

## Visual complications of warfarin

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TO THE EDITOR: Warfarin is frequently used in the same population that is at risk of age-related macular degeneration (ARMD), the commonest cause of blindness in the elderly. A recent report has suggested that warfarin may cause severe intraocular haemorrhage and loss of vision in the minority of patients who have the neovascular form of ARMD.<sup>1</sup> We have also seen this occur in patients taking warfarin. There are methodological imperfections in the report, and the association is certainly not proven. Nevertheless, it would seem prudent to exercise some caution in the use of warfarin in patients who are or may be at risk. Our preliminary recommendations (pending a prospective study) are:

- If a patient has only one functioning eye (for whatever reason), an ophthalmologist's opinion should be sought as to the risk of neovascular ARMD in the seeing eye before or soon after commencing warfarin therapy. Low-risk patients are easily identified and warfarin use in these patients should have no visual sequelae. In patients considered at high risk of neovascular ARMD, the use of warfarin may carry a (currently unquantifiable) risk of visual loss. Alternatives to warfarin should be considered, and the possible risks of taking, or not taking, warfarin should be discussed with the patient.

- If a patient has two seeing eyes, the risk of bilateral visual loss from warfarin must be exceedingly small, and indeed there have not even been anecdotal reports of such an event. Warfarin can be used in such patients without regard to ocular status.

- Ophthalmologists should ask all patients they examine whether they take warfarin and should communicate to the treating

doctor the presence or absence of factors that put this patient at high risk of neovascular ARMD.

1. Tilanus MAD, Vaandrager W, Cuyper M, et al. Relationship between anticoagulant medication and massive intraocular haemorrhage in age related macular degeneration. *Graefes Arch Clin Exp Ophthalmol* 2000; 238: 482-485. □

## Quinine-induced disseminated intravascular coagulation and haemolytic-uraemic syndrome

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TO THE EDITOR: I wish to report a case of quinine-induced disseminated intravascular coagulation (DIC) and haemolytic-uraemic syndrome (HUS).

A 78-year-old woman presented with nausea, vomiting, diarrhoea, fever and confusion three hours after taking 150 mg of quinine for leg cramps. Five months earlier she had been admitted overnight for similar symptoms after quinine ingestion, her symptoms resolving over 12 hours without sequelae. Before this she had ingested quinine infrequently for the preceding five years without complication.

Her past history included hypertension, hypercholesterolaemia and glaucoma; medications were simvastatin, lisinopril and latanoprost eye drops. On presentation her temperature was 40°C, blood pressure was 150/90 mmHg; physical examination was otherwise unremarkable. Initial investigations showed serum creatinine concentration, 0.11 mmol/L (reference range, 0.05–0.10 mmol/L); platelet count,  $124 \times 10^9/L$  (reference range,  $150\text{--}400 \times 10^9/L$ ); prothrombin time, 21.2 seconds (reference range, 11s–16s); activated partial thromboplastin time, 66.3 seconds (reference range, 25s–42s); fibrinogen concentration, 2.1 g/L (refer-

ence range, 1.5–4.0 g/L); and D-dimer level, >4.0 mg/L (reference range, <0.35 mg/L). No haemolysis was present on the initial blood film.

The patient rapidly developed oliguric renal failure, progressive coagulopathy and thrombocytopenia. There was no focus of infection, and blood, urine and faecal cultures were negative. Urine microscopy showed  $3 \times 10^6$  leukocytes per litre (reference range,  $<10 \times 10^6/L$ ),  $270 \times 10^6$  erythrocytes per litre (reference range,  $<10 \times 10^6/L$ ) and granular casts. Her urine output improved following infusions of saline, dopamine and high dose furosemide, but renal function continued to deteriorate. The coagulopathy had resolved by 48 hours after taking the quinine, but thrombocytopenia and renal function continued to worsen, with a platelet count of  $18 \times 10^9/L$  and a serum creatinine concentration of 0.58 mmol/L, evidence of haemolysis with fragmentation of red blood cells, elevated concentrations of lactate dehydrogenase (2450 U/L; reference range, 110–250 U/L) and bilirubin (32  $\mu\text{mol/L}$ ; reference range, <20  $\mu\text{mol/L}$ ), and low haptoglobin concentration (<0.06 g/L; reference range, 0.3–2.15 g/L), consistent with haemolytic-uraemic syndrome.

The patient was treated with four cycles of plasma exchange with 3 L volumes, corticosteroids and two cycles of haemodialysis over 11 days. Renal function gradually improved, although the serum creatinine concentration remained elevated at 0.17 mmol/L two months later.

The most common adverse reaction to quinine is thrombocytopenia. Six cases of DIC and 10 cases of HUS following quinine ingestion have been previously reported.<sup>1–5</sup> This is the first report of both DIC and HUS occurring together after exposure to quinine. Many of the case reports describe multiple presentations before quinine was identified as the precipitant. It is important that prescribers are aware of this rare but serious reaction which may occur following exposure to quinine, and that a history of ingestion is sought in anyone presenting with otherwise unexplained DIC or HUS.

1. Spearing RL, Hickton CM, Sizeland P, et al. Quinine-induced disseminated intravascular coagulation. *Lancet* 1990; 336: 1535-1537.
2. Glynn P, Salama A, Chaudhry A, et al. Quinine-induced immune thrombocytopenic purpura followed by hemolytic uremic syndrome. *Am J Kidney Dis* 1999; 33: 133-137.
3. Aster RH. Quinine sensitivity: a new cause of the hemolytic uremic syndrome. *Ann Intern Med* 1993; 119: 243-244.
4. Gottschall JL, Elliot W, Lianos E, et al. Quinine-induced immune thrombocytopenia associated with hemolytic uremic syndrome: a new clinical entity. *Blood* 1991; 77: 306-310.
5. Kedia RK, Wright AJ. Quinine-mediated disseminated intravascular coagulation. *Postgrad Med J* 1999; 75: 429-430. □

### Correspondents

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