CASE REPORT

Central retinal artery occlusion in a 30-year-old woman taking tranexamic acid

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Accepted 12 June 2017

SUMMARY

We present a case of a 30-year-old woman who suffered a central retinal artery occlusion while taking tranexamic acid. She had no vascular risk factors and was placed on the drug for treatment of menorrhagia. After 1 month of taking the drug, she suffered a central retinal artery occlusion in her left eye. Tranexamic acid was discontinued to prevent vision loss in the following eye. She remains with no perception of light vision in the affected eye.

BACKGROUND

Tranexamic acid (TA) is a commonly used medication to treat or prevent excessive blood loss from surgery or heavy menstrual bleeding. It is on the WHO's list of essential medicines as one of the most important medications needed in a basic healthcare system.¹ It can have significant ocular side effects such as central retinal artery occlusion, which results in permanent loss of vision.

We wish to report a young woman who has permanently lost the vision in one of her eyes as a result of taking TA. This case demonstrates the need for further awareness of the potential ocular side effects of TA.

CASE PRESENTATION

A 30-year-old woman presented with a 2-day history of loss of vision in her left eye. She describes waking up with sudden painless loss of vision in her left eye. She had no headaches or any preceding symptoms. She presented to the local eye casualty with no perception of light vision in her left eye and 6/6 in her right eye. She had a left relative afferent pupillary defect, intraocular pressure of 15 mm Hg in both eyes and a central retinal artery occlusion in the left eye with a cherry red spot in her left fundus and a normal fundal examination of the right eye. Her medical history included menorrhagia for which she was started on TA 1 g three times a day a month prior. She did not take any other medications or have any medical history and no vascular risk factors. There was no family history of any coagulation disorders or eye disorders. She is a non-smoker and does not drink alcohol. She is married with two young children.

INVESTIGATIONS

Blood pressure was immediately measured and found to be in the normal range of 115/80 mm Hg.

Full blood count, urea, creatinine, electrolytes, erythrocyte sedimentation rate and C-reactive protein were normal. Protein electrophoresis was normal.

A young stroke screen was performed, which came back negative including negative autoimmune screen including negative anticardiolipin antibodies, normal echocardiogram and 24-hour ECG, normal carotid Dopplers, and normal CT head and orbits.

She was also referred to the physicians and haematologists who could not find any systemic or haematological abnormalities.

DIFFERENTIAL DIAGNOSIS

Central retinal artery occlusion may be secondary to emboli. These emboli may arise from a variety of pathologies such as artificial heart valves, bacterial endocarditis, fat emboli, septic emboli or talc emboli. Central retinal artery occlusions may also rarely be associated with giant cell arteritis. Other rarer causes include essential thrombocythaemia, thrombotic thrombocytopenic purpura, homocystinuria, anti-phospholipid antibody syndrome, protein S deficiency and protein C deficiency. The woman in our case report had no risk factors and tested negative for all of the above. She also had no evidence of renal insufficiency, which could have theoretically led to a cumulative toxic effect from TA.

TREATMENT

As the artery occlusion had already been present for more than 48 hours before presentation, any potential benefit from treatment was very limited. Acetazolamide 500mg orally together with ocular

Figure 1 Colour fundus photography of the left eye 4 months after presentation showing a pale optic disc and central retinal artery occlusion.

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To cite: Wijetilleka S, Yeo DCM, Sharma B. *BMJ Case Rep* Published Online First: [please include Day Month Year]. doi:10.1136/bcr-2016-218246

massage in an attempt to dislodge the clot was tried. However, there was no improvement in her vision.

OUTCOME AND FOLLOW-UP

The patient was referred to the physicians and haematologists for systemic investigations.

The physicians reviewed the above investigations and could find no underlying abnormality. As preventative therapy, she was started on aspirin 75 mg once a day by the physicians and her TA was discontinued. She was then followed up monthly in the eye clinic with no change in her visual acuity.

Her left fundus (figure 1) over several months developed a pale atrophic optic nerve.

DISCUSSION

TA is a potent antifibrinolytic that competitively inhibits the activation of plasminogen to plasmin. Thereafter, plasmin is required to degrade fibrin clots and fibrinogen in the clotting cascade. TA is used mainly to stop or prevent excessive bleeding in a number of conditions. It is often used prior to prostate, bladder or cervical surgery or in the treatment of menorrhagia. The administration of fibrinolytic agents is hypothesised to occasionally promote spontaneous thrombosis, which can then proceed to occlude arteries.² Some of its more common adverse reactions include cerebrovascular infarction, myocardial infarction and pulmonary embolism. It is contraindicated in patients with active thrombotic or embolic disorders.

Only two cases of retinal artery occlusion following the use of TA have been reported in the literature.^{3 4} Parsons *et al* reported a case of branch retinal artery occlusion following the administration of TA for haemorrhagic cystitis.³

Learning points

- ▶ Be aware of the potential ocular side effects of tranexamic acid. The patient information leaflet includes this specific adverse drug reaction, which although rare can potentially be devastating.
- ▶ Warning to patients on tranexamic acid that any loss of vision should be reported immediately and urgent ophthalmological assessment be sought.
- ▶ Be cautious in starting tranexamic acid in any patient with only one eye.
- ▶ Raise awareness among ophthalmologists of the side effects of tranexamic acid.

Contributors SW followed up the patient, obtained clinical information, obtained consent and prepared the manuscript. DCMY planned the paper, prepared the manuscript, sourced the picture and did the literature review. BS helped with the design of the manuscript, did the literature review and prepared the manuscript.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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REFERENCES

- 1 19th WHO Model List of Essential Medicines: WHO, 2015.
- 2 Agarwal A. *Gass atlas of macular diseases*. 5th ed. Elsevier, 2012.
- 3 Parsons MR, Merritt DR, Ramsay RC, *et al*. Retinal artery occlusion associated with tranexamic acid therapy. *Am J Ophthalmol* 1988;105:688–9.
- 4 Dighiero P, Frau E, Bodaghi B, *et al*. Central retinal artery occlusion related to ingestion of tranexamic acid. *J Fr Ophthalmol* 1996;19:785–1996.

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