

LETTER TO THE EDITOR

Diagnostic Bias in Occupational Epidemiologic Studies: An Example Based on the Vinyl Chloride Literature

Key words: vinyl chloride, brain cancer, emphysema, chronic obstructive pulmonary disease, diagnostic bias

INTRODUCTION

Dr. Shah's Letter [1993] raised several issues of potential diagnostic bias on the brain cancer and emphysema findings in our recent paper of vinyl chloride workers [Wong et al., 1991]. These are important and pertinent questions not only in our study of vinyl chloride exposed workers, but also in occupational epidemiologic studies in general.

BRAIN CANCER

The first issue was the potential diagnostic bias of brain cancer in occupational studies. As Dr. Shah correctly pointed out in his letter, there are reports in the literature documenting the potential bias resulting from the more complete reporting and/or diagnoses of brain tumors in employees of large corporations than in the general population. Greenwald et al. [1981] reported a significantly higher frequency of brain scans (61.1% vs. 30.0%) and pneumoencephalograms (35.2% vs. 17.1%) than in other brain tumor patients in the same state. They concluded that the "diagnostic sensitivity bias" would appear to pertain to conditions that are difficult to diagnose, such as brain tumors, and to industries where workers have such employee benefits as health insurance and high-quality employee medical services with referral and follow-up. Thus, the apparent excess of brain tumors may have resulted from the diagnostic sensitivity bias arising from the more complete medical evaluation of employees of large corporations. Diagnostic sensitivity bias in brain cancer has also been discussed by other investigators [Wong et al., 1986; Wong and Raabe, 1989].

The participants in our vinyl chloride study were employees of major corporations in the chemical industry, and were covered by comprehensive medical care

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