

Lactobacillus Bacteremia in a Critically Ill Patient

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Abstract Lactobacilli are normal commensal bacteria of human. They can cause fatal infections in an immunocompromised host. We present a case of an immunocompromised patient with stage IV non-small cell lung cancer receiving Nivolumab who had high grade lactobacillus bacteremia and fungal blood stream infection.

Keywords: *lactobacilli, Nivolumab, lactobacillus acidophilus*

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1. Introduction

Lactobacilli (LB) are gram positive-rods and are normal commensal flora of the oral cavity, gastrointestinal and female genitourinary tract [1]. LB rarely causes diseases in immunocompetent patients but can cause serious infections in the setting of immunosuppression, particularly in hematologic malignancies, solid tumors, and transplant recipient [2,3,4]. Several lactobacillus species have been identified, Lactobacillus rhamnosus and Lactobacillus casei are among the most common species. Chemotherapy can affect the gastrointestinal mucosal barrier and concurrent tissue hypo-perfusion from sepsis can lead to translocation of normal commensal flora causing serious infections including endocarditis, pneumonia, abscess, and peritonitis [5,6]. We present a case of an immunocompromised patient who had high grade lactobacillus bacteremia associated with fungemia.

2. Case Presentation

A 62-year-old Caucasian male with a history of stage IV non-small cell lung cancer (NSCLC) on active treatment with Nivolumab presented with the complaint of shortness of breath, generalized weakness, and fatigue. His last immunotherapy was 2 weeks prior to presentation. He was found to be hypotensive, tachycardic and hypoxic at presentation. Physical examination was unremarkable except for coarse breath sounds, CT scan of the chest showed left lower lobe consolidation. He was treated with IV fluids and broad-spectrum antibiotics with Vancomycin and Piperacillin-Tazobactam as per sepsis protocol initially but eventually required vasopressor support. Two sets of blood cultures yielded Lactobacillus acidophilus. Infectious Disease (ID) specialist was consulted and recommended to continue Vancomycin and discontinue Piperacillin-Tazobactam Based on culture and susceptibility.

Subsequent blood cultures showed evidence of eradication of Lactobacillus by day 4, but then on day 5, repeat blood cultures started to grow yeast for which micafungin was added. CT scan of the abdomen was obtained to evaluate colitis as a possible source of lactobacillus bacteremia and was negative. The patient denied the use of probiotics. Transthoracic echo was ordered to rule out infective endocarditis, however, the patient declined further investigations and treatment and elected for comfort care measures only. His clinical status continued to decline and he passed away on the 7th day of hospitalization.

3. Discussion

Our patient had multiple risk factors for LB bacteremia, He had stage IV NSCLC on immunotherapy, and was critically ill with septic shock. The likely source of infection is gut translocation due to tissue hypo-perfusion. The most common isolated organisms are Lactobacillus casei and Lactobacillus rhamnosus [7]. Our patient had LB Acidophilus associated with fungal infection. LB are often found to have antimicrobial resistance, this poses a challenge of appropriate treatment [8,9,10]. Probiotics containing LB are used to help prevent clostridium difficile in patients taking antibiotics, our patient did not consume probiotics prior to hospitalization or during his hospital stay.

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