
Multiorgan Procurement for Transplantation

Paolo Aseni • Antonino M. Grande
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Editors

Multiorgan Procurement for Transplantation

A Guide to Surgical Technique and
Management

 Springer

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*In memory of Professor Vittorio Staudacher (1913–2005)
and Professor Lino Belli (1924–1996) pioneers of
transplant surgery, to honor their exceptional dedication
and enthusiasm to transplant research.*

Foreword

For this book edited by Paolo Aseni, Antonino M. Grande, and Luciano De Carlis, contributing authors were requested to discuss the latest advances in donor management and surgical techniques for multiorgan procurement. Today, modern transplant medicine can guarantee excellent short- and long-term results for all types of transplants, with survival rates of up to 80 % after 5 years and about 60–70 % after 10 years. In no other field of surgery, with the exception of benign or functional disorders, can such excellent results be achieved following complete failure of an organ. Currently two factors limit broader use of organ transplantation: on the one hand, the shortage of organ donors and, on the other hand, the increase in donors who are not ideal because their organ function is impaired. These two limitations prevail despite the fact that donor willingness in the general public is satisfactory to high throughout. Several other factors contribute here to play an equally important role like the lack of established ubiquitous facilities for donor recognition and the lack of logistics in donor management in several Central European countries or regions. New discussions on the definition of brain death in Germany and the increasing financial pressure on all hospitals are further aspects.

The first two parts provide a comprehensive look at problems ranging from donor recognition, general ethical aspects, but also the principles underlying the concept of brain death, the diagnosis and management of persons dying from intracranial pressure to organ harvesting with all its metabolic and hemodynamic alterations. No less important with a view to increasing transplants is the non-heart-beating concept that for health caregivers, but also for society and particularly the next of kin, can present emotionally exceptional circumstances and presumably only marginally improve the shortage of organs.

Part 3 and 4 deal with the role of surgery in organ harvesting, which in the case of multiorgan donors is usually conducted in brain dead patients. In addition to abundantly illustrated tips and tricks, these chapters demonstrate the enormous importance of this act in the transplant setting. Organ quality is not only influenced by donor factors. Indeed, damage and complications that can occur in the course of organ procurement can be deleterious for the recipient. The consequences can be impaired organ function, higher re-transplant frequency, and poorer survival. While countless discussions and the literature evidence this fact, it is given too little attention in daily routine. Principles such as “the best or the most experienced transplant surgeon” should harvest the organs are only rarely implemented, with as much to be said for the level

of anesthesiological management requiring the same standard of care when transferring the patient from the ICU to the operating room. This book also takes a look at special techniques such as liver splitting or bench surgery, namely, the preparation of donor organs for implantation. The interested reader will find answers and information on most questions related to organ donation that can influence work with other medical professionals on a daily basis.

The last section of this book, part 5, concerns live donation of liver and kidney. Much more important than the technical aspects and challenges of the donor operation, which today can be minimally invasive and still provide excellent results for donor and recipient, is the fact that a healthy person undergoes surgery for the removal of a kidney or part of his liver. This act of solidarity is unique among medical procedures. Here, donor safety must take priority over all other aspects and calls for a multistep workup algorithm that is not invasive whenever possible. In addition to psychological exploration and counseling, determination of the voluntary nature of the organ donation takes priority. By the same token, any financial motive should be ruled out as completely as possible. For living organ donation the highest surgical and anesthesiological expertise is required, because an avoidable complication is deemed bodily harm. A flat learning curve, which is a fact for many surgical innovations but also for inexperienced surgeons, is not justifiable here.

Finally, I would like to again emphasize the importance of this book and congratulate the editors as well as all the contributing authors on having brought together the important aspects of organ donation in such an excellent manner. This work should be considered a mandatory reading for all colleagues involved in the organ donation process and above all be a tribute to the donors, who through their solidarity help lessen suffering and sustain life.

Tuebingen, Germany

Alfred Königsrainer

About the Editors

Paolo Aseni, after his degree in Medicine at the University of Milan in 1975, trained abroad in different centers in Germany and France: at the Medizinische Hochschule in Hannover and in Zentrum für Experimentelle Medizin in München in 1978, then in the next years, at the Hôpital Beaujon in Paris and in Hôpital Paul Brousse in Villejuif. Since 1980, he has been working at the Department of Surgery and Transplant Center in Niguarda Hospital in Milan, Italy. He is currently Associate Surgeon and responsible for the surgical training in Medicina d'Urgenza – Emergency Department in the same hospital. Since 1989, he has been also Assistant Professor for Anatomy and Human Macroscopic Morphology, University of Medicine, Milan.

Antonino M. Grande earned his degree in Medicine at the University of Pavia (Italy) in 1980. He trained abroad at the Department of Cardiovascular Surgery, Texas Heart Institute, Houston, Texas, USA, from 1982 to 1984 and then in Marseille (France). Since 1986, he has been working as attending surgeon at the IRCCS Fondazione Policlinico San Matteo in Pavia, Italy, in the Cardiac Surgery – Heart and Lung Transplant Department. Dr. Grande has also over 25 years of experience in cardiovascular postoperative intensive care; his main clinical interests include heart failure, heart/lung transplantations, and mechanical circulatory support. Between 2000 and 2010, he has been Assistant Professor for Surgical Anatomy at the University of Pavia.

Luciano De Carlis got his degree in Milan in 1979 and trained as visiting fellow at the Transplant Surgery Center in Pittsburgh (USA) in 1984, in 1987, and again in 1988, studying particular aspects in the field of liver, kidney, pancreas, heart, and heart-lung transplantation. Another important experience abroad, this time as visiting professor, was at the University of Tokyo in 2001. Prof. De Carlis has been working since 1985 at the Niguarda Hospital in Milan, Italy, specializing in particular in the field of renal, hepatic, and pancreatic transplantation. He is currently Professor of Surgery at the University of Milano-Bicocca School of Medicine, and Director of the Department of Surgery and Transplant Center at the Niguarda Hospital in Milan, where he introduced the first adult living donor liver transplantation program in Italy and, recently, the first Italian liver transplant program from “donation after cardiac death”.

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