Influence of factor V Leiden on the development of neovascularisation secondary to central retinal vein occlusion

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Aims: To investigate if the presence of factor V Leiden has an influence on the prognosis in central retinal vein occlusion (CRVO).

Methods: 166 patients with CRVO were studied retrospectively. They were tested for factor V Leiden using DNA analysis. The presence of the mutation was studied in correlation with the development of neovascular complications 1 year after the thrombotic event.

Results: 56 of 166 patients (34%) developed neovascular complications after 1 year. In the patients who had the studied mutation 11 of 20 (55%) had developed neovascular complications after 1 year, compared to 45 of 146 patients (31%) in the group without factor V Leiden (p=0.04).

Conclusion: The presence of factor V Leiden seems to enhance the risk of developing neovascular complications in CRVO.

DISCUSSION

All patients were followed for at least 1 year. This time was chosen as we know that the majority of the patients who develop neovascular complications after CRVO have done so within this time period. The end point was the development of neovascular complications or not, 1 year after the thrombotic event. Neovascular complications were defined as any retinal, disc, iris, or chamber angle neovascularisations. Clinical information was derived from the patient records.

DNA analysis

Preparation of genomic DNA from EDTA blood and determination of the factor V Leiden mutation (G to A at nucleotide position 1691), which causes activated protein C resistance, was performed as described earlier.

RESULTS

After a year 56 of 166 patients (34%) had developed neovascular complications. Factor V Leiden was present in 20 of 166 patients (12%). The patients with factor V Leiden did not significantly differ in age or sex compared to the patients without the studied mutation. The patients with factor V Leiden, 10 men and 10 women, ranged in age between 22 and 86 years (mean 58 years; median 64 years). The patients without factor V Leiden, 76 men and 70 women, ranged in age between 28 and 91 years (mean 65 years; median 68 years).

In the patients with factor V Leiden, 11 of 20 (55%) developed neovascular complications. In the patients without the mutation 45 of 146 patients (31%) developed neovascular complications (p=0.04; Fischer's exact test) (Fig 1). This gives an odds ratio of 2.7 (CI 95% 1.1 to 7.1).

PATIENTS AND METHODS

Patients

A total of 190 consecutive patients with CRVO examined in the eye clinic of Lund University Hospital from 1994 to 2000 were invited to take part in the study; of these, 166 patients agreed to participate. Venous blood samples were collected after informed consent was obtained. Of the 166 patients, 86 were men and 80 were women. The patients were aged between 22 and 91 years (mean age 64 (SD 15) years).
The incidence of neovascular complications in our patients during the first year after the thrombotic event is in accordance with earlier reports. The prevalence of factor V Leiden is also at the level expected in the normal population in the studied area, which confirms that factor V Leiden probably does not have an important aetiological role in CRVO, as pointed out earlier.

In conclusion, the presence of factor V Leiden seems to enhance the risk of developing neovascular complications in CRVO.

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REFERENCES