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Update on Risk of Endophthalmitis after Intravitreal Drug Injections and Potential Impact of Elimination of Topical Antibiotics

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Letters to the Editor

Previously the Diabetic Retinopathy Clinical Research Network (DRCR.net) reported a low rate of endophthalmitis achieved via a protocol requiring topical povidone-iodine, a sterile lid speculum, and topical anesthetic; not requiring topical antibiotics, sterile gloves, or a sterile drape.¹ These results included 3838 injections of either ranibizumab or preservative-free triamcinolone. No antibiotics were given either before or after the injections in 1276 eyes. Of 3226 ranibizumab injections given between two DRCR.net randomized trials, three cases of endophthalmitis occurred, all in eyes receiving topical antibiotics for several days after the injection.

As of November 21, 2011, a total of 8027 intravitreal injections (1066 eyes) from single use vials have been administered across four DRCR.net randomized trials.^{2–5} Seven (two culture negative, and 5 culture positive) cases of endophthalmitis have occurred, including 6 (0.13% [n=4697]) that occurred with the use of topical antibiotics, compared with 1 (0.03% [n=3333]) that occurred without the use of topical antibiotics (P value = 0.25). (Table 1)

These updated results include an additional 2,057 injections without topical antibiotics and the endophthalmitis rate remains lower than injections with topical antibiotics. These results affirm, as previously reported, that a low rate of endophthalmitis can be achieved without topical antibiotics when the technique includes the use of topical povidone-iodine, a sterile eyelid speculum, and topical anesthetic. These prospectively accumulated results support similar outcomes noted in large retrospective case series and suggest that topical antibiotics before or after intravitreal injections, as given in the DRCR.net, are not likely reducing the risk of endophthalmitis.

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Table 1
Cases of Endophthalmitis after Single Use Vial Intravitreal Injections in the Diabetic Retinopathy Clinical Research Network

Case	Intravitreal Drug Injected	Culture Results	Povidone-Iodine Use	Pre-op Antibiotics	Post-op Antibiotics
1	Bevacizumab	Coagulase negative staphylococcus	Yes	No	No
2	Ranibizumab	Coagulase negative staphylococcus	Yes	Yes	Yes
3	Ranibizumab	Culture negative	Yes	No	Yes
4	Ranibizumab	Coagulase negative staphylococcus	No [*]	Yes	Yes
5	Ranibizumab	Streptococcus viridans [†]	Yes	No	Yes
6	Ranibizumab	Coagulase negative staphylococcus	Yes	No	Yes
7	Masked drug (either saline or ranibizumab)	Culture negative	Yes	No	Yes

^{*} Among 8027 intravitreal injections in the Diabetic Retinopathy Clinical Research Network, this is the only study participant in which injections were performed without use of povidone-iodine, which was considered a protocol deviation. Since this event, the DRCR.net has clarified to participating investigators that no study injections may be performed without use of povidone-iodine over the injection site, even as a protocol deviation.

[†] Scant growth of methicillin resistant staphylococcus aureus also was reported.