

Commentary on Visual Acuity, Contrast Sensitivity and Color Vision Three Years after Iodine-125 Brachytherapy for Choroidal and Ciliary Body Melanoma

Irena Tsui, Tara A McCannel, and Bradley R. Straatsma*

Department of Ophthalmology and Jules Stein Eye Institute, University of California, Los Angeles, Los Angeles, CA, USA

*Corresponding author: Bradley R. Straatsma, Jules Stein Eye Institute, 100 Stein Plaza, UCLA, Los Angeles, CA 90095-7000, USA; Tel: (310) 825-5051; Fax: (310) 206-4293; E-mail: straatsma@jsei.ucla.edu

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Commentary

This prospective interventional case series of 37 patients (37 eyes) that received iodine-125 brachytherapy for choroidal and ciliary body melanoma reports best-corrected Early Treatment Diabetic Retinopathy Study (ETDRS) visual acuity, Pelli-Robson contrast sensitivity and Hardy-Rand-Rittler color vision measurement; comprehensive ophthalmology examination; optical coherence tomography; and ultrasonography at baseline prior to, 1 year after, 2 years after and 3 years after I-125 brachytherapy. The 37 patients (19 men and 18 women) with a mean age of 58 years (SD 13, range 30-78)

prior to, 1 year after, 2 years after and 3 years after brachytherapy had mean best-corrected visual acuity of 77 letters (20/32), 65 letters (20/50), 56 letters (20/80) and 47 letters (20/125); contrast sensitivity of 30, 26, 22 and 19 letters; and color vision of 26, 20, 17 and 14 test figures, respectively (Table 1). Decrease in visual acuity, contrast sensitivity and color vision was statistically significant from baseline at 1 year, at 2 years and at 3 years after brachytherapy. Greater decrease in visual acuity 3 years after brachytherapy was associated with mid-choroid and macula melanoma location, ≥ 4.1 mm melanoma height, radiation maculopathy and radiation optic neuropathy.

Central Vision	Baseline		1 year		2 Years		3 years	
Visual Acuity	n	%	n	%	n	%	n	%
Mean \pm SD letters	76.7 \pm 20.2 (20/32)		65.3 \pm 28.0 (20/50)		55.6 \pm 34.6 (20/80)		46.6 \pm 37.2 (20/125)	
P Value			0.001		<0.0001		<0.0001	
Contrast Sensitivity letters								
Mean \pm SD letters	30.4 \pm 6.4		25.8 \pm 11.8		22.3 \pm 13.2		18.6 \pm 15.2	
P Value			0.005		<0.0001		<0.0001	
Color Plates								
Mean \pm SD letters	25.6 \pm 5.4		19.6 \pm 11.8		16.8 \pm 12.6		13.6 \pm 13.2	
P Value			0.001		<0.0001		<0.0001	

Table 1: Visual Acuity, Contrast Sensitivity and Color vision 1,2 and 3 years after iodine 125 brachytherapy.

In this study, assessment of best-corrected visual acuity was systematically combined with contrast sensitivity and color vision measurement to document the extent of central vision impairment following brachytherapy for choroidal and ciliary body melanoma. Snellen visual acuity alone is insufficient for full understanding of visual performance [1-3]. Decrease in contrast sensitivity and color perception measure distinctly different properties of vision and combine with impairment of visual acuity to interfere with activities of daily living such as mobility at low levels of illumination, perception of stairs and curbs, driving, reading, using tools and sewing.

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