

MACULAR OEDEMA IN PROLIFERATIVE VITREORETINOPATHY RELATED RETINAL DETACHMENT: CAUSAL FACTORS, PROGNOSIS AND TREATMENT

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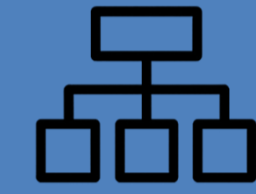
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Purpose



In Proliferative Vitreoretinopathy (PVR) related Rhegmatogenous Retinal Detachment (RRD), factors like prolonged surgery, surgical manipulation, silicone oil and inflammation are thought to increase macular oedema (MO) risk. This study aims to identify key causes of MO, evaluate prognosis, and explore Dexamethasone implant (Ozurdex[®]) treatment in PVR-related RRD repaired with vitrectomy and silicone oil tamponade.

Methods



This post-hoc analysis used data from a phase IIIb, single-centre, participant-blinded, randomised controlled trial at MEH evaluating Ozurdex[®] for PVR-C in RRDs in 139 eyes.¹ All patients underwent vitrectomy with silicone oil tamponade and were randomised 1:1 to a control group or Ozurdex[®] group. The treatment group received a 0.7-mg implant during initial surgery and again at silicone oil removal; controls received no adjunctive treatment.²

Post-Op MO



The presence of MO across all patients increased progressively over the postoperative period. At 10 days, MO was present in 26.5% of control eyes and 14.9% of implant-treated eyes ($p=0.098$). By 3 months, the proportions increased to 41.9% and 38.5%, respectively ($p=0.690$). By 12 months, the prevalence reached 67.2% in the control group and 58.2% in the implant group ($p=0.288$). These differences were not statistically significant at any time point.

Visual Acuity



Stratified by the presence of MO, the group without MO achieved better BCVA at all visits. At 10 days, patients without MO had a median BCVA of 0.93 LogMAR (mean \pm SD: 1.06 \pm 0.51), compared with those with MO, who had 0.95 LogMAR (mean \pm SD: 1.03 \pm 0.47; $p = 0.87$; not significant). The difference was statistically significant at 3 months. Despite a favourable trend for the Ozurdex[®] group, these differences were not statistically significant across all time points.

Epiretinal Membrane (ERM)

ERM was associated with 3.3x higher odds of MO (OR = 3.28; 95% CI 1.26–8.51; $p=0.0148$). The number of prior surgeries was not significantly associated with the outcome (OR = 0.78; 95% CI 0.53–1.14; $p=0.20$), and Ozurdex[®] implantation showed no evidence of an association (OR = 0.97; 95% CI 0.45–2.08; $p=0.93$).

Silicone Oil Removal

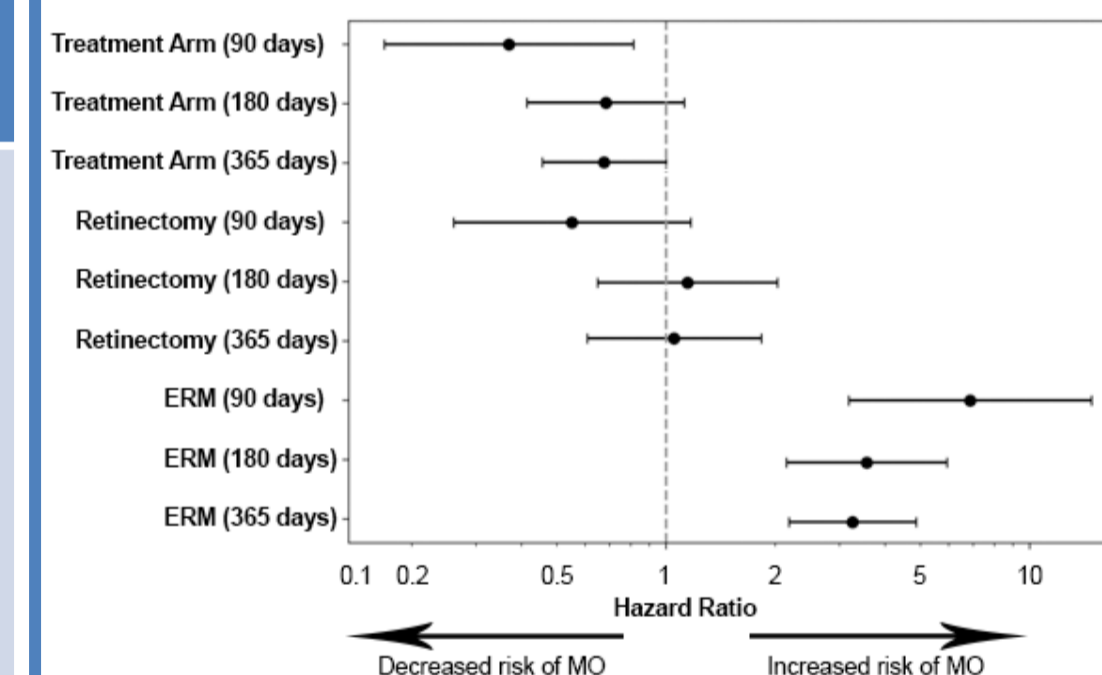
80 eyes underwent oil removal between 3 and 6 months, a paired within-eye analysis found prevalence of MO increased from 35.0% before removal to 47.5% after removal ($p=0.041$). Eyes that had oil removed at other time points also had an increase in MO but not significant. (10 days-3months 0 to 28%, $p=0.50$; 6-12 months 50 to 66%, $p=1.00$)

Effect of Ozurdex[®]

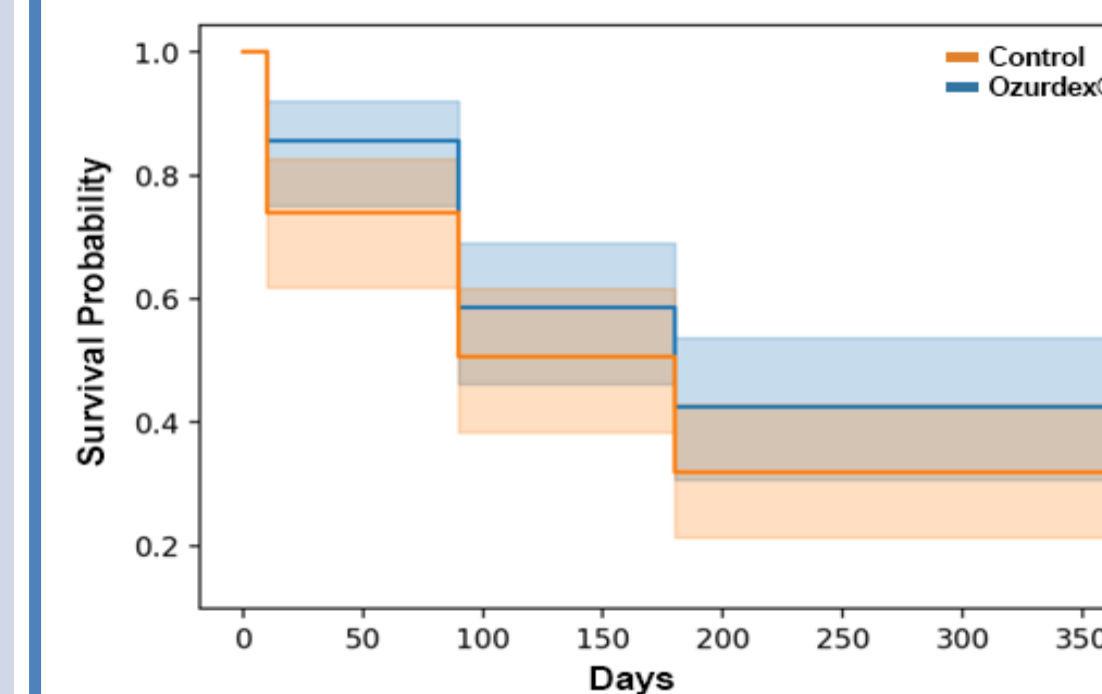


ERM and retinectomy were modelled as time-varying covariates in a Cox proportional hazards regression. At 90 days, Ozurdex[®] was associated with a significant 63% reduction in the hazard of developing MO (HR 0.37, 95% CI: 0.17–0.81, $p=0.013$). The presence of ERM was strongly associated with increased risk (HR 6.86, 95% CI: 3.18–14.78, $p<0.001$). Retinectomy showed no significant association (HR 0.55, 95% CI: 0.26–1.17, $p=0.12$).

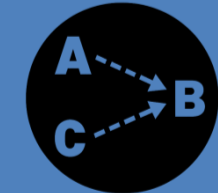
Forest Plot of Hazard Ratios for Macular Oedema



Kaplan-Meier Survival Plot Free of Macular Oedema



Factors In Post-Op MO



Retinectomy

Patients who underwent retinectomy had 4.4 times higher odds of developing MO at 3 months (OR = 4.38; 95% CI 1.73–11.05; $p=0.0018$).

Summary



- MO is a common complication after surgery for RRD complicated by PVR.
- ERM development, retinectomy and silicone oil removal are associated with increased risk of MO.
- Ozurdex[®] implantation at the time of surgery and at removal of oil can reduce the risk of MO when factoring ERM development but no significant difference in BCVA outcomes.

References:

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Original clinical trial registered in the European Clinical Trials Database: EudraCT No 2011-004498-96.

The authors declare no conflicts of interest