

Symposium

Introduction

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When You Think You Have Seen It All: New Interventions in Transplant

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As transplant has become a standard component of the armamentarium of therapies for end-stage organ disease, patients with replacement organs are being admitted to hospitals, both transplant centers and nontransplant centers, in increasing numbers. In this symposium, we strived to introduce critical care nurses to treatments and concepts that will provide them with a better understanding of some of the “newer” applications of traditional therapies for thoracic transplant candidates. Also included are a review of immunology with a focus on antibody-mediated rejection, which is affecting all solid organ transplant patients, and an introduction to an ancient remedy for an infection that is gaining in prominence in many parts of the world, *Clostridium difficile* infection.

Pretransplant Therapies

The important influence of the preoperative condition of the transplant candidate on posttransplant outcomes has been of keen interest to the transplant community for decades. All agree that a patient in optimal physical condition is likely to have fewer posttransplant complications, recover more quickly from the surgery, and be discharged from the hospital more promptly than would a patient who is critically ill going into the transplant procedure. The authors of 2 of the articles in this symposium describe interventions that may surprise critical care nurses. Both interventions break the traditional mold in which we imagine a patient awaiting a heart or lung transplant in the intensive care unit as being desperately ill, often bed-bound, and dependent on technology. Instead, although still dependent on technology, the patients are out of bed, ambulating, and improving their physiological status in preparation for the stresses of transplant surgery.

First, Kearns and Hernandez challenge readers to imagine a patient with end-stage lung disease waiting for a donor lung while being supported by extracorporeal membrane oxygenation (ECMO). (Ten years ago, such therapy was considered an absolute contraindication to lung transplant; today ECMO has moved to relative contraindication.^{1,2}) They proceed to describe an ECMO patient who is not sedated, not paralyzed, and not flat in bed. Rather, despite receiving what many would classify as the ultimate in life support, the patient is sitting at the bedside, standing, and walking in the intensive care unit. In fact, some ECMO patients are doing so without benefit of a ventilator because the ECMO circuit is providing both ventilatory (carbon dioxide removal)

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and oxygenation support. With the ability to exercise, such patients go into lung transplant surgery in markedly better condition than do patients who are unable to be active.

Next, Murks and Juricek alter our view of the heart transplant candidate whose condition is deteriorating. Rather than taking the patient to the operating room to implant a left ventricular assist device or a total artificial heart, they describe using an intra-aortic balloon pump (IABP) as a bridge to heart transplant. Yet much like the traditional ECMO patient, an IABP patient conjures images of a patient supine in bed, catheter in the femoral artery, unable to flex more than a few degrees, and at risk for limb ischemia, pressure ulcers, and deterioration in physical conditioning while awaiting a donor organ. These authors describe an alternative placement of the IABP that frees patients from a bed-bound existence and allows them to walk—with the IABP—for great distances through the corridors of the hospital. The ability to maintain conditioning for an extended period while awaiting a transplant can play a major role in a patient's posttransplant recovery.

Immunology

As understanding of immunology has grown from rudimentary to sophisticated in the past 60 years, so too has technology provided an expanding window into the minute details of the transplant candidate's or recipient's immunologic "condition." Critical care nurses' recognition of the basic elements of the immune system, along with the therapeutic interventions to control the immune response to the transplanted organ, is central to being able to provide effective care to these patients. This symposium's guest editor has laid out the basic components of the immune system, with a focus on the increasing role of antibody-mediated rejection in transplant recipients. The information presented can help critical care nurses to perceive subtle changes in a patient's condition that may reflect rejection, to understand the potential interventions

available, and if not in a transplant hospital, to advocate for the patient to be cared for by those health care providers who are most knowledgeable about transplant rejection.

Infection

It is common knowledge that immunocompromised patients are at risk for infection. Further, development of an infection is one of the most serious concerns of patients being admitted to the hospital. Although antibiotics have had a profound impact on our ability to intervene in and cure infection since Fleming's discovery of penicillin in 1928,³ health care professionals acknowledge that some newer infections are becoming increasingly difficult to control. The appearance of *Clostridium difficile* infection (CDI) in health care institutions and the community has vexed providers attempting to relieve patients' diarrhea, cramping, and misery. In the last article of this symposium, Liubakka and Vaughn describe the challenges involved in diagnosing CDI accurately. They propose transplanting fecal microbiota as a promising therapy for resistant or recurrent CDI cases. Although they report that the use of such interventions dates back centuries, it is only since 2010 that clinicians have again begun to consider fecal transfer as a means to eradicate CDI.

It has been a great privilege for me to participate in the development of this series and to bring the readers some unique perspectives on these aspects of transplant.

REFERENCES

1. Orens JB, Estenne M, Arcasoy S, et al. International guidelines for the selection of lung transplant candidates: 2006 update—a consensus report from the Pulmonary Scientific Council of the International Society for Heart and Lung Transplantation. *J Heart Lung Transplant.* 2006;25(7):745-755.
2. Weill D, Benden C, Corris PA, et al. A consensus document for the selection of lung transplant candidates: 2014—an update from the Pulmonary Transplantation Council of the International Society for Heart and Lung Transplantation. *J Heart Lung Transplant.* 2015;34:1-15.
3. Brown K. *Penicillin Man and the Antibiotic Revolution.* Stroud, UK: Sutton Publishing; 2004.