

Preface

## Pulmonary Considerations in Organ and Hematopoietic Stem Cell Transplantation



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On December 23, 1954, Dr. Joseph Murray and his surgical colleagues at the Peter Bent Brigham Hospital performed the first successful human organ transplantation, removing a kidney from a healthy donor and implanting it into the body of an identical twin suffering from advanced renal disease. At approximately the same time that Murray was conducting his work in solid organ transplantation, Dr. Donnall Thomas and associates at the Mary Imogene Basset Hospital in Cooperstown, New York, began a series of attempts to treat patients with terminal leukemias by ablating their bone marrow with total body irradiation and subsequently infusing bone marrow derived from healthy donors. Clinical organ transplantation and bone marrow transplantation, landmark achievements of twentieth century medicine, were thus inaugurated. Over the ensuing decades, organ transplantation expanded to include liver, heart, lung, and pancreas transplantation, and introduction of novel immunosuppressive agents resulted in markedly improved allograft survival rates. Use of peripheral blood and umbilical cord blood as alternative sources of hematopoietic stem cells extended the boundaries of “bone marrow transplantation” and resulted in adoption of new nomenclature (i.e., hematopoietic stem cell transplantation) to more accurately

describe the field. Drs. Murray and Thomas, the two early pioneers of transplantation, went on to share the Nobel Prize for Medicine in 1990.

Solid organ transplantation is now widely applied in the treatment of vital organ failure and hematopoietic stem cell transplantation in the treatment of a variety of malignant, hematologic, autoimmune, and genetic diseases. While these procedures offer the potential for extended survival to many patients with otherwise lethal conditions, they are associated with substantial risks. Prominent among these are pulmonary complications, both infectious and noninfectious, that contribute significantly to the morbidity and mortality associated with transplantation. As transplantation has become more commonplace, there has been a progressive shift in the care of recipients from the university hospitals to the community setting. Thus, it is now imperative that all practicing pulmonologists be familiar with the potential complications affecting these complex patient populations.

This issue of the *Clinics in Chest Medicine* was assembled with the goal of providing the general pulmonologist with information essential to addressing pulmonary complications in organ and hematopoietic stem cell transplant recipients. The issue begins with two articles offering broad overviews

of these respective fields of transplantation. The next section is comprised of articles detailing non-infectious pulmonary complications that arise from a variety of insults, including underlying disease, transplantation surgery, chemoradiation regimens used to prepare for hematopoietic stem cell transplantation, and alloimmune mechanisms that trigger graft-versus-host and host-versus-graft reactions. The issue concludes with a series of articles detailing the broad spectrum of pulmonary infectious complications that plague these immunocompromised hosts.

In an era that offers little time for scholarship, we are tremendously grateful to the authors who contributed works of the highest caliber, providing thoughtfully distilled but still comprehensive summaries of complex topics. We are also grateful to Sarah Barth, Editor of the *Clinics in Chest Medicine*, for her guidance and, when necessary, prompting. It is our hope that the knowledge conveyed in this issue will impart upon the reader a sense of confidence in

dealing with the often daunting task of caring for transplant recipients.

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