Should we stop anti-thrombotic agents prior to vitrectomy?

David Yorston¹ · David Wong² · Antonia Jousseaume³

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All retinal surgeons are occasionally faced with the dilemma of operating on a patient who is taking anti-thrombotic medication. Although there is clear guidance that anti-thrombotics pose little risk in cataract surgery, the situation is more confused when it comes to vitreoretinal surgery [1], and there are wide variations in practice. Vitrectomies are more likely to be affected by haemorrhagic complications than clear cornea phacoemulsification, and the consequences of bleeding into the eye during a vitrectomy can be very serious. The paper by Meillon & colleagues goes some way towards reducing our confusion.

Retinal surgeons want to know, “Is the risk of haemorrhagic complications greater in patients on anti-thrombotics than in patients who are not taking these drugs?”, and, secondly, “If the anti-thrombotic treatment is stopped, does this reduce the risk of haemorrhagic complications?”

Meillon’s study looked at 804 consecutive vitreoretinal surgeries, the majority of which were vitrectomies. Two hundred and eighteen of these patients were on anti-thrombotic treatment. Treatment was stopped in only 23 patients (10.6% of the total taking anti-thrombotic drugs), so the study does not have sufficient power to answer the second of the two questions authoritatively. However, if the risk of haemorrhagic complications is negligible, stopping anti-thrombotic treatment is unnecessary, and the question becomes irrelevant.

Fifty-three developed a haemorrhagic complication intra-operatively or within 4 weeks of surgery. Nearly 60% of these were intravitreal haemorrhages. They found no increased risk of bleeding from oral anti-coagulants, but, in univariate analysis, anti-platelet agents were associated with a greater risk of

haemorrhagic complications. Anecdotally, we are aware of reports of severe intra-operative haemorrhage associated with anti-platelet agents—particularly clopidogrel [1].

The risk of haemorrhage is likely to be affected by the indication for vitrectomy. We would expect a lower risk in surgery for macular hole or epiretinal membrane, compared to delamination for proliferative diabetic retinopathy [2]. Bleeding complications occurred in 17.6% of eyes undergoing surgery for complications of proliferative diabetic retinopathy, compared to 5.8% of eyes undergoing other operations (Fisher’s exact test, $p = 0.004$). Vitreous cavity haemorrhage is a common complication of diabetic vitrectomy, occurring in over 20% of cases in one series [3].

This study does not report the outcomes of the eyes that had a haemorrhagic complication. Apart from the vitreous cavity haemorrhages, there were ten sub-retinal bleeds, five choroidal haemorrhages, and one suprachoroidal haemorrhage, and it is these last 16 events that are most likely to be sight-threatening. The incidence of these complications in patients who were not taking anti-platelet agents was 1.1%, but in those who were taking these drugs, the incidence was 6.1% (Fisher’s exact test, $p = 0.001$).

Although these complications were potentially sight-threatening, it is likely that most of them could be managed successfully intra-operatively, or by further surgery. On the other hand, the consequences of a thrombo-embolic complication, such as a middle cerebral artery occlusion, are likely to be severe and permanent disablement. The ophthalmic complications that may be caused by anti-thrombotic agents are not equivalent to the complications that may be caused by stopping anti-thrombotic treatment. In this debate, we should err on the side of “do no harm”, which means that where there is doubt about the benefit of stopping anti-thrombotic treatment, it should be continued.

The authors of this study have done very well to include over 800 consecutive cases, but the numbers remain relatively small, as only a minority of patients are using anti-thrombotic treatments, and haemorrhagic complications are uncommon. In order to obtain greater certainty, more studies, with larger

✉ David Yorston
david.yorston@ggc.scot.nhs.uk

¹ Vitreo-Retinal Service, Gartnavel General Hospital, Glasgow, Scotland, UK

² Royal Liverpool University Hospital, England, London, UK

³ Charite Berlin, Berlin, Germany

numbers are required. However, these investigators have done a considerable service by showing that a collaborative and coordinated approach, linking different centres, but using the same simple protocol, is an inexpensive and practical method of gathering this vital data.

Despite the relatively small numbers, we can draw some conclusions. Firstly, there is no reason to stop anti-coagulants if they are in the therapeutic range. There does not appear to be any increased risk of haemorrhagic complications with these drugs. Secondly, it is probably safe to continue anti-platelet drugs in the great majority of cases, as the risk of bleeding is low, even if it is slightly increased. The one possible exception to this is vitrectomy for proliferative diabetic retinopathy. However, there are other ways to reduce the risk of haemorrhage in these eyes, and it may be safer to pre-treat with intra-vitreous anti-VEGF than to stop the anti-platelet drugs [4]. Finally, this study should encourage us to collect more data, using similar protocols, so that the advice we give our patients is founded on reliable evidence.

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