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Sir,

Retinal vein occlusion, the contraceptive pill and the prothrombin 20210A allele

Retinal vein occlusion is a common ophthalmic disorder the aetiology of which remains unclear. Kirwan and colleagues[1] claim to have found an association between this and contraceptive pill usage. However, our reanalysis of their data suggests that only 4 of 9 (44%) female patients under 35 years in their series were actually taking the contraceptive pill at the time of the event, compared with 30% national usage of the pill in this age group – not a significant difference. Furthermore they confined their investigations to markers of arterial disease, rather than venous thrombosis (such as deficiency of antithrombin, protein C, protein S or the presence of the factor V Leiden defect).

Recently a new inherited prothrombotic abnormality has been described that is associated with increased prothrombin levels.[2] We report a young patient who developed branch retinal vein thrombosis whilst taking the combined oral contraceptive and who was subsequently found to be heterozygous for the prothrombin 20210A allele.

Case report

A 25-year-old woman presented with a non-ischaemic, macula-sparing branch retinal vein occlusion in her left eye. Her visual acuity was 6/6 and she did not require any specific ophthalmic treatment. At presentation she was taking Dianette, a combined oral contraceptive pill. Four years earlier she had had an episode of drug-related lupus erythematosus induced by tetracycline that resolved completely on withdrawing the medication. Investigation at the time of the retinal vein occlusion showed normal levels of antithrombin, protein C, protein S and anticardiolipin antibodies. The lupus anticoagulant test was negative and the factor V Leiden was absent. Two years later she was reinvestigated following referral to a haematologist for advice on the management of pregnancy. The lupus anticoagulant was still undetectable, the anticardiolipin tests were normal but a test for the prothrombin 20210A allele showed that she was heterozygous for this abnormality.

Discussion

Three possible causes could, at least theoretically, be contributing to the development of the retinal vein occlusion in this woman: the previous lupus erythematosus, the oral contraceptive and the prothrombin 20210A allele. The episode of lupus erythematosus occurred 4 years earlier but since withdrawing the offending drug, tetracycline, there has been no clinical or laboratory marker of recurrence.

This patient was taking the combined oral contraceptive pill at the time of the retinal vein occlusion. We believe that, on current evidence, it is not possible to say whether the contraceptive pill in isolation is a risk factor for retinal vein occlusion.

The prothrombin 20210A allele was first reported to be associated with venous thrombosis in November 1996. It is due to a G to A transition at position 20210 of the prothrombin gene. Although this is in the 3 untranslated region of the gene, it is at the terminal position where the poly-A tail attaches prior to mRNA translation. This transition stabilises the mRNA molecule leading to increased prothrombin concentration and increased thrombotic risk.[2] The prothrombin 20210A allele is found in 1% of the normal population and in 6% of patients with thrombosis.[2,3]

We can not be certain as to whether the prothrombin defect was a causative factor in this woman's retinal vein occlusion, but in combination with the oral contraceptive it could have been. Further studies are required to define the role of the contraceptive pill and inherited prothrombotic defects in the aetiology of retinal vein occlusion.

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