and chronic obstructive irreversible disease, which causes narrowing and fibrosis of the lower respiratory tract, usually occurring at the age of less than three [1], [2]. The most common aetiology is the Human adenovirus, among other microorganisms, including *Mycoplasma pneumoniae*, *respiratory syncytial virus*, parainfluenza, and influenza viruses [3] - [5].

This severe childhood disease has limited guidelines to refer to, and many physicians are not familiar with its existence [6]. Most PIBO patients have a poor outlook on survival. Usually,

there is no effective treatment other than supportive therapy such as regular inhaled corticosteroids, bronchodilators, antibiotics, and oxygen [2].

Due to the rarity of the disease, doctors do not frequently encounter such cases for medical check-ups to enter tertiary education. This case report discusses the psychosocial factors to be considered that could impact the academic survival of such a case as an extension of his medical check-up visit. It also highlights the challenges physicians could face in their decision-making for student enrolment into university.

II. CASE SUMMARY

A 25-year-old male student with underlying PIBO was seen for a check-up for enrolment into a university. He was diagnosed with severe adenovirus pneumonia at 15 months old. During this time, he was admitted to the paediatric intensive care unit (PICU) and subjected to prolonged ventilation (23 days). A diagnosis of bronchiolitis obliterans was made due to the lung fibrosis secondary to adenovirus infection. He was admitted twice to PICU, with several ward admissions during his childhood life due to recurrent exacerbations and lung infections. His developmental milestones and cognition were at par with other siblings, while performance at school was average.

He was initially prescribed night-time oxygen during primary school. However, this was changed to 24-hours oxygen due to deteriorating lung function at 13-years-old. It was not easy in the beginning as he had to bring his portable oxygen to school. In addition, he was worried about becoming a bully victim and what others perceived of him and his disease. Fortunately, he was treated well by teachers and friends. Soon after, he adapted to the situation and completed secondary school and another two years of a college education. His current oxygen dose is continuous for 24-hours, but he tries not to be too dependent on the oxygen, especially when he is not exerting himself. On exertion, however, he could tolerate climbing 1 to 2 flights of stairs with an oxygen supplement.

Despite this chronic condition, his family had always supported and encouraged him to pursue his ambition to become a Syariah lawyer. He is the youngest of three siblings and lives with his mother. Socially, he is actively involved as a mosque committee member in his neighbourhood. He is independent in terms of his activities of daily living, and he can also drive a car to run errands and go to class.

He was devastated when two of his close friends succumbed to chronic lung conditions such as PIBO and cystic fibrosis in the last few years. Thus, he thought about whether his death was near and how he could survive without his close friends. However, on further assessment, there were no persistent low mood or anxiety symptoms, no fear of losing control, no excessive worry, or other symptoms to suggest any mood disorders. His current medications are inhaled ipratropium bromide TDS and budesonide/formoterol BD. In addition, he had received both pneumococcal and yearly influenza injections according to primary team advice.

On examination, he was pink, thinly built, with a respiratory rate of 24 breaths per minute on 3 litres (L) portable oxygen. He was speaking in full sentences without breathing difficulties, and there was no wheezing heard during the consultation. His blood pressure was 128/80 mmHg with a pulse rate of 88 beats per minute. There was mild peripheral cyanosis and grade 3 finger clubbing. There was no central cyanosis. Lymph nodes were not palpable, while his oxygen saturation was 99% on 3L oxygen. Auscultation of the lungs revealed equal air entry bilaterally, with fine crepitations of bilateral lung bases. No prolonged expiratory phase was heard. Other systems were unremarkable.

Opportunistic mental state examination (MSE) showed a bright young man who appeared motivated and strong-willed. He donned a well-kempt attire. His mood was congruent with affect, while his speech was coherent with normal tone. There

were no signs of suicidal ideations or psychosis noted. However, the depression, anxiety, stress score 21 (DASS-21) revealed a high anxiety score of 22, with normal stress and depression scores. Urine dipstick test, urine for drugs, and vision test (aided) were normal. Chest x-ray showed hyperinflated lungs with fibrotic changes in the lung bases. Other records such as blood investigations, lung function tests, and CT scan were not retrieved from the primary team in a tertiary hospital, as he still has regular follow-ups.

Considering his problem and psychosocial circumstances, he was motivated to pursue his studies in Syariah Law. He was deemed suitable to be enrolled into the university but has to comply with the oxygen prescribed in the form of portable oxygen. He was advised to avoid moderate to strenuous physical activities to prevent exacerbation of his chronic lung condition. In addition, he was scheduled for a routine follow-up with the treating physician in between his primary team for early detection of any psychiatric illness.

With subsequent follow-ups, mental state examination was done objectively to look out for any mood disorders. The contingency plan was to initiate treatment (both pharmacological and non-pharmacological) and consider referral to a psychiatrist if needed. He did encounter one episode of a panic attack during the end semester exam where he felt he had needed higher concentration oxygen. However, this was resolved with treatment at the university clinic. He was taught breathing techniques and what to do during a panic attack. The faculty dean was alerted to discuss the flow of such a panic situation in the future. In anticipation of future difficulties, the Students' Affairs Division was contacted to arrange amenities such as a unique parking space to accommodate his limit in exertion. The university clinic was reminded about his condition and to be ready for any emergencies. Subsequently, there were no more similar episodes.

III. DISCUSSION

For a local university enrolment medical check-up, only basic investigations are usually required, such as urine dipstick and urine for drugs, including basic chest x-ray after gaining history and clinical examination. If at this stage, further investigations are required, the attending physician will perform an examination accordingly. In this case, further investigation was not done as he was already under regular follow-up in a tertiary centre for his condition. He was also not in any exacerbation. Emotional component is usually asked as a screening question. However, in this case, following the complexity of the case, a mental state assessment was opportunistically done.

Globally, the prevalence of college students diagnosed with chronic illness ranges from 20 to 30 % [7][8]. Having a chronic respiratory disease poses a greater risk of mental health comorbidity [9]. Notably, the peak of onset age of mental illnesses is either in adolescence or early adulthood [10], [11]. The combination of early adulthood and PIBO to a certain extent, as in this case, could lead to mood disorders, deliberate self-harm, bipolar disorders, and psychosis.

In addition, at this age, he had encountered several adjustments [12]. He has to face educational, emotional, and social adjustments abreast his condition. The educational adjustment of coping with the syllabus, academic performance,

and relationship with his lecturers initially imposed difficulty. Similarly, his social adjustment in dealing with peer relationships and the university environment may contribute to emotional and adjustment disturbances.

Hence, it was appropriate that his psychosocial circumstance was addressed from the very first visit. Because of the high anxiety score, there was a need to consider the diagnosis of any anxiety disorder or panic disorder. However, based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), the definition of anxiety disorder or panic disorder were not fulfilled by his symptoms [13]. Factors like duration and frequency of symptoms, excessive anxiety, fear of losing control that have to be present over months were all not present. However, regular follow-up for early identification of illness is crucial because he is at high risk of developing such a condition, affecting his academic survival.

Academic survival depends on an individual's self-survival skill. This is in turn, related to individual strength and resilience [14]. In this case, despite the challenges, he persisted in continuing his degree with support from his family, surrounding peers in the university, and the physician. Further arrangements made with the Students' Affairs Division and his faculty to accommodate anticipated emergencies were timely.

There is a lack of literature focusing on PIBO and its direct implications on academic survival, especially in higher learning. One study on students' college experience with chronic illnesses revealed that male students with chronic disease might be at a higher risk for college adjustment problems [15]. This is likely due to more personal-emotional distress in comparison to healthy males. In addition, the study also reveals that students with chronic illnesses prefer validation of their experiences and prefer to have an on-campus social support group for their voices to be heard. Another study compared the loneliness score and health-related quality of life (HRQoL) of healthy students to students with chronic illness. Results showed that students with chronic disease had higher loneliness scores and lower HRQoL scores [16]. The involvement of counsellors and on-campus support groups for students with chronic illness would be beneficial.

In this case, because the patient is male and suffers from a chronic illness, he is at a higher risk of college adjustment problems, that could lead to poor academic survival. Regular follow-up with the attending physician is one way to prevent or detect any psychological distress. The option of referral to a counsellor was also left open. Furthermore, in our local setting, a deficiency in addressing the psychosocial issues of such rare diseases highlights the need for more structured guidelines. Despite that, considering the four medical ethics pillars, i.e., beneficence, non-maleficence, justice, and autonomy, the patient was deemed suitable and safe to be enrolled into the university at that time, with subsequent action to control the environment.

IV. CONCLUSION

Post-infectious bronchiolitis obliterans (PIBO) is a chronic condition that may be short-lived. However, those who survive till adulthood deserve the right to receive education. Hence, physicians need to be aware of the consequence and identify the physical disabilities compounded by the lung condition and psychological challenges that such patients may encounter.

Providing extra support from the university is equally essential for a safe and better comfortable environment.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest in the publication process of this paper.

CONSENT TO PARTICIPATE

Written informed consent was obtained from the patient for publication of this case report.

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