Preface

Management of Infections in Solid Organ Transplant Recipients

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Editor

It has been 5 years since the last update on infections in solid organ transplant (SOT) recipients was published in *Infectious Diseases Clinics of North America* in 2013. There has been a 20% increase in the number of organ transplants over the last 5 years,[1] largely driven by increase in the number of deceased donors, with more than 33,000 transplants performed annually in the United States. Our nation is facing an unprecedented opioid epidemic, which is currently accounting in several parts of the country for a quarter of organ donors who die of overdose. These donors are considered at increased risk for transmitting blood-borne pathogens, including hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV). However, data have accumulated, documenting the long-term survival benefit of accepting such organs. One recent article[2] showed that only a third of kidney transplant candidates who were offered and declined an increased risk donor (IRD) later received non-IRD kidney transplants. The irony is that the kidney donor risk profile index (which predicts the likelihood of graft failure) of these non-IRD kidneys was more than double that of the IRD kidneys that had been declined. Although the mortality risk in the first 30 days following acceptance of IRD kidneys was higher compared with non-IRD kidneys, mortality risk was 33% lower 1 to 6 months, and 48% lower beyond 6 months after decision, respectively.

The transplant community has benefited greatly from the infectious diseases practice guidelines first published by the American Society of Transplantation Infectious Diseases Community of Practice in 2004 and then updated in 2009 and 2013.[3] Authors of the current issue of *Infectious Diseases Clinics of North America* have set out to provide the transplant community with an update in several pertinent topics in this field.

While the need for organs is ever increasing, more than 115,000 people are currently on the waiting list, identifying donors that are safe from the infectious diseases perspective remains of paramount importance. On average, 2 to 3 organs are procured

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from each donor; range is 1 to 8 organs. It thus befits to start the current issue with an update of this topic. In addition, several other articles in this issue address specific aspects of this topic, such organs from donors colonized or infected with multidrug-resistant bacterial infections, and organs from HCV- or HIV-infected donors. Certain infections, such cytomegalovirus (CMV), are "expected" to be transmitted from donors to recipients; thus specific guidelines for surveillance and prevention have been published. Most organ donor–derived infections present within the first 6 weeks after transplantation. However, certain infections, particularly latent infections with long incubation periods that are not readily recognized to be transmitted, may cause disseminated disease in the immunosuppressed organ recipient. Donors with possible meningoencephalitis are particularly associated with dire consequences.

Immunizations are considered the "seatbelts" of health care. While the majority of immunizations are provided by primary care providers who are currently caring for a large number of patients awaiting SOT, many of these patients are immunocompromised due to their end-organ disease and its consequences, or due to immunosuppressive medications attempting to support organ function while awaiting transplant. It is important to vaccinate transplant candidates as early as possible during transplant evaluation. Baring the holy grail of tolerance, SOT recipients are expected to remain on immunosuppressive medications for life to prevent organ rejection. While inactivated vaccinations are safe before or after transplantation, live-attenuated vaccines usually cannot be safely administered to patients receiving immunosuppressive medications. Thus, updating immunizations before transplantation may represent the only opportunity to administer live-attenuated vaccines. As importantly, certain vaccines may allow vaccines may allow SOT recipients to accept organs they may not have otherwise, as in the case of the hepatitis B core antibody-positive donor organs. To improve vaccine-induced immunogenicity posttransplant, most centers start vaccinating SOT recipients 3 to 6 months after transplant.

We live in a microbial world, mostly in symbiosis. While this may be true for the majority of the population, immunosuppressed individuals, particularly SOT recipients, view microbes surrounding them as their primary enemy, and rightly so. It's true that after transplantation they should return, as much as possible, to their normal activities, and not "live in a bubble." However, patients, their families, and health care providers (HCP) hold many beliefs about safe living that may or may not be true. The transplant community needs sound advice on a variety of issues ranging from leisurely activities, food and water safety, safe sex, animal contact, and travel. Precious lives extended by SOT should be protected by education before and after transplantation, providing the knowledge and measures to mitigate exposures to various infections in the community.

Almost all health care systems currently have an antimicrobial stewardship program (ASP) in place. Judicious use of antibiotics is "expected" of all HCP, but implementing programs to oversee such practice is actually in its infancy. The Infectious Diseases Society of America and the Society of Healthcare Epidemiology of America published its first edition of such guidelines in 2016.[4] Perhaps no more important than in SOT recipients, should ASP be implemented, given the rising rates of antimicrobial resistance in this patient population. Such ASP should be specifically customized to the SOT population, accounting for the multidisciplinary nature of the care for these patients, and the particularly important aspect of integrating the microbiology laboratory in this process, also known as "diagnostic" stewardship.

Infections due to multidrug-resistant organisms (MDRO) disproportionately affect SOT recipients and are associated with a 3-fold increase in mortality. In endemic areas, the incidence of infections due to carbapenem-resistant enterobacteriaceae