

Antithrombotic Use And Bleeding Risk In Retrobulbar Anesthesia

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Introduction

- Retrobulbar blockade optimizes ophthalmic surgical conditions by requiring minimal sedation and minimizing risks.
- The risk of newer direct oral anticoagulants and antiplatelet agents used therapeutically prior to retrobulbar block is unknown.
- An electronic registry includes patients who undergo eye blocks at the Hartford Hospital Eye Surgery Center (HHESC).
- We hypothesized that patients taking antithrombotic medications prior to blocks would have higher incidence of block-related bleeding complications.

Methods

- Retrospective, single-site, cohort study on ophthalmic surgery patients at the HHESC from 2014 to 2018.
- Outcomes: The incidence of retrobulbar hemorrhage and minor bleeding.
- Factors: antithrombotic therapy use, block technique, block administrator, block volume, and patient comorbidities.

Primary Objective

Identify the incidence of retrobulbar hemorrhage associated with retrobulbar blockade.

Secondary Objective

Evaluate the incidence of minor block-related bleeds associated with antithrombotic therapy.

Results

- Of 8,994 eligible patients, retrobulbar hemorrhage was reported in 2 patients (0.02%), neither of whom were taking antithrombotics (Figure 1).
- Due to low incidence, association with antithrombotics unknown.
- Of the remaining 8,942 records, minor bleeding complications occurred in 135 (1.5%) patients.
- Multivariate analysis showed block dual antiplatelet therapy was associated with higher risk of minor bleeding complications (Figure 2; P = .008).

Table 1. Multivariate analysis of minor bleeding incidence for specified parameters

Parameter	Odds-ratio for Minor Bleeding	P Value
Age; 1-year increase	1.039 (1.013, 1.066)	0.004
Sex; male vs female	0.681 (0.421, 1.101)	0.117
Block volume; >5 ml vs. 5 ml	5.747 (2.537, 13.016)	<0.001
Block administrator; surgeon vs anesthesiologist	0.534 (0.231, 1.232)	0.141
ASA physical status; III or IV vs I or II	1.757 (1.039, 2.971)	0.036
Comorbidities; with vs without		
CAD	1.376 (0.674, 2.808)	0.381
MI	1.182 (0.471, 2.967)	0.721
valve disease	1.445 (0.507, 4.119)	0.490
Therapeutic antithrombotic use; vs 'no antithrombotic therapy'		
2 antiplatelets (DAPT)	3.382 (1.379, 8.291)	0.008
1 antiplatelet	0.630 (0.333, 1.192)	0.155
1 anticoagulant	0.608 (0.230, 1.611)	0.317
1 antiplatelet + 1 anticoagulant	0.000 (0.000, 0.000)	0.997

*Abbreviations: CAD, coronary artery disease; MI, myocardial infarction; DAPT, dual antiplatelet therapy.
 **Results are from logistic regression and only include records with no missing data (n=5806).

Table 2. Incidence of retrobulbar hemorrhage from retrobulbar block by study.

Study	Incidence	Bleeds/Total
Eschert, et al., 2021 (our study)	0.02%	2/8,942
Edge & Nicoll, 1993	0.44%	55/12,500
Katz, et al., 2003	0.03%	6/19,283
Hamilton, et al., 1988	0.02%	5/5,325
Hustead & Hamilton, 1993	0.01%	1/20,000
Huebert, et al., 2015	0.00%	3/160,000

Conclusions

- Major bleeding complications associated with retrobulbar blocks are relatively rare.
- Changes in risk due to antithrombotic therapy were too small to detect.

References: Takaschima A, Marchioro P, Sakae TM, Porporatti AL, Mezzomo LA, De Luca Canto G. Risk of Hemorrhageduring Needle-Based Ophthalmic Regional Anesthesia in Patients Taking Antithrombotics: A SystematicReview. *PLOS ONE*. 2016;11(1):e0147227.