

### Detection of the Factor V Leiden Mutation in a Nonselected Black Population

To the Editor:

The factor V Leiden mutation was first described in 1994.<sup>1</sup> The mutation replaces Arg 506 of factor V with Gln, and alters the cleavage site on the activated molecule (factor Va), which is critical for the action of activated protein C (APC). As a result, factor Va derived from the mutant sequence is resistant to the anticoagulant effect of APC. Studies have shown a statistically significant increase in the risk of clinical venous thromboembolism among patients homozygous and heterozygous for factor V Leiden.<sup>2-4</sup>

Previous studies of the incidence of clinical APC resistance and the factor V Leiden mutation have focused primarily on white populations, where the prevalence has been reported variously as 2% to 5%.<sup>1,5,6</sup> This mutation has been demonstrated in at least one African-American individual with clinical thrombosis,<sup>2</sup> but we have found no information on the prevalence of factor V Leiden within the American black population. It has been predicted by some that the abnormality might be found predominantly in individuals of European extraction. We have investigated the incidence of the factor V Leiden mutation in black inpatients and outpatients in our hospital setting, and have found, surprisingly, that the incidence of this mutation in the black population is not significantly different from that in whites.

Randomly selected blood samples were obtained from the Yale-New Haven Hospital hematology laboratory and the ethnic background of the patients was determined from hospital records. Once ethnic background was recorded, the samples were numbered consecutively and stored anonymously. In addition, we studied stored DNA samples from black individuals already available in the laboratory from previous population studies. Genomic DNA was isolated and analyzed by polymerase chain reaction and digestion of the APC cleavage site using previously described methods.<sup>1</sup> The factor V Leiden mutation destroys an Mnl-I restriction enzyme site, giving characteristic restriction fragment length polymorphism (RFLP) patterns for heterozygotes and homozygotes. Results were obtained for 214 black individuals, of whom 3 (1.4%) were heterozygous for the factor V Leiden mutation. By comparison, the incidence of the mutation in a group of 126 white patients selected in the same

manner was 2 (1.6%), yielding a relative risk of 0.88 (Fisher Exact two-tailed test,  $P = 1.0000$ , 95% confidence interval 0.12 to 7.64). These data do not support the hypothesis of a difference between the incidence of the factor V Leiden mutation in the black and white populations studied. Although the possibility of the introduction of an ancestral Caucasian gene into the black population cannot be ruled out, these results strongly suggest multiple mutational events giving rise to the factor V Leiden genotype.

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