

HOSPITAL PHYSICIAN®

INFECTIOUS DISEASES BOARD REVIEW MANUAL

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The *Hospital Physician Infectious Diseases Board Review Manual* is a study guide for fellows and practicing physicians preparing for board examinations in infectious diseases. Each manual reviews a topic essential to current practice in the subspecialty of infectious diseases.

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Prevention and Management of Infections in Solid Organ Transplantation

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Prevention and Management of Infections in Solid Organ Transplantation

Gopi Patel, MD, and Shirish Huprikar, MD

INTRODUCTION

Infection is a feared complication of solid organ transplantation and the source of significant posttransplant morbidity and mortality. Transplant patients are at risk for not only community-acquired and health care-associated infections but also reactivation of opportunistic latent and endemic infections. The risk for infection in solid organ transplant recipients depends on the time of presentation, pathogen exposure, and the intensity of immunosuppression. The net state of immunosuppression is based on a combination of factors that include the immunosuppressant medications, underlying chronic and immunocompromising conditions, and infections with immunomodulatory viruses such as cytomegalovirus (CMV).

PRETRANSPLANT CONSIDERATIONS

RECIPIENT

Transplant candidates warrant assessment for occult and latent infections prior to organ transplantation (Table).^{1,2} A thorough pretransplant evaluation can prevent some potentially serious complications after transplant. All potential recipients should be tested for latent tuberculosis, HIV, syphilis, hepatitis A virus, hepatitis B virus (HBV), and hepatitis C virus (HCV). Heart transplant candidates should receive serologic evaluation for prior *Toxoplasma* infection. Serologic testing for latent infection with herpes simplex virus (HSV), Epstein-Barr virus (EBV), and CMV is necessary to determine the risk for primary or reactivated infection after transplantation. Potential recipients who have resided in endemic areas can be screened for latent infections with *Strongyloides stercoralis*, *Trypanosoma cruzi*, and endemic fungi (eg, *Coccidioides immitis*).

Prior to transplantation, candidates can be assessed for immunity to vaccine-preventable infections and should

receive the appropriate immunizations (eg, pneumococcal polysaccharide vaccine; trivalent inactivated influenza vaccine; tetanus, diphtheria, and pertussis [Td or Tdap] vaccination; and hepatitis A and hepatitis B vaccination in seronegative individuals).³⁻⁵ Live vaccines (eg, measles, mumps, rubella, varicella and herpes zoster) should be administered as early as possible prior to transplantation but should be avoided if transplantation is anticipated in the next 4 to 8 weeks and are presently contraindicated after transplantation due to the possible risk of reactivation in the setting of immunosuppression.

Treatment and clinical resolution of bacterial, fungal, and parasitic infections in potential recipients is recommended prior to transplantation. Latent tuberculosis, strongyloidiasis, and Chagas' disease should be treated before transplantation when practical and feasible since these infections can present with fulminant disease in the setting of potent immunosuppression.⁶ *Strongyloides* hyperinfection syndrome has been well described in the setting of recent transplantation and in the setting of increased immunosuppression for graft rejection in untreated latent carriers of *Strongyloides stercoralis*.⁷⁻⁹ Empiric therapy with ivermectin prior to transplantation and during periods of intensified immunosuppression may be warranted in appropriate patients. There are no consensus guidelines in the treatment of solid organ transplant candidates with laboratory evidence or clinical history of infection with endemic fungi such as *Histoplasma capsulatum* or *Coccidioides immitis*. In the case of latent *Coccidioides* infection, clinical practice is institution-specific in endemic areas and ranges from universal lifelong prophylaxis with fluconazole to targeted prophylaxis for a defined period of time posttransplant and during periods of increased immunosuppression.^{10,11}

DONOR

Living donors can be easily screened for the presence of infections that could be transmitted with the allograft. Screening in cadaveric donors is somewhat more challenging due to time constraints and potentially