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Chest Infections

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FIRST CASE OF COVID-19 COMPLICATED WITH BURKHOLDERIA CEPACIA PNEUMONIA AND BACTEREMIA

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INTRODUCTION: Burkholderia cepacia complex (B. Cepacia), an obligate aerobic gram-negative rod, is frequently isolated in immunocompromised hosts, notably those with cystic fibrosis or chronic granulomatous disease. It is associated with accelerated decline in pulmonary function, especially in those with advanced lung disease or lung transplant, and higher mortality in these patients [1]. Here, we present a case of B. Cepacia in an immunocompetent patient with COVID-19. B. Cepacia in COVID-19 has not yet been reported in the medical literature.

CASE PRESENTATION: A 51-year-old female with a past medical history of diabetes mellitus type II, hypertension, and hypothyroidism was admitted to the medical intensive care unit for acute hypoxic respiratory failure requiring intubation and mechanical ventilation. Patient was found to be COVID-19 positive. She continued to spike fevers and her white blood cell count continued to rise, as high as 36.6/mm³ with a neutrophilic predominance, suggesting a superimposed bacterial infection. Respiratory culture was repeated 4 days into the patient's hospital stay and B. Cepacia was isolated. Patient then developed B. Cepacia bacteremia secondary to pneumonia. She completed a 2-week course of linezolid and meropenem, followed by a course of ceftazidime. However, she remained ventilator dependent for approximately 8 weeks and continued to have bilateral infiltrates on chest x-ray so a decision was made to perform bronchoscopy with bronchoalveolar lavage (BAL) in order to facilitate ventilator weaning. BAL fluid culture grew B. cepacia once again, however with increased resistance this time, so the patient was initiated on minocycline. Two consecutive repeat COVID-19 tests were found to be negative however she still remains on a mechanical ventilator.

DISCUSSION: Our case highlights that B. cepacia may complicate COVID-19 even in immunocompetent patients. To our knowledge, this is the first reported case of B. cepacia pneumonia in a patient with COVID-19. However, infections caused by B. cepacia should be taken into consideration because of their high mortality in ICU settings. The combination of 2 or more antibiotics usually is recommended for the treatment of B. cepacia infections. B. Cepacia is intrinsically resistant to antipseudomonal penicillins, aminoglycosides and polymyxin B thus determining antimicrobial susceptibility is crucial [2].

CONCLUSIONS: Early diagnosis and aggressive treatment of patients with confirmed B. cepacia sepsis is critical to increase the probability of survival.

Reference #1: Chaparro C, Maurer J, Gutierrez C, et al. Infection with Burkholderia cepacia in cystic fibrosis: outcome following lung transplantation. *Am J Respir Crit Care Med.* 2001;163(1):43-48. doi:10.1164/ajrccm.163.1.9811076

Reference #2: Rhodes, K. A., & Schweizer, H. P. (2016). Antibiotic resistance in Burkholderia species. *Drug resistance updates: reviews and commentaries in antimicrobial and anticancer chemotherapy*, 28, 82–90. <https://doi.org/10.1016/j.drug.2016.07.003>

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