

Letters to the Editor

CIGARETTE SMOKING AS A RISK FACTOR FOR DEEP VENOUS THROMBOSIS

To the Editor:

The excellent review "Diagnosis and Management of Thromboembolic Disease" (Simon AR, Hassoun PM: *Hospital Physician* 1998;34[11]:21-37) presents a table of inherited and acquired risk factors for venous thromboembolism. However, cigarette smoking, one of the few risk factors for thromboembolic disease that can be either modified or eliminated, is missing from the table as well as the discussion.

Over the past four decades, a substantial amount of basic and clinical research has documented the association between chronic cigarette smoking and injury to the vascular endothelium and promotion of vascular thrombosis.¹⁻³ Further, clinical and epidemiological studies have documented that cigarette smokers have an increased risk for venous thromboembolism.^{4,5} Recently, a prospective study and 16-year follow-up examined clinical risk factors for venous thromboembolism in 112,822 women. The researchers found that women smoking 25 to 34 cigarettes per day had a 1.9 (95% confidence interval, 0.9-3.7) relative risk for developing venous thromboembolism compared with nonsmokers; the relative risk was 3.3 (95% confidence interval, 1.7-6.5) for women smoking 35 or more cigarettes per day compared with nonsmokers.⁶

More research is needed to further define the effects of both active and passive cigarette smoking as well as other acquired or inherited risk factors for venous thromboembolism. Current scientific data clearly warrant that clinicians, residents, and medical students include cigarette smoking as a potential risk factor for venous thromboembolism in their patient evaluations and should counsel patients accordingly.

I have been unable to identify a current textbook, monograph, or review article that clearly lists cigarette smoking as a risk factor for venous thromboembolism. Book and journal authors, editors, and reviewers should correct this deficiency in future publications.⁷

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In reply:

We thank Dr. Jay for his kind remarks regarding our recent review of the diagnosis and management of thromboembolic disease and for his pertinent com-

ments on cigarette smoking as a possible risk factor for deep venous thromboembolism.

Whether cigarette smoking is a significant independent risk factor for thromboembolic disease remains somewhat unclear. One of the studies mentioned by Dr. Jay does not provide a strong link between cigarette smoking and the risk of thromboembolic disease in the general population.⁴ In this retrospective study by Sankoff and Comstock,⁴ a trend linked the number of cigarettes smoked with "pulmonary embolism" mentioned in the death certificate; however this association did not reflect actual deaths caused by pulmonary embolism. Goldhaber et al⁸ examined risk factors for pulmonary embolism in a cohort of Framingham Heart Study patients who had clinically significant pulmonary embolism confirmed at autopsy. These researchers demonstrated only a borderline association between pulmonary embolism and cigarette use in men ($p = 0.051$).

However, cigarette smoking is associated with an increased risk of pulmonary embolism in women, as supported by studies to which Dr. Jay refers in his letter.^{5,6} This association was first shown in a cohort of patients from the Walnut Creek Contraceptive Drug Study,⁵ and then clearly demonstrated in the large prospective Nurses' Health Study.⁶ In the latter study, the risk of pulmonary embolism was correlated with and significantly increased by the number of cigarettes smoked, with a relative risk up to 3.3 for women smoking 35 cigarettes or more daily compared with nonsmokers.⁶

At this time, it is unclear whether the risk of thromboembolic disease differs for smokers according to gender. If such a difference exists, the reason is not readily apparent. Regarding the pathogenic basis for increased thromboembolism in relation to cigarette smoking, current data indicate increased platelet adhesion in patients prone to arterial and venous thrombosis, with a significant correlation in patients who smoke ($p = 0.001$).⁹ However, the increased platelet activity was seen in men, rather than women, who were current or ex-smokers.⁹

For obvious health reasons, cigarette smoking is not recommended in men or women, whether or not smoking is an independent risk factor for thromboembolic disease.

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