

Cambridge University Press
978-0-521-71100-5 - The BMT Data Book, 2nd Edition
Reinhold Munker, Hillard M. Lazarus and Kerry Atkinson
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The BMT Data Book

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2nd edition

Reinhold Munker

Hillard M. Lazarus

Kerry Atkinson



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Contents

<i>List of contributors</i>	<i>page</i> ix
<i>Foreword</i>	xi
<i>Preface</i>	xiii
<i>Acknowledgments</i>	xvi
Section 1 Basic science	1
1. Basic science	3
Reinhold Munker, Gary Brooke, and Kerry Atkinson	
Section 2 Hematologic malignancies	21
2. Therapeutic decision making in BMT/SCT for acute myeloid leukemia	23
Reinhold Munker, Ramiro Garzon, and Kerry Atkinson	
3. Therapeutic decision making in BMT/SCT for acute lymphoblastic leukemia	41
Reinhold Munker, Vishwas Sakhalkar, Hillard M. Lazarus, and Kerry Atkinson	
4. Therapeutic decision making in BMT/SCT for chronic myeloid leukemia and other myeloproliferative syndromes	57
Reinhold Munker, Hillard M. Lazarus, and Kerry Atkinson	
5. Therapeutic decision making in BMT/SCT for chronic lymphatic leukemia	71
Reinhold Munker, Hillard M. Lazarus, and Kerry Atkinson	

vi	Contents	
6.	Therapeutic decision making in BMT/SCT for myelodysplasia Reinhold Munker and Kerry Atkinson	85
7.	Therapeutic decision making in BMT/SCT for non-Hodgkin lymphoma Reinhold Munker, Hillard M. Lazarus, and Kerry Atkinson	99
8.	Therapeutic decision making in BMT/SCT for Hodgkin lymphoma Reinhold Munker, Hillard M. Lazarus, and Kerry Atkinson	127
9.	Therapeutic decision making in hematopoietic stem cell transplantation for multiple myeloma Oscar F. Ballester, Reinhold Munker, Hillard M. Lazarus, and Kerry Atkinson	139
10.	Therapeutic decision making in BMT/SCT for amyloidosis Reinhold Munker, Hillard M. Lazarus, and Kerry Atkinson	157
	Section 3 Solid tumors	163
11.	Therapeutic decision making in stem cell transplantation for breast cancer Naoto T. Ueno, Reinhold Munker, and Kerry Atkinson	165
12.	Therapeutic decision making in BMT/SCT for nonseminomatous germ cell tumor of testis (NSGCT) Reinhold Munker, Hillard M. Lazarus, and Kerry Atkinson	169
13.	Therapeutic decision making in BMT/SCT for renal cell cancer Richard W. Childs and Reinhold Munker	177
14.	Therapeutic decision making in BMT/SCT for soft tissue sarcomas Reinhold Munker, Vishwas Sakhalkar, Hillard M. Lazarus, and Kerry Atkinson	189

	Contents	vii
Section 4 Nonmalignant disorders	195	
15. Therapeutic decision making in BMT/SCT for severe aplastic anemia Reinhold Munker, Anna Locasciulli, and Kerry Atkinson	197	
16. Therapeutic decision making in BMT/SCT for congenital immunodeficiencies Vishwas Sakhalkar, Reinhold Munker, and Kerry Atkinson	205	
17. Therapeutic decision making in BMT/SCT for hemoglobinopathies Shalini Shenoy, Reinhold Munker, and Kerry Atkinson	215	
18. Therapeutic decision making in BMT/SCT for autoimmune disorders Reinhold Munker	227	
Section 5 Practical aspects and procedures	233	
19. Practical aspects and procedures, including conditioning protocols and haploidentical transplantation Reinhold Munker, Hillard M. Lazarus, and Kerry Atkinson	235	
20. Umbilical cord blood as alternative allogeneic graft source: clinical banking and transplant outcomes R. Patrick Weitzel and Mary J. Laughlin	301	
Section 6 Complications	311	
21. Pathobiology of graft-versus-host disease Pavan Reddy	313	
22. Diagnosis and treatment of graft-versus-host-disease Daniel R. Couriel	331	
23. Management and prophylaxis of infections after BMT/SCT Alison G. Freifeld, Reinhold Munker, and Kerry Atkinson	357	
24. Organ-related and miscellaneous complications Reinhold Munker, Amanda Sun, Hillard M. Lazarus, and Kerry Atkinson	379	

Cambridge University Press
978-0-521-71100-5 - The BMT Data Book, 2nd Edition
Reinhold Munker, Hillard M. Lazarus and Kerry Atkinson
Frontmatter
[More information](#)

viii Contents

Section 7 The BMT/SCT pharmacopoeia **429**

25. The BMT/SCT pharmacopoeia 431
Reinhold Munker, and Kerry Atkinson

Section 8 HLA-testing and laboratory medicine **493**

26. HLA-testing and laboratory medicine 495
Nicholas R. DiPaola, Reinhold Munker, and Kerry Atkinson

Appendix 511
Index 515

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Reinhold Munker, Hillard M. Lazarus and Kerry Atkinson
Frontmatter
[More information](#)

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Frontmatter

[More information](#)

Foreword

It is over 50 years since the basic concepts underpinning bone marrow transplantation were revealed in radiation protection experiments in mice. It seems curious to us now that in the 1950s the idea that marrow cells could grow and reconstitute hematopoiesis in an irradiated recipient was so revolutionary that it took careful experiments to prove the “cellular theory” and disprove the “humoral theory” of radiation protection. Equally remarkable is the fact that within a few years of this (and at a time before we knew what the thymus did or that lymphocytes could be divided into B and T cell subsets) the unique transplant-associated phenomena of graft-versus-host disease, graft-versus-leukemia and graft rejection were recognized as alloresponses. Fast forward to today; bone marrow transplantation has become stem cell transplantation (SCT) and the complexity of the field has increased exponentially as we define transplant biology increasingly at the molecular level. SCT is a treatment being continually extended to new malignant and nonmalignant diseases. More transplants are being performed, not only because more unrelated donor stem cell sources are available but also because mismatched transplants are beginning to be used more safely. As the mortality from transplant has fallen, SCT is applied increasingly to older and debilitated individuals. Luckily, expertise in the clinical SCT community has kept pace with this expanding field. There has been a general increase in transplant “know how” and many procedures are now standardized worldwide. However, to maintain our standards of care at the cutting edge, clinicians need to have access to more data than they can memorize to offer the best treatments to their patients. Recurrent issues that require detailed data for the best decision making are – Who should be offered transplant? What type of transplant should they receive? How should the transplant be performed, and how should the complications be managed? Drs. Munker, Lazarus, and Atkinson must be congratulated on compiling a guide which should help transplanters deal with these essential questions and in the process contribute substantially to the delivery of expert care to our patients.

John Barrett
Bethesda MD

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Reinhold Munker, Hillard M. Lazarus and Kerry Atkinson

Frontmatter

[More information](#)

Preface

The last 10 years have again seen a dramatic change and expansion in the discipline of clinical bone marrow and blood stem cell transplantation. New data have become available to support the decision for or against transplantation. The future has already started. Basic science has made progress: new genes and microRNAs have been characterized as risk factors in the outcomes of hematologic malignancies. The involvement of natural killer cells in the graft-versus-tumor reactions has been recognized. New cell populations like dendritic cells and mesenchymal stem cells have been characterized. Clinical science has made progress. New indications for transplants have been developed and evaluated. Examples are renal cell cancer, autoimmune disorders, and amyloidosis. New stem cell sources (e.g., from cord blood) were implemented. Owing to sophisticated typing methods, unrelated transplants have become safer. Owing to increased donor numbers, matched unrelated transplants can now be offered to more than 70% of patients who do not have a family match. Old indications (breast cancer) have almost become obsolete or are being reevaluated (chronic myelogenous leukemia) because of advances in the nontransplant arena. In the first edition of this book, transplant for multiple myeloma was put into context against “conventional” treatments. Now, autologous transplant has become the standard of care for multiple myeloma, which has to compete and will join forces with antiangiogenic agents or proteasome inhibitors. New treatment protocols for older patients or who have significant comorbidities were introduced (reduced-intensity conditioning). Overall, in the United States (2004–2006) 17 000, in Europe 22 000, and in Australia 1200 hematopoietic stem cell transplants are being performed each year. In addition to Europe and North America, South America, Mexico, China, and India have all started active transplant programs. The registry data evaluating the outcomes of autologous and allogeneic transplants are now based on thousands of patients instead of hundreds of patients. Therefore, in many instances, the promise of cure is being replaced or is supported by realistic long-term survival data.

The basic structure of the first edition of the *BMT Data Book* is conserved. In the first section, the biology of stem cells, other relevant cell populations,

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Frontmatter

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

and the science underlying transplantation are discussed. Next, the indications for transplant in different diseases (malignant and non-malignant) are given. Pediatric aspects are noted when indicated. Coauthors specialized in different areas have made contributions. All chapters are concise. The nontransplant options are briefly mentioned. Registry data are given when available. As in the first edition, major articles from respected journals were chosen for each topic and with the permission of the authors, one (or two) figures were reproduced. These articles not only support our recommendations but also illustrate current controversies. In the other two major sections, the practical aspects and the complications of allogeneic and autologous transplantation are discussed. The “BMT pharmacopoeia” of the first edition is updated with many new drugs, whereas standard-dose protocols (available in other textbooks) were removed. Finally, current transplant protocols and certain aspects of laboratory medicine are included. A new addition to the *BMT Data Book* is a guide to the Internet and printed databases. All chapters were reviewed by experts. This book is a work in progress. Owing to the enormous amount of literature and information available, we cannot be 100% complete. However, we hope, by providing recent and solid data, to help the physicians and patients to make informed decisions and choose the best individual treatment.

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Frontmatter

[More information](#)

Preface to the first edition

The use of hemopoietic stem cell transplantation to support high-dose chemotherapy or chemoradiotherapy is rapidly developing and fast changing. During the 1980s and 1990s, many marrow transplantation physicians had to start treating diseases they may not have treated for many years. Examples would be the use of autologous transplantation for breast, testicular, and ovarian cancer. Likewise, medical oncologists had to start becoming familiar with marrow and blood stem cell transplantation medicine.

In addition, effective new nontransplant treatments were introduced and made therapeutic decision making for an individual patient even more difficult. Examples included α -interferon for chronic myeloid leukemia and fludarabine for chronic lymphatic leukemia and low-grade non-Hodgkin lymphoma.

All this change occurred against a background of shrinking hospital budgets and an increasing concern for cost constraint.

These elements spurred the production of this book. Many long but useful hours were spent arguing such issues for individual patients in the weekly meeting of the marrow transplant program at St. Vincent's Hospital. It became clear that "change" was becoming the norm and marrow transplant physicians, like everyone else, had to adapt quickly. It thus seemed important to provide data-driven outcome analyses to help therapeutic decision making for individual patients.

Kerry Atkinson

Disclaimer: As in the first edition, the authors have attempted to provide the most accurate data and guidance possible. We recognize however that there may be unforeseen errors in drug dosage and modification recommendations. We always encourage treating physicians and their staff to consult the original source documents when developing specific treatment plans.

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Frontmatter

[More information](#)

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