were heterozygous for the G20210A substitution at nucleotide position 20210 was detected by allele-specific restriction digestion by using HindIII (1).

Among the 27 patients, 4 (14.8%) were heterozygous for the G20210A mutation in the prothrombin gene and 1 patient (3.7%) was homozygous, whereas 22 patients (81.5%) did not carry the mutation (Table 1). Among the 245 healthy control persons, 239 subjects (97.6%) did not carry the G20210A mutation, whereas 6 persons (2.4%) were heterozygous, and none was homozygous for the mutation (Table 1). The difference of frequencies between the group of patients (18.5%) and the controls (2.4%) was statistically significant (P < 0.005, Fisher’s Exact test; integral part of GraphPad Prism™, Ver. 2.0, GraphPad Software, Inc.). The mutation G20210A in the prothrombin gene increased the risk for pulmonary embolism approximately ninefold (odds ratio, 9.1; 95% confidence interval, 2.6–32.1) compared with noncarriers of the mutation (Table 1).

Among the 27 patients, 3 (11.1%) were heterozygous or homozygous for factor V Leiden mutation, and 2 (7.4%) had a protein C deficiency. One subject (3.7%) exhibited protein S deficiency, whereas no patient had antithrombin III deficiency. The patient homozygous for the G20210A mutation in the prothrombin gene was also heterozygous for factor V Leiden mutation. However, no further coincidence existed between carriers of the G20210A mutation in the prothrombin gene and the above-described risk factors for thrombophilia. It has been reported recently that the prevalence of factor V Leiden mutation is high in patients with pulmonary embolism associated with deep venous thrombosis, whereas it is similar to that of controls in subjects with isolated pulmonary embolism (6). In our study, 2 patients of 17 with isolated pulmonary embolism (12%) carry the factor V Leiden mutation compared with 1 patient of 10 with pulmonary embolism related to deep venous thrombosis (10%), which was not a significant difference. Furthermore, we found the G20210A mutation in the prothrombin gene in 3 of 10 patients (30%) with pulmonary embolism associated with deep venous thrombosis and in 2 of 17 patients (12%) with isolated pulmonary embolism. Because of the small number of patients in the subgroups, these differences were not significant (P = 0.4).

Although our study is based on a relatively small group of patients, the odds ratio of 9.1 (95% CI, 2.6–32.1) suggests that the mutation G20210A in the prothrombin gene is a strong, independent risk factor for pulmonary embolism.

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References


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The Value of Free Enterprise

To the Editor:

Dr. Relman, in his AACC Lecture Award Address, derides the free enterprise system’s role in healthcare because it distorts the interests of the caregivers. Yet Dr. Relman receives much of his public reputation as the former Editor of The New England Journal of Medicine, a journal that has profited from the rich support it receives from its advertisers. We accept this commercial support without criticizing the integrity of its recipient. We believe The New England Journal of Medicine has not compromised its principles.

The field of laboratory medicine provides tremendous benefit to society because of the contributions of individuals and organizations who have benefited from the free enterprise system. The contributions of Arnold Beckman, Jack Whitehead,
and Walter Coulter, to name just three, allow laboratories throughout the world to use innovative technology that aids the resolution of diagnostic problems. In addition, commercial reference laboratories provide patients access to a wide range of tests at affordable prices; tests that otherwise would be unavailable. Commercial reference laboratories have introduced numerous new assays, such as quantitative HIV viral load, and continue to do so despite the restrictions on additional reimbursement from capitated managed care contracts and Medicare.

In summary, the free enterprise system, because it rewards innovators and risk-takers, provides benefits to healthcare that, in its absence, would not have been realized. Many commercial healthcare organizations declare the primacy of the patient in their mission statements. Indeed, the primary motivator for all healthcare professionals and organizations must be the patient. Dr. Relman is correct for chiding those in healthcare who, in contrast, see financial interests as their primary motivator.

Thus, Dr. Relman’s presentation would be more balanced if he were to acknowledge the contributions of Drs. Albert Nichols and Paul Brown and many others who, while enjoying the benefits of a free enterprise system, have provided patients with a richness of choices.

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The Editor-in-Chief Emeritus of the New England Journal of Medicine responds:

To the Editor:
Conflicts of interest when physicians are controlled by businessmen in managed care companies, or when physicians invest in health care services, are different and much more serious than those that might arise when diagnostic laboratories are owned by businesses or when medical journals accept pharmaceutical advertising. My lecture was mainly about managed care, and I argued that managed care organizations serve patients’ interests best when physicians remain independent professionals, without financial ties to the company. It is very hard to avoid serious problems when physicians are not independent professionals, practicing alone or in groups. In contrast, potential abuses from pharmaceutical advertising in scientific journals or from commercial ownership of diagnostic laboratories are easy to identify and avoid.

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