

Risk of Stroke, Myocardial Infarction, Deep Vein Thrombosis, Pulmonary Embolism, and Death after Retinal Vein Occlusion

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Purpose: To examine rates of stroke, myocardial infarction (MI), deep vein thrombosis (DVT), pulmonary embolism (PE), and death in patients after retinal vein occlusion (RVO) compared to controls.

Design: Retrospective cohort study.

Methods: An aggregated electronic health records research network, TriNetX (Cambridge, MA, USA), was used to identify patients with diagnosis of RVO and a control group of patients with cataract. Patients were excluded if they had history of stroke, MI, DVT, or PE within 2 years of diagnosis of RVO or cataract. Propensity score matching was performed to control for baseline demographics and medical comorbidities. Main outcomes included relative risk (RR) of death, stroke, MI, DVT, and PE after RVO compared to matched controls.

Results: 45304 patients were included in each cohort. There was elevated risk of death in the RVO cohort compared to the control cohort at 1 (RR: 1.30, $p < 0.01$), 5 (RR: 1.22, $p < 0.01$), and 10 years (RR: 1.08, $p < 0.01$). There was elevated risk of stroke at 1 (RR: 1.61, $p < 0.01$), 5 (RR: 1.31, $p < 0.01$), and 10 years (RR: 1.18, $p < 0.01$).

There was elevated risk of MI at 1 (RR:1.26, $p<0.01$) and 5 years (RR:1.13, $p<0.01$), but not at 10 years (RR:1.06, $p=0.12$). There was mildly elevated risk of DVT at 1 year (RR: 1.65, $p<0.01$), but not at 5 (RR: 0.94, $p=0.94$) or at 10 years (RR: 1.05, $p=0.37$). There was no elevated risk of PE at 1 (RR: 0.98, $p=0.80$), 5 (RR: 0.95, $p=0.42$), or 10 years (RR: 0.85, $p=0.40$).

Conclusions: There is an increased rate of death, stroke, and MI after RVO compared to matched controls. We emphasize the need for long term systemic evaluation after RVO.