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EDITORIAL

Preventing COPD: Evidence of Progress

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Chronic obstructive pulmonary disease (COPD) is an important cause of morbidity and mortality in the United States and worldwide. Over the period 1965 to 1998, while mortality rates of heart disease and cancer were decreasing, those of COPD increased 163% (1). The reasons for this are complex: the rates of COPD deaths in 1965 were very low and could thus increase a large amount; COPD is a disease of survivors and as fewer people die from heart disease they develop and die from other diseases; the benefits of smoking cessation are much more rapid in some disease processes than in others; COPD can progress long after people have stopped smoking.

The most recent comprehensive surveillance summary of COPD in the United States, which covered data through 2000 (2), had several key findings: the increasing rates of COPD mortality and hospitalizations, the increasing prevalence of COPD, and the increase in COPD deaths amongst women such that the their deaths exceeded those among men by 2000.

A great deal has changed in COPD over the past 15 years. The Global Initiative on Obstructive Lung Disease (GOLD) launched their initial guidelines in 2001 (3). These guidelines accomplished several things: defining COPD based on impaired lung function, moving the treatment of COPD from a nihilistic approach to a hopeful one (4). In addition, clinical trials in recent years have demonstrated the benefits of interventions (5, 6). Of course, the primary risk factor for COPD in the United States, cigarette smoking, has been decreasing gradually over the past 40 years (7).

The current addition of the *Journal of COPD* contains two papers that suggest some of the changes seen in both smoking prevalence and COPD treatment have made a difference. Brown et al. (8) examined recent trends in COPD hospitalizations and Polednak (9) examined trends in COPD mortality.

COPD hospitalizations are typically related to acute exacerbations of COPD, although a proportion may be related to pneumonia, exacerbations of co-morbid congestive heart failure, or other factors. Brown et al. looked at data from 1990 through 2005 and had the following findings: they observed an increase in hospitalizations from 1990 through 1999, followed by a flattening out of this trend. In 1990 women comprised 48% of COPD hospitalizations and by 2005 this had increased to 54%. Conversely, in 1990 3.3% of these hospitalizations resulted in death and by 2005 this proportion had decreased to 2.1%. Dramatic regional differences, with the rates in the South being 3–4- fold higher than the rates in the West, persisted throughout this period.

COPD mortality is another disease measure that provides valuable information. In the Polednak paper, the dramatic regional differences seen in the hospitalization data are simply not present. At worst, mortality rates in the South are 50–70% higher than those seen in California (as a surrogate for the West). This paper also demonstrates a decrease in mortality over the period 1988–2005, with the decrease in California exceeding that in the rest of the United States (9).

Taken together, these papers suggest progress in both the longer term prevention and the shorter term treatment of COPD. The increasing mortality rates seen through the 1980s and 1990s (2) have now reversed and are decreasing. This is, in all likelihood, a function of decreasing tobacco use in the population from the mid 1960s through the 1990s. Stabilization of COPD hospitalization rates may reflect several factors. These rates dropped dramatically from 1983 to 1989, but had been gradually increasing since 1989 (2). The drop in COPD hospitalizations during the early 1980s was thought to be related to systematic changes in U.S. health care (e.g., introduction of diagnosis-related groups for compensation, overall pressures within the health-care system to decrease hospitalizations, or other unknown factors), rather than changes in COPD or its treatment (2). The current changes in COPD hospitalizations, which reflect both a stabilization of hospitalization rates and a decrease in hospitalization mortality, suggest that these findings may reflect better treatment and response to therapy.

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Prevention strategies in any chronic disease must include primary, secondary, and tertiary interventions. Demonstrated in these two papers is the primary prevention strategy of decreasing tobacco smoking as the main risk factor for COPD in the United States, and the tertiary prevention strategy of better treatment amongst patients with established disease resulting in better outcomes. Secondary prevention, the detection of asymptomatic disease, remains controversial in COPD but would, in all likelihood, result in better outcomes if the appropriate interventions were initiated. In summary, however, these data provide hope that we are making progress against one of the leading causes of morbidity and mortality in the United States.

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