Rehabilitation and the National Emphysema Treatment Trial

Although pulmonary rehabilitation is accepted by many professional societies as the prevailing standard of care for patients with chronic lung disease,1–3 large observational studies that examine key outcomes such as survival, functional exercise capacity, or health-related quality of life have been slow in coming. Trials of lung volume reduction surgery, the largest of which has been the National Emphysema Treatment Trial (NETT),4 although not originally designed for this purpose, have enabled us to observe the influence of rehabilitation on a large population of patients with COPD. The NETT design required patients to agree to undergo 6 to 10 weeks of rehabilitation prior to randomization as a prerequisite to enrollment. This requirement was probably a consequence of the positive experiences among the surgical community when their patients received pulmonary rehabilitation in association with major thoracic surgery, as well as the key roles in the NETT played by many of the pulmonary rehabilitation leaders in the United States.

The article by Ries and colleagues5 in this issue of CHEST (see page 3799) describes the results of a prospective observational study of 1,218 patients who underwent pulmonary rehabilitation in both academic (17 NETT) and community (539 satellite) centers. The numbers alone make this an unusual report, as trials of respiratory rehabilitation are usually single-center randomized controlled trials with relative small numbers, such that even metaanalyses6,7 do not come close to the number of patients included in this report.

The authors evaluated the influence of rehabilitation in a national cross-section of programs, an important observation regarding the application of this approach in the real world. Without doubt there is a need for such pragmatic observations. Nevertheless, clinicians reading this report should be mindful of the design limitations of any observational study as well as the specific limitations of this study.

The program content included 16 to 20 sessions with the essential ingredient of exercise training, for which we have excellent evidence of effectiveness, as well the other two main ingredients of education and psychological support, for which the evidence of effectiveness is less clear. Although the initial four sessions were at the local NETT center, subsequent sessions were often outsourced, under supervision, to the local satellites.

The initial patient profile reflected the patients having severe airflow limitation, a marked exercise impairment, and a reduction in health-related qual-
ity of life, making the initial group typical of the much larger number of individuals with severe disease, and more severe than some patients who participate in pulmonary rehabilitation. Improvements in walking distance were statistically significant, with greater improvements being experienced by those with no prior pulmonary rehabilitation. Although the mean improvements fell below the minimum clinically important difference for the 6-min walk test and for the key measure of disease-specific quality of life, the data presented suggest that some patients improved, many remained the same, and a few became worse.

Important study limitations relate to patient self selection. Over the rehabilitation period of 10 weeks, 32% of patients elected not to proceed to randomization for a variety of reasons, which included either doing well or not doing well in the rehabilitation program. Therefore, the group reported is skewed toward those who completed the rehabilitation program. Taken together with the absence of a control group, this issue reduces the generalizability of the report. Another issue is the arbitrary categorization of an exercise improvement of 10 W being considered as representative of a meaningful response, a decision made by NETT participants. The inclusion of this, using logistic regression to define improvement, lends little to the report itself.

The importance of this contribution lies not in the study design nor in the precision of the measurements but in the message that rehabilitation practiced over many sites, only some of which are academic, can improve walking and quality of life for many patients. Moreover, the close relationships formed between the rehabilitation team and the patients almost certainly contributed to improved selection of those most likely to benefit, improved patient adherence to rehabilitation exercises, and improved outcomes for many.

The authors conclude that the NETT experience demonstrates the effectiveness of pulmonary rehabilitation in patients with severe emphysema treated in a national cross-section of programs and that pulmonary rehabilitation plays an important role in preparing and selecting patients for surgical interventions such as lung volume reduction surgery. I happen to believe that the first statement is correct, although the data presented in this report are far from definitive. The second is a clinical comment that is without doubt a key reflection of the importance of collaboration between pulmonologists and our surgical colleagues, to the benefit of patients with COPD.

Roger S. Goldstein, FRCP, FCCP
Toronto, ON, Canada

Dr. Goldstein is Professor of Medicine and Physical Therapy, University of Toronto, and Director, Program in Respiratory Rehabilitation, West Park Healthcare Centre.
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Correspondence to: Roger S. Goldstein, FRCP, FCCP, Professor of Medicine and Physical Therapy, University of Toronto, and Director, Program in Respiratory Rehabilitation, West Park Healthcare Centre, 82 Buttonwood Avenue, Toronto, ON, M6M 2J5, Canada; e-mail: rgoldstein@westpark.org

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Health-Care–Associated Pneumonia

A New Therapeutic Paradigm

Patients residing in long-term care facilities, and individuals who have recently been hospitalized or who have come in contact with the health-care environment (eg, therapy in a dialysis center) are an...