

PREFACE

In a landmark paper published in 1995, Dr. Joel Cooper reported the initial results of a procedure that he termed “bilateral pneumectomy.” A modern reincarnation of an operation conceived nearly a half century earlier by Otto Brantigan, Dr. Cooper’s technique involved bilateral resection of significant amounts of diseased lung tissue in emphysema patients, in an effort to improve respiratory function by decompressing the thoracic cavity and increasing pulmonary elastic recoil. Almost instantaneously, worldwide interest and enthusiasm were directed toward this potential panacea for the millions of patients suffering and dying from end-stage emphysema. Lung volume reduction surgery (LVRS), as the new procedure soon came to be known, became the subject of numerous articles in the lay media, if not in scientific journals, gaining the attention of patients, physicians, and the general public. Despite a paucity of objective data, surgeons willing to perform the procedure were inundated by hundreds of self-referring patients desperate for a new lease on life.

Dozens of centers began to perform LVRS, in the manner described by Cooper, and a trickle of scientific reports eventually ensued. According to these early reports, short-term results were promising, although outcomes had not been positive in all patients. Nonetheless, before long, the operation was being performed across the country, fueled by positive reports from centers operating on highly selected patient cohorts, and more importantly, by patient and physician enthusiasm.

This enthusiasm for LVRS had several effects. Almost suddenly, questions about how our society should implement new surgical technology and about the role of insurers in determining coverage, and thereby access, to new procedures became central issues. The ethics of randomized trials for the study of apparently beneficial surgical treatments became hotly debated. Fundamental questions were raised concerning the long-term efficacy, cost-effectiveness, selection criteria, timing, and optimal surgical approaches for LVRS. The previously quiescent field of pulmonary physiology was reinvigorated.

In 1996, after a review of preliminary data failed to provide conclusive evidence of a clear benefit of LVRS for emphysema, the Health Care Financing Administration (HCFA) imposed a moratorium on Medicare reimbursement for the new procedure until a properly designed, randomized trial could be performed. Thus, through the collaboration of HCFA and the NHLBI, the multicenter National Emphysema Treatment Trial (NETT) was conceived. As of the writing of this book, the trial is underway, with results still several years away. It is the hope of the physicians and patients involved in this trial that valuable information is gained, with the ultimate goal of determining if (and for whom) the operation is in fact beneficial.

Lung Volume Reduction Surgery was conceived in response to the enthusiasm, controversy, confusion, and disappointment that, in the experience of the editors, have variously (and often simultaneously) characterized the attitudes of clinicians and scientists toward this novel and potentially revolutionary operation. In the chapters that follow, we attempt to elucidate the current state of knowledge surrounding LVRS, in order to define the clinical and scientific landscape for those interested in this field. In Part One, experts in clinical medicine and the basic sciences review the diagnosis, pathophysiology, and medical management of emphysema, in order to ground the reader in the disciplines that

form the basis of our current knowledge. In Part Two, the technical aspects and clinical results of LVRS are reviewed, with additional emphasis on organizational issues important for those involved or planning to be involved in LVRS programs. This book is intended for readers of diverse backgrounds, including surgeons, pulmonologists, primary care physicians, physiologists, radiologists, basic scientists, physical and occupational therapists, and nurses. It is the hope of the editors that the information contained in this book will be of help to these professionals and to all those who share the mission of providing the best possible care to patients with emphysema.

The question of whether LVRS will have a future role in the treatment of emphysema is currently unanswered. A clear and complete answer to this question will likely require years of clinical experience, careful analysis of properly designed randomized trials, and perhaps most importantly, a redefinition by society of the importance of palliation in the treatment of incurable diseases. Despite the controversy that is certain to surround LVRS in the coming years, the debate that has been generated has already had positive effects. The enthusiasm generated by this novel operation has brought a fresh perspective and a new generation of researchers into the fields of pulmonary physiology and end-stage lung disease. In this environment, a unique opportunity exists for both clinicians and researchers to uncover the physiologic and molecular determinants of this devastating disease. Although LVRS may one day be shown to improve (and perhaps prolong) the lives of patients suffering from emphysema, it is far more exciting to think that the research initiated in these early LVRS years might one day lead to an actual cure of the disease.

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