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# Are Indigenous Australians more likely to require vitrectomy for end-stage diabetic retinopathy? : A 5 year audit of vitreoretinal surgery for diabetic retinopathy.

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## Abstract

**Purpose :** Diabetic vitrectomy reflects progression of diabetic retinopathy (DR) to the most severe endpoint. This 5 year audit encompasses all diabetic vitrectomies performed in South Australia (SA) and Northern territory (NT). We aimed to explore the difference in prevalence and risk factors for diabetic vitrectomy between Indigenous and non-indigenous patients.

**Methods :** Vitrectomies performed in public and private hospitals in SA and NT between 2007 and 2011 were identified. Medical records were audited and data collected, for all patients who required vitrectomy for complications of diabetes (DM). Data collected included demographics, ethnicity, DM history, past treatment for DR, visual acuity, and the indication for vitrectomy.

**Results :** 495 diabetic vitrectomies, for 335 patients were performed in SA and NT between 2007 and 2011. 77 (23%) patients requiring diabetic vitrectomy were Indigenous Australians. For those with T2DM, mean age at diabetes diagnosis was lower in Indigenous (37.08 years; SD, 10.10) compared with non-Indigenous (44.26 years; SD, 12.06) patients ( $p < 0.001$ ). There were significantly more female patients undergoing DM vitrectomy in the indigenous group compared with the non-indigenous group. 25.9% of indigenous patients had had an amputation and 32.9% were on dialysis at the time of vitrectomy.

In multivariate survival analyses from diabetes onset to vitrectomy, younger age of

diabetes onset ( $P < 0.001$ ; OR: 0.96; CI: 0.95-0.98) and Indigenous Australian ethnicity ( $P = 0.04$ ; OR: 1.68; CI: 1.02-2.77) were both independently associated with earlier vitrectomy. Survival analysis from onset of proliferative DR (PDR) found lack of previous laser ( $P = 0.003$ ; OR: 0.58; CI: 1.24-2.55) to be the predominant factor associated with earlier vitrectomy.

**Conclusions :** This is the first population based study to capture all patients with end-stage DR undergoing diabetic vitrectomy in SA and NT. Indigenous Australians account for 23% of patients requiring diabetic vitrectomy, despite only making up 5.8% of the population, reflecting a large burden of disease secondary to end-stage DR in the indigenous Australian population. Multiple factors including earlier age of diabetes onset, and lack of previous laser treatment predispose to earlier vitrectomy.

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