Longterm Effects of Treatment in Patients with Chronic Airway Obstruction*

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Recent reports on the effects of treatment and on the course of patients with severe chronic airway obstruction (CAO) have led to some confusion concerning expectations of therapy. It has been shown in the Denver study that intensive treatment often results in symptomatic improvement, better exercise tolerance and relief of any reversible component in the airways obstruction.1–3 But in reports of patients residing in the Chicago area, a slow decline in ventilatory function and a high mortality was observed despite continued therapy for the disorder.4 In an attempt to reconcile the seemingly hopeful observations reported from Denver with the rather gloomy long-term course and prognosis of patients in Chicago, we have undertaken a comparison of the courses and prognoses of 95 matched patients from the two reported series.

Certain differences in the two studies should be noted. In Chicago, patients were enrolled in the study only after they were under therapy and had reached a “stable stage” of their disease. Many patients were excluded because their initial treatment resulted in improvement in ventilatory function beyond the limits of the study group. This was done to avoid “confusion” between reversible and irreversible obstructive lung disease. Nonambulant, terminal patients were also eliminated. In the Denver group, consecutive patients with severe CAO were accepted; some were chair and house bound. Initial studies were made prior to institution of definitive therapy and a consecutive case load was accepted for long-term care.1 Early reversal of expiratory slowing was documented and included in serial data.1–3

Vigorous treatment was administered by a multidisciplinary clinic in the Denver study (see article by Neff and Petty in this supplement for specific data.) In Chicago, therapy was prescribed by a personal physician skilled in respiratory diseases and there was less emphasis on mechanical devices and inhalation therapy procedures. But in both

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cities, bronchodilators were given, efforts were made to improve bronchial hygiene, respiratory infections were promptly controlled by the liberal use of antibiotics, complications were detected and treated early, and supportive care was emphasized.

In the present analysis, patients from each of the series were matched for age, sex and FEV₁ at the time of their one-year follow-up examination in order to eliminate the early effects of treatment in relieving the reversible component of the disease. By this time, improvement from initial management should have been manifest in both series. Progress in ventilatory impairment and longevity were then compared in subsequent years. Using life table survival methods, there was a 76 percent cumulative survival in the Denver series at 24 months compared with 70 percent survival in the Chicago group. These differences are not statistically significant. The mean decline in FEV₁ at two years among surviving patients was 128 ml in Denver and 45 ml in Chicago. Because of a great spread of data, these differences are also not statistically significant. Overall results in the two groups are summarized in Table 1. In both cities, there was progression of functional impairment and a relatively high mortality despite continued treatment.

Symptomatic improvement was frequent in both series, but symptomatic changes in the two groups cannot be directly compared because of differences in methods of data collection. After three years of follow-up, 36 percent of Chicago patients claimed they were "much better" than on entry into the study. In Denver, "definite improvement" was noted by 49 percent of surviving patients followed-up for three years. It is recognized that this clinical assessment done independently by physician and nurse is completely subjective. This estimate of clinical improvement was indicative of improvement in psychological parameters (particularly an improvement in depression and anxiety) which were measured systematically in the Denver study.6

In addition, an increase in exercise tolerance and decrease in number of severe exacerbations of disease were also noted in Denver.1,3 Such information is not available for all of the Chicago patients, but the same observations were made in many individual cases. There is no untreated control series with which to compare survival data from either city, but it is obvious that prompt treatment of exacerbations prevented premature deaths in many patients in both series.

We believe that previously reported studies are not in conflict. Indeed, considered together, they provide considerable information about expectations of therapy. Vigorous treatment should result in relief of any reversible component in the airways obstruction, with improvement in lung function as well as symptoms in a reasonable fraction of cases. At times, this improvement is dramatic. Since it is impossible to predict how much improvement can be obtained in an individual case, all patients deserve an intensive and prolonged therapeutic trial. Continued treatment is then required to maintain control of the reversible airways obstruction, to prevent superimposed lung infection, to deal promptly with complications, to encourage maximum performance of the patient despite his residual impairment and to provide emotional support. Although such treatment doubtless prevents some early deaths and often allows the patient to function more effectively despite his persistent disease, there is generally a slow progression of function impairment and a persisting high mortality.

Available data do not allow comparison of specific modalities of treatment or of a "multidisciplinary clinic" approach versus good personal care by a highly trained physician. The usefulness of a multidisciplinary clinic has been demonstrated1 and an inhospital program may offer some initial advantage.7 Good therapeutic results may also be obtained by a private physician who employs effectively the various therapeutic results which are as gratifying as in most other chronic diseases.8 Despite the apparent inability of therapy to terminate progression of the disease in most cases, patients with chronic airways obstruction deserve careful long-term management.

**REFERENCES**

8 Farrington JF: Rehabilitation of the pulmonary cripple in private practice. Chest 60:185, 1971