

Intravitreal Dexamethasone Implants versus Intravitreal Anti-VEGF Treatment in Treating Patients with Retinal Vein Occlusion: A Meta-analysis

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Abstract

Background: Retinal vein occlusion (RVO) is a common retinal venous disorder that causes vision loss. No specific therapy has been developed. Controversy exists regarding two treatments: intravitreal dexamethasone implants and anti-vascular endothelial growth factor (VEGF). The goal of this study is to compare the effectiveness and safety of dexamethasone implants and anti-VEGF treatment for RVO.

Methods: The PubMed, Embase, and Cochrane Library databases were searched for studies comparing dexamethasone implants with anti-VEGF in patients with RVO. Best-corrected visual acuity (BCVA), central subfield thickness (CST), intraocular pressure changes, conjunctival haemorrhage, reduced VA, and macular oedema were extracted from the final included studies. RevMan 5.3 was used to conduct the quantitative analysis and bias assessment.

Results: Four articles assessing 969 eyes were included. The anti-VEGF treatment showed better BCVA improvement (mean difference [MD] = -10.59, $P < 0.00001$) and more CST decrease (MD = -86.71 μm , $P = 0.02$) than the dexamethasone implants. However, the dexamethasone implants required fewer injections. As for adverse effects, the dexamethasone implants showed significantly higher intraocular pressure (IOP) and more cataracts than the anti-VEGF treatment. No significant differences were found in conjunctival haemorrhage, reduced VA, and macular oedema.

Conclusions: Anti-VEGF treatment showed better functional and anatomical improvement with less risk of IOP elevation and cataract formation compared to dexamethasone implants. Thus, anti-VEGF treatment is the first choice for treating RVO patients.

Keywords: dexamethasone intravitreal implant, anti-VEGF treatment, retinal vein occlusion, meta-analysis

Figures

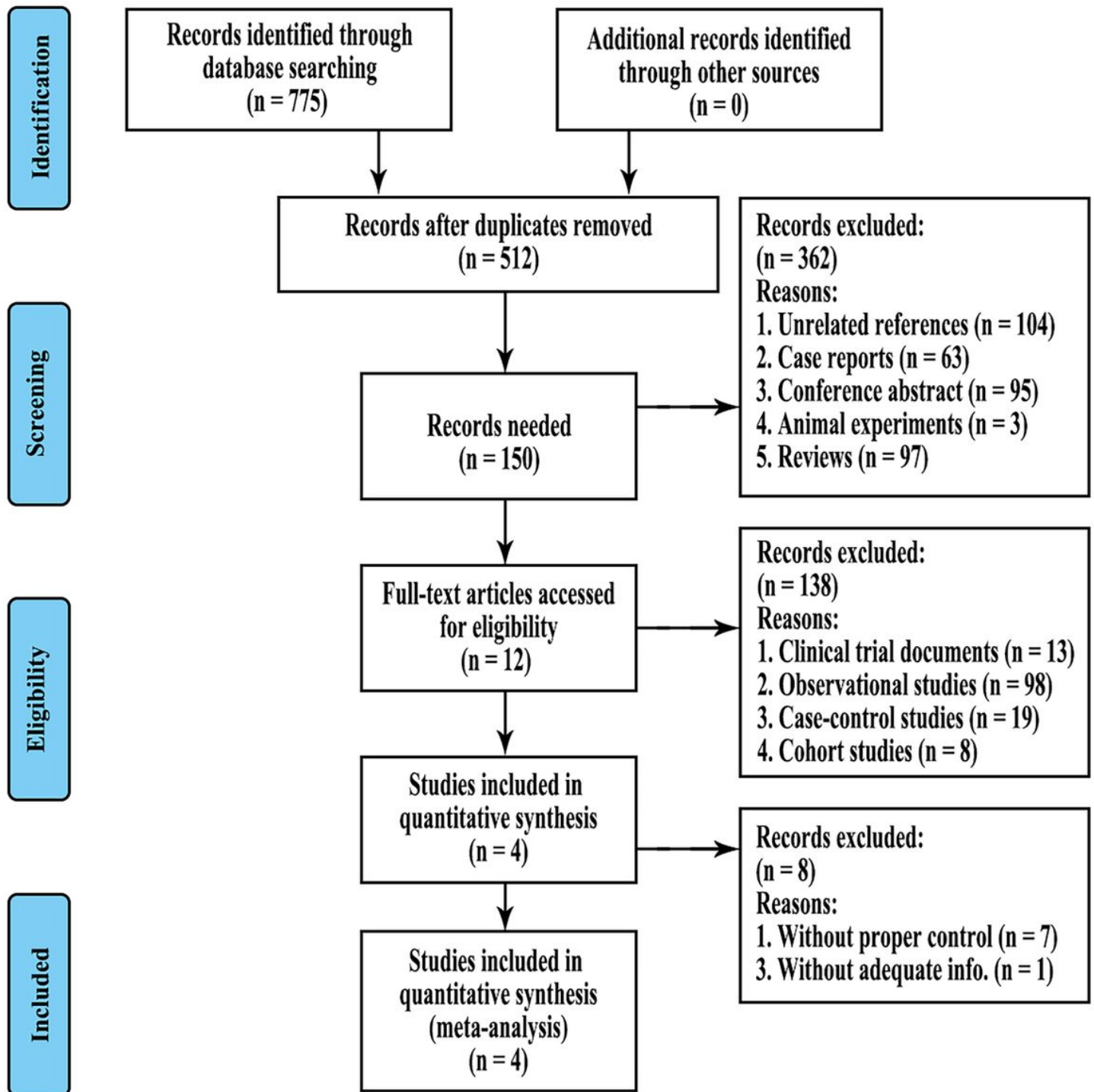


Figure 1

Flow chart of the literature search.

A

	Random sequence generation (selection bias)	Allocation concealment (selection bias)	Blinding of participants and personnel (performance bias)	Blinding of outcome assessment (detection bias)	Incomplete outcome data (attrition bias)	Selective reporting (reporting bias)	Other bias
Bandello 2018	?	?	-	-	+	+	?
Feltgen 2018 (b)	+	+	+	+	+	+	?
Feltgen 2018 (c)	+	+	+	+	+	+	?
Hattenbach 2018	+	+	+	+	+	+	?
Hoerauf 2016	+	+	+	+	+	+	?

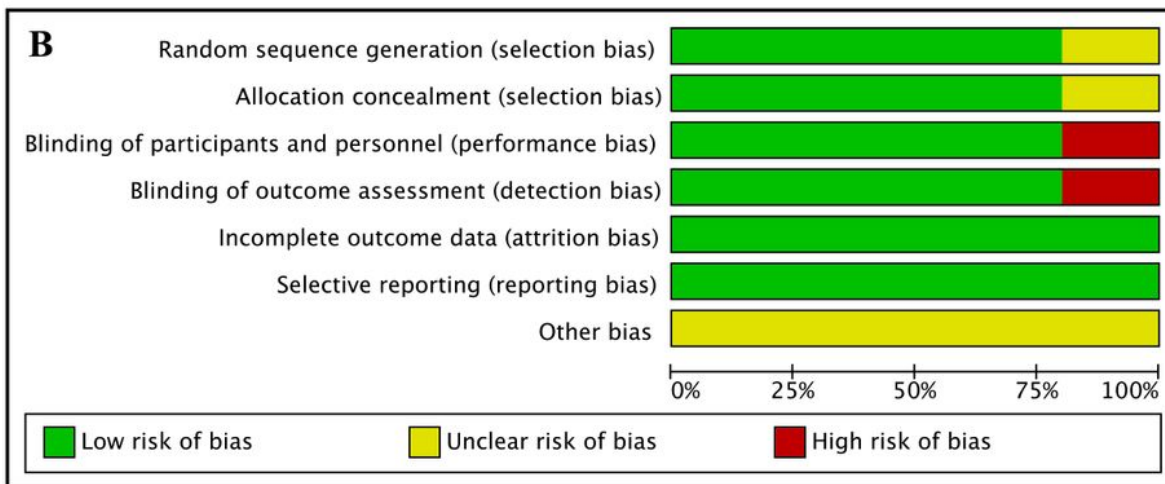


Figure 2

Assessment of the risk of bias in the included studies. A: Risk of bias summary: the authors' judgements on each risk of bias item for the included studies. +: low risk of bias; -: high risk of bias; and ?: unclear risk of bias. B: Risk of bias graph: authors' judgements regarding each risk of bias item displayed as percentages across the included studies.

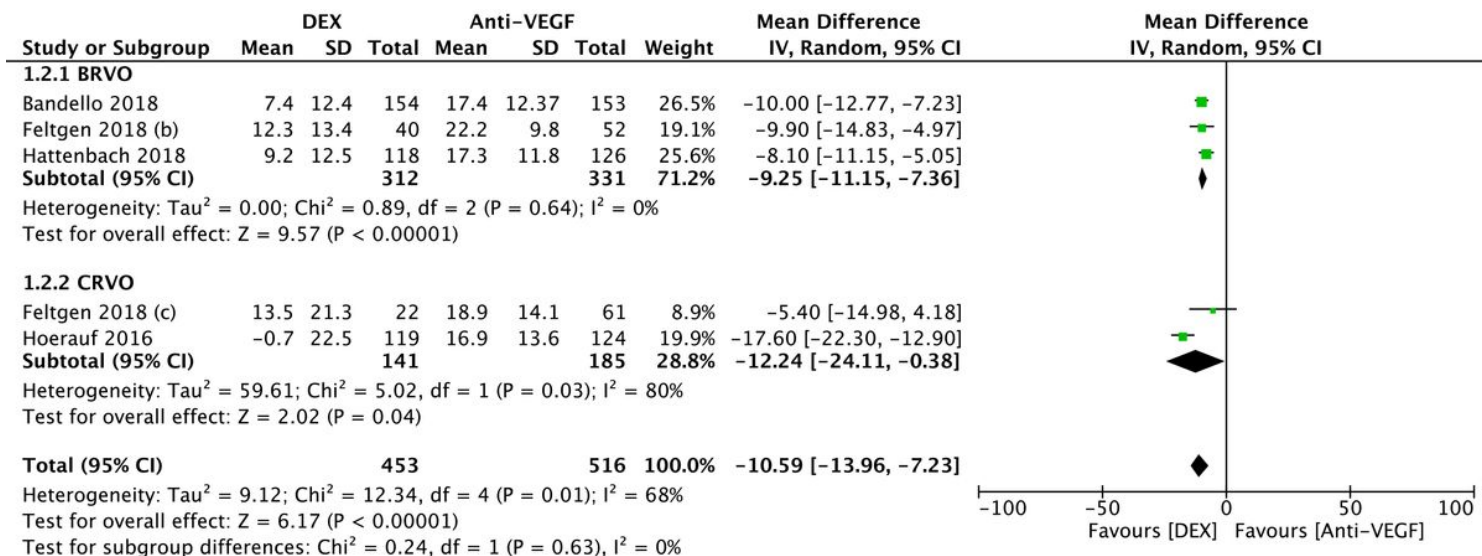


Figure 3

A forest plot diagram comparing the main outcome of the DEX implant with the anti-VEGF treatment at the endpoint. The results present the mean BCVA changes in RVO and the subgroup analysis of BRVO and CRVO.

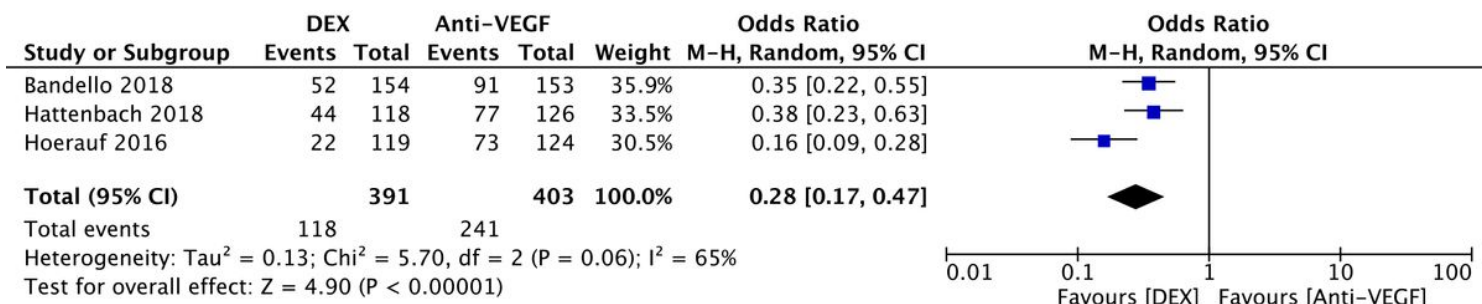


Figure 4

A forest plot diagram comparing the significant improvement in BCVA after the DEX implants and the anti-VEGF treatment at the endpoint.

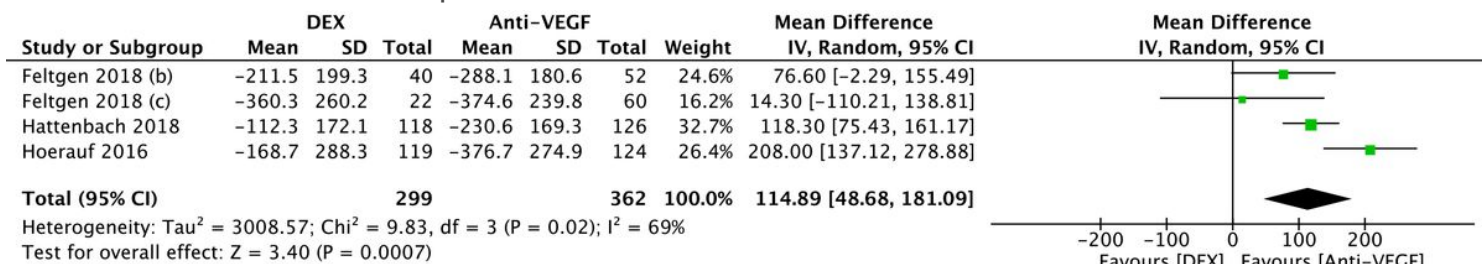


Figure 5

A forest plot diagram comparing the central subfield thickness after the DEX implants and the anti-VEGF treatment at the endpoint.

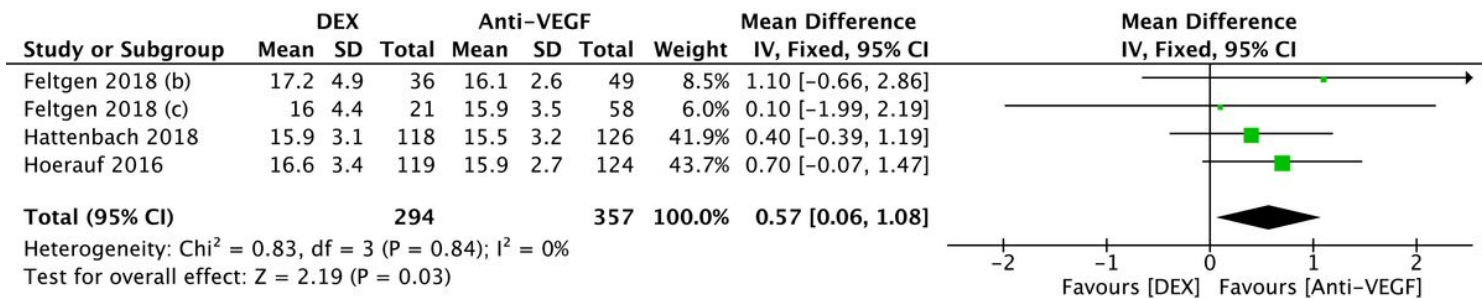


Figure 6

A forest plot diagram comparing the intraocular pressure changes after the DEX implants and the anti-VEGF treatment at the endpoint.

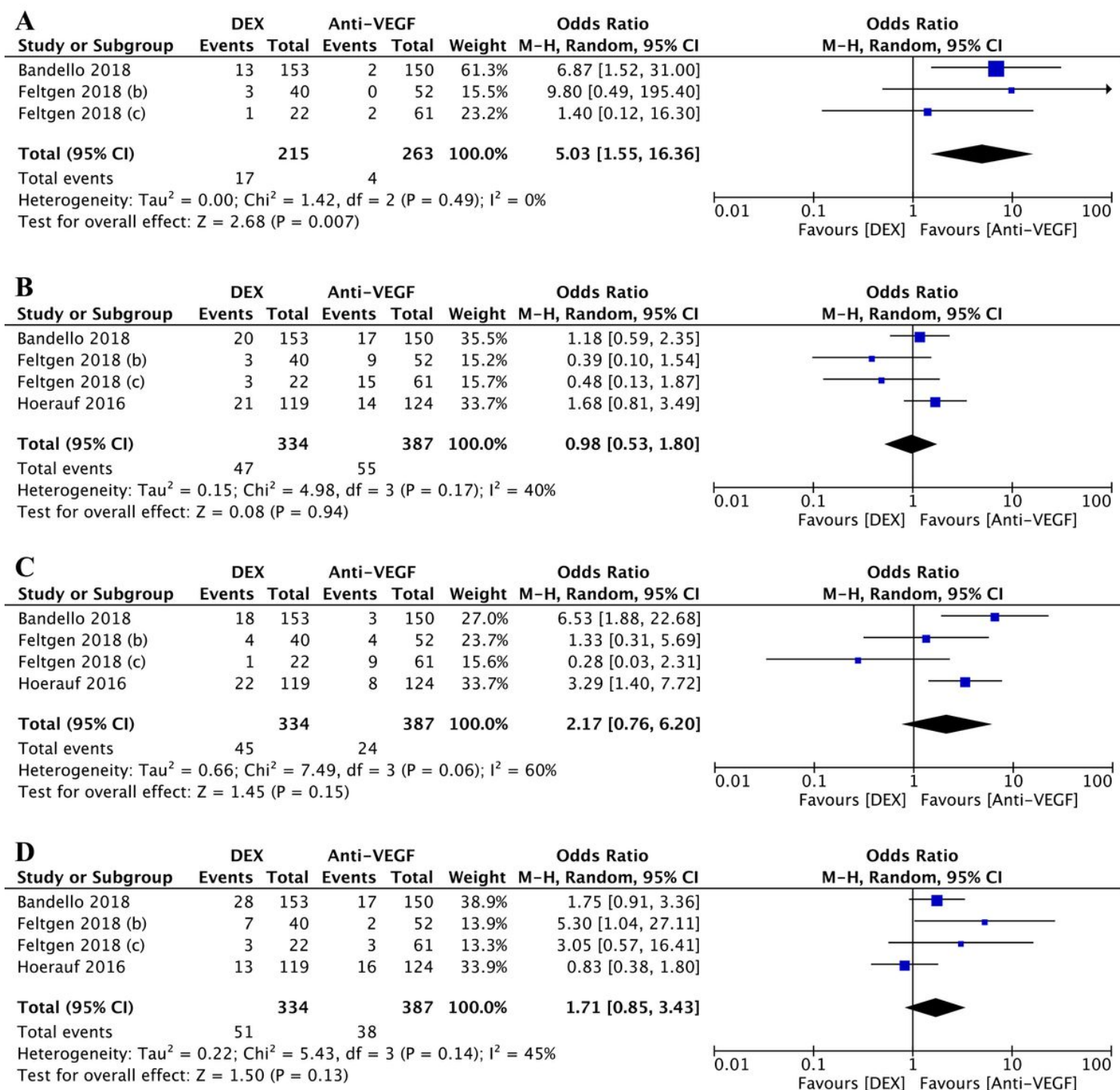


Figure 7

A forest plot diagram comparing the 4 main adverse effects after the DEX implant and the anti-VEGF treatment at the endpoint. A: Cataracts. B: Macular oedema. C: Reduced VA. D: Conjunctival haemorrhage.

Supplementary Files

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- [supplement0.pdf](#)