

Cambridge University Press

0521553547 - The Transplant Patient: Biological, Psychiatric, and Ethical Issues in Organ Transplantation

Edited by Paula T. Trzepacz and Andrea F. DiMartini

Frontmatter

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The **TRANSPLANT PATIENT**

Biological, psychiatric, and ethical issues
in organ transplantation

Organ transplantation is now an essential element of treatment for a wide range of diseases. However, alongside surgical success rates there are many other issues affecting selection of patients and clinical outcome with which clinicians and patients themselves must be familiar.

This book:

- reviews psychosocial, psychiatric and ethical aspects of organ transplantation in a uniquely authoritative way;
- draws heavily on the pioneering work of the Pittsburgh transplant team;
- surveys the essentials of transplantation biology;
- engages with a range of topics fundamental to the success of the procedure and the quality of life of recipients and donors alike.

Its interdisciplinary approach and the authority of the contributors will commend this book to a wide audience including those who select, support and advise transplant patients and their families, and to clinicians performing the procedures.

Paula Trzepacz is Senior Clinical Research Physician, Neurosciences, Eli Lilly and Company, and Adjunct Professor of Psychiatry and Neurology, University of Mississippi Medical Center.

Andrea DiMartini is Assistant Professor of Psychiatry at the University of Pittsburgh Western Psychiatric Institute, which is a pioneer in the area of transplant psychiatry.

Both authors are widely published in the field of neuropsychiatry and neuro-science. Dr DiMartini is widely published in issues of transplantation and psychiatry and Dr Trzepacz in neuropsychiatry.

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Paula T. Trzepacz

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Contents

	<i>List of contributors</i>	vii
	<i>Preface</i>	ix
1	The mystique of transplantation: biologic and psychiatric considerations Thomas E. Starzl	1
2	Psychosocial screening and selection of candidates for organ transplantation James L. Levenson and Mary Ellen Olbrisch	21
3	Psychosocial issues in living organ donation Galen E. Switzer, Mary Amanda Dew, and Robert K. Twillman	42
4	Quality of life in organ transplantation: effects on adult recipients and their families Mary Amanda Dew, Jean M. Goycoolea, Galen E. Switzer, and Aishe S. Allen	67
5	Quality of life of geriatric patients following transplantation: short- and long-term outcomes Maria Paz González, Abraham Sudilovsky, Julio Bobes, and Andrea F. DiMartini	146
6	Cognitive assessment in organ transplantation Ralph E. Tarter and JoAnn Switala	164
7	Pharmacologic issues in organ transplantation: psychopharmacology and neuropsychiatric medication side effects Paula T. Trzepacz, Babu Gupta, and Andrea F. DiMartini	187
8	Alcoholism and organ transplantation Andrea F. DiMartini and Paula T. Trzepacz	214
9	Ethics and images in organ transplantation Grant Gillett	239

Cambridge University Press
0521553547 - The Transplant Patient: Biological, Psychiatric, and Ethical Issues in Organ Transplantation
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Frontmatter
[More information](#)

vi Contents

10	Psychoneuroimmunology and organ transplantation: theory and practice	255
	Richard Kradin and Owen Surman	
11	Pediatric transplantation	275
	Robert D. Canning and Margaret L. Stuber	
12	Current trends and new developments in transplantation	287
	Maureen Martin	
	<i>Index</i>	305

Cambridge University Press
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Frontmatter
[More information](#)

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Cambridge University Press
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Frontmatter
[More information](#)

viii Contributors

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Frontmatter

[More information](#)

Preface

The transplant patient faces extraordinary challenges in their emotional and social lives as they undergo the physical transformations associated with the transplantation process. The need for an organ transplant may occur acutely or as a consequence of chronic organ insufficiency, each with its own set of biopsychosocial consequences. The interrelationships between physiology and psychological health are important for bodily health. Even immunological functions show links between brain and other body areas that may bridge emotional and physical states in complex and heretofore poorly understood ways. Pharmacological interventions often cross the blood–brain barrier, causing psychiatric side effects – for example, during uremia or hypocholesterolemia combined with cyclosporine treatment.

Our book opens with a chapter, “The mystique of transplantation: biologic and psychiatric considerations”, by Thomas Starzl, the distinguished pioneer of liver transplantation from the laboratory to the human situation. Starzl traces the history of immunological barriers that were overcome in order to allow orthotopic organ transplantation, including engraftments of kidney, liver, lung, heart, pancreas, intestine and multiple abdominal viscera. He describes bidirectional immunologic confrontation between graft and host and the important discovery of donor leukocyte chimerism in solid organ transplantation, contrasting it with bone marrow transplantation, where host cells are deliberately cytoablated.

The closing chapter, by Maureen Martin, “Current trends and new developments in transplantation”, addresses new approaches to clinical immunosuppression, based on the concept of chimerism, which use bone marrow and stem cell-derived factors combined with solid organ transplantation. She describes the feat of liver xenotransplantation from baboon to human, as well as the introduction of novel immunosuppressive agents that allow for enhanced allograft survival, including tacrolimus, mycophenolate mofetil, rapamycin, Brequinar sodium and 15-deoxyspergualin. Martin describes newer ventures such as intestinal transplantation, the use of bone marrow transplantation to prolong solid organ survival, and the potential clinical application of chimerism.

Bridging these two chapters by transplant surgeons is a chapter by Richard

Cambridge University Press

0521553547 - The Transplant Patient: Biological, Psychiatric, and Ethical Issues in Organ Transplantation

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Frontmatter

[More information](#)**x** Preface

Kradin, and Owen Surman, “Psychoneuroimmunology and organ transplantation: theory and practice”. These authors explore the multiple interfaces between the immune system and the brain because psychoneuroimmunology is the science of neural, endocrine and immune interactions. They address psychosomatic issues relating to graft survival, and immunity and the mind – noting the many parallels between neural and immune tissues in discrimination of “self” and “non-self” and learning. The brain is the organ of psychiatry. They describe in detail the bidirectional transfer and processing of information between the neural and immune systems, as well as the different mechanisms that achieve parallel functions of recognition, memory, and response. They review stress and immunity and how it may impact on transplant patients, including the effects of psychiatric disorders on immune function. Finally, they review effects of psychotropic medications on immune function.

Chapter 7, “Pharmacologic issues in organ transplantation: psychopharmacology and neuropsychiatric medicine side effects”, by Paula T. Trzepacz, Babu Gupta, and Andrea DiMartini, is also a bridging chapter between biological and behavioral systems. They begin with a review of physiological issues during organ insufficiency that affect drug metabolism and clearance (hepatic, renal, and cardiovascular systems). Differences in phase I and II hepatic drug metabolism during organ insufficiency states are described, along with examples of handling of drugs with different pharmacological characteristics. Advances in the understanding of hepatic cytochrome P₄₅₀ isozymes for drug metabolism and potential drug interactions are discussed and highlighted by tables of information and psychotropic medications as well as other medications commonly used in transplant patients. Detailed sections describe reports of neuropsychiatric side effects of each major immunosuppressive agent (cyclosporine, tacrolimus, OKT3, corticosteroids, azathioprine, mycophenolate mofetil) and antiviral, antifungal and antibacterial drugs commonly used in transplant patients.

Three chapters address specialty populations – pediatric and geriatric age groups, and patients with alcoholism. “Pediatric transplantation” (Chapter 11), by Robert D. Canning, and Margaret L. Stuber, focuses on a relatively sparse literature, as compared to adults, about children and adolescents undergoing transplantation. They discuss unique issues affecting pediatric patients including epidemiology, family role, development and medical caregiver responses. Psychiatric assessment and management of transplant patients is complicated by dealing with the family including axis II pathology in the parents and legal issues. Adolescents have a greater capacity to comprehend and make decisions, but have other developmental transitional issues that make them a high-risk population. Psychiatric problems include delirium and depression, as well as noncompliance, similar to adults.

Chapter 5, “Quality of life of geriatric patients following transplantation:

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Frontmatter

[More information](#)

short- and long term outcomes”, by Maria Paz Gonzáles, Abraham Sudilousky, Julio Bobes, and Andrea F. DiMartini, focuses on controversies in transplantation of aging patients. A larger literature exists in geriatrics than for pediatrics. Donor organ shortages combined with problems of aging bodies bring up economic and ethical issues, mandating objective review of outcome data. Maintenance of a high functional level and independence is considered an appropriate outcome measure in the elderly. These authors carefully review numerous studies of survival and quality of life of geriatric transplant patients for a variety of types of organs, with positive results attainable especially for well-selected patients.

Chapter 8, “Alcoholism and organ transplantation”, by Andrea F. DiMartini and Paula T. Trzepacz, provides an overview of the history and policies related to performing transplants on patients with alcoholism, a special population associated with many controversies. Most literature describes alcoholic cirrhosis and liver transplantation, though there is a smaller body of information on transplantation for alcoholic cardiomyopathy. The authors review screening and monitoring procedures for alcoholic transplant patients and medical sequelae, compliance, and resumption of drinking following transplantation.

Two chapters describe assessment of psychiatric characteristics of transplant patients. Chapter 6, “Cognitive assessment in organ transplantation”, by Ralph Tarter and JoAnn Switala, describes neuropsychological approaches to types of cognitive deficits that appear in pre- and post-transplantation populations. These authors point out the multifactorial etiologies that can produce cognitive impairments, including and beyond the obvious physiological effects of organ failure on the brain. Patterns of deficits may assist in delineation of possible causes. Specific neuropsychological tests are suggested for screening, comprehensive, and modality-specific assessments. Chapter 12, “Psychosocial screening and selection of candidates for organ transplantation”, by James Levenson and Mary Ellen Olbrisch describes two psychosocial screening instruments, the PACT and the TERS, as used in transplant patients. They discuss the rationale for such screening, as part of a thorough and multispecialty evaluation of candidates, and note that these are not conducted to determine social worthiness to be transplanted. Nearly all US transplant programs utilize some form of psychosocial evaluation of candidates, while about half of non-US programs do. These authors also compare US and non-US transplant programs’ attitudes relative to and absolute psychosocial and psychiatric contraindications to transplantation.

Grant Gillett wrote Chapter 9, “Ethics and images in organ transplantation”, which stretches the reader beyond the usual medical and psychiatric thinking about transplantation. He delves into difficult ethical questions about donation: economics, autonomy, coercion and discrimination. The author proposes that the most accessible ethical justification for organ

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0521553547 - The Transplant Patient: Biological, Psychiatric, and Ethical Issues in Organ Transplantation

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Frontmatter

[More information](#)**xii** Preface

transplantation is a utilitarian argument. Transplantation also is discussed as an incentive for death itself among young, healthy incompetent or vulnerable patients. Patients who are anencephalic or in persistent vegetative states and are potential donors pose particular dilemmas. Living healthy donors bring up other ethical concerns, including relatives of the transplant candidate and strangers paid for their organs in an organ market. Symbolic concerns (imagistic) affect societal attitudes as much as scientific ones. Finally, the idea of a donation as a gift is argued.

Chapter 3 and 4 address organ donors and organ recipients, respectively. In “Psychosocial issues in organ donation”, Galen F. Switzer, Mary Amanda Dew, and Robert K. Twillman introduce an organ or bone marrow donation as a gift, though without an expectation for reciprocity and with significant discomfort and sacrifice. Issues affect donors both pre- and post-donation. Motives differ between related and unrelated donors. Decision-making may be a moral as well as rational process, may not always be spontaneous, may differ between donors and non-donors, and may be fraught with ambivalence. Studies of post-donation outcomes reveal two categories – psychological reactions and donor perceptions of physical status – among kidney and bone marrow donors.

Chapter 4, “Quality of life in organ transplantation: effects on adult recipients and their families”, by Mary Amanda Dew, Jean M. Goycoolea, Glen Switzer, and Aishe S. Allen, reviews 144 studies from 19 countries covering six types of transplants. Quality of life post-transplantation is increasingly appreciated as an important outcome, along with survival, though it is multidimensional and is often measured in different ways – generic, broad measures, and illness-specific measures. Several domains of quality of life are reviewed – physical function, mental health/cognitive, social, and overall. Extensive tables summarize numerous variables of the studies. Overall, physical and global quality of life improves pre- to post-transplantation. However, mental health/cognitive and social domains are less certain to improve. The authors also review 15 studies about how transplantation affects recipients’ families’ quality of life.

The Transplant Patient provides a comprehensive scientific and scholarly review of the psychiatric, psychosocial, and biologic aspects of organ and bone marrow transplantation, it is essential reading for all involved in organ transplantation, whether the reader’s interest is clinical or research. From the history to the future, special issues and special populations, it will provide valuable insights to all physicians, psychiatrists, psychologists, nurses, transplant coordinators and related health care professionals involved in the care of transplant patients.

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