

Use of Pegaptanib Sodium (Macugen®) for the Regression of Proliferative Diabetic Retinopathy

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Abstract

Purpose: : To assess the safety and efficacy of intravitreal injection of pegaptanib sodium (Macugen) for treatment of proliferative diabetic retinopathy (PDR). Elevated levels of vascular endothelial growth factor (VEGF) are known to be present in the vitreous of patients with active PDR. Such levels may be seen early in the disease process – prior to any significant vision loss. Pegaptanib sodium is known to be a potent inhibitor of VEGF. We therefore hypothesized that intravitreal injection of pegaptanib sodium in patients with active PDR may produce a marked reduction in free vitreous VEGF levels. This in turn may result in regression of retinal neovascularization, and reduce the severity of any co-existing diabetic macular edema. Ultimately, such therapeutic intervention should reduce the progression of PDR and thereby provide a beneficial effect in preventing severe vision loss due to PDR.

Methods: : Intravitreal injection of 0.3mg pegaptanib sodium every 6 weeks was administered to ten eyes of 10 patients with proliferative diabetic retinopathy. Assessment was performed with slit lamp biomicroscopy, fundus exam, fluorescein angiography and optical coherence tomography (OCT). Endpoints were: 1) reduction in the progression of PDR, defined as regression of neovascularization of the disc (NVD) and neovascularization elsewhere (NVE) as assessed by fluorescein angiography; 2) change in best-corrected visual acuity score from baseline; and 3) change in retinal thickness measured at the center point by OCT.

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Results: : All ten eyes injected with pegaptanib sodium demonstrated a marked regression of NVD and NVE as well as a decrease in central retinal thickness within the first month following treatment, without recognizable adverse effects.

Conclusions: : These data illustrate that intravitreal injection of pegaptanib sodium is both well tolerated and efficacious in producing a marked regression of neovascularization and progression of PDR in addition to decreasing the anatomic extent of concomitant diabetic macular edema. Our findings suggest that selective VEGF blockade may allow for less laser therapy (with avoidance of its destructive side effects and induced macular edema) in treating diabetic retinopathy. Intravitreal pegaptanib sodium may reduce the progression of PDR and provide beneficial effects in preventing severe vision loss due to PDR. Selective VEGF blockade may augment our practice patterns in treating proliferative diabetic retinopathy.

Keywords: diabetic retinopathy • retinal neovascularization • retina

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