Periodontal Maintenance in a Patient with a Lung Transplantation Post-COVID-19 Infection

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KEYWORDS

• Periodontal maintenance • Lung transplant • Immunosuppression • COVID-19

KEY POINTS

- It is generally recommended that no elective dental care be performed for the first 3 to 6 months following solid organ transplantation.
- The need for antibiotic coverage before dental treatment among lung transplant patients should be made on a case-by-case basis in consultation with the patient's transplant team.
- Immunosuppressive agents can cause gingival hyperplasia, mask dental infections, cause poor or delayed healing, increase the occurrence of viral and fungal infections, and increase the risk of developing cancers of the oral cavity. Careful inspection of the oral cavity should be done at every dental visit.

MEDICAL SCENARIO

A 52-year-old man presents for periodontal maintenance. His medical history is significant for a bilateral lung transplant performed 8 months ago because of respiratory failure secondary to COVID-19 infection. Medications include mycophenolate, cyclosporine, prednisone, acyclovir, inhaled amphotericin B, and albuterol. He had been getting regular periodontal treatment every 6 months before his illness. His last dental visit was more than 2 years ago, and he reports that his gums bleed when he brushes. On examination, there is supragingival and subgingival calculus present on multiple teeth with pockets ranging from 3 to 7 mm. The treatment plan consists of 4 quadrants of deep scaling and root planing with local anesthesia and extraction of #30 secondary

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to bone loss. Vital signs today are 140/82 with a pulse of 78, regular rate and rhythm. His oxygen saturation via pulse oximetry is 97% on room air. He has no known drug allergies. He does not miss any doses of his medications.

DENTAL MANAGEMENT DECISION AND JUSTIFICATION

Early dental screening and treatment before and after solid organ transplantation are recommended infection prophylaxis measures. However, current medical guidelines are lacking, and there are no specific recommendations for dental treatment *after* lung transplantation.[1] The oral cavity contains more than 700 different strains of bacteria, which can be spread by swallowing, aspiration into the lungs, or through injuries to the oral mucosa resulting in bacteremia.[2,3] Increased amounts of bacteria in the oral cavity and periodontitis have been associated with higher rates of pneumonia, a common complication after lung transplantation.[4] Reducing plaque burden and the administration of antibiotics are 2 strategies to reduce the risk of bacteremia among posttransplant patients.[3] Despite the pathophysiological basis for these recommendations, there are no evidence-based guidelines. To date, there is only one published study focused on oral health among lung transplant patients *after* transplantation.[1] Findings from this study revealed a higher rate of current and previous caries exposure and a lower degree of caries restoration, inconsistent oral hygiene behaviors, a lack of knowledge and education about oral health recommendations such as antibiotic prophylaxis for dental care.[1]

Although evidence-based data are lacking on the impact of pretransplant dental evaluation on posttransplant infections, most transplant centers require patients to have a dental screening before solid organ transplant. Pretransplant evaluation of the patient should focus on the identification and removal of any potential sources of infection. Discussion with the patient's health-care provider should include a discussion about whether the patient is systemically stable enough to undergo dental treatment. In some cases, delaying extensive dental treatment until posttransplant is advisable. Patients who can tolerate treatment should receive care targeted at stabilizing sites of active dental disease. This may include the placement of temporary restorations or the use of chemo-mechanical agents and atraumatic restorative treatment. Potential sources of acute or chronic infection should be evaluated including partially impacted third molars and the removal of any nonrestorable teeth. Periodontal evaluation and through dental prophylaxis should be performed. Oral hygiene instruction including the importance of maintaining excellent oral health posttransplant should be reviewed.[5]

Treatment after transplantation should only be rendered after discussion with the patient's health-care provider and/or transplant surgeon to determine the patient's status. It is generally recommended that no elective dental care be performed for the first 3 to 6 months following the transplant because the patient's immune system is often significantly suppressed in the weeks to months following the transplant to prevent organ rejection.[6,7] Once the transplant patient has stabilized, they can be treated in the dental office with proper precautions. Evidence supporting the use of antibiotic coverage among patients with solid organ transplants before dental treatment is limited.[5–7] The need for antibiotic coverage before dental treatment should be made on a case-by-case basis and the patient's transplant team consulted regarding type, dose, and timing of the antibiotic. All new dental disease should be addressed, and patients should receive routine oral examinations and dental cleanings every 3 to 6 months with an emphasis on maintaining good oral health. Immunosuppressive agents can cause gingival hyperplasia, mask dental infections, cause poor or delayed

healing, and increase the occurrence of viral and fungal infections. The long-term use of immunosuppressive drugs also increases the risk of developing cancers, including cancers of the oral cavity. Careful inspection of the oral cavity should be done at every dental visit. Depending on the immunosuppressive medications, it may be prudent to review a recent complete blood count with differential and comprehensive metabolic panel to ensure adequate immune, hepatic, and renal function.

CLINICS CARE POINTS

- Close communication and coordination with the patient's transplant team is essential.
- Careful inspection of the oral cavity should be done at every dental visit.
- Patients should be closely monitored during and after dental procedures for any signs of infection, such as fever, pain, or swelling.
- The importance of routone dental visits and excellent oral hygiene should be stressed.

DISCLOSURE

Neither author has any conflicts of interest to disclose.

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