

# Vision Care Interventions Aimed at Latinos are Needed

The Los Angeles Latino Eye Study is a population-based study of the prevalence of ocular disease, quality of life and access to care.

REVIEWED BY ROHIT VARMA, MD, MPH

**L**atinos, like other US adults with type 2 diabetes, are not receiving adequate vision care, according to the Los Angeles Latino Eye Study (LALES).

Reporting in *Ophthalmology*, Rohit Varma, MD, MPH, and colleagues said public policy measures are needed to decrease the burden of eye disease caused by its not being treated in people with diabetes. "In this Latino population specifically, programs should target people with less education who lack health/vision insurance to reduce the number of people with type 2 diabetes who are not following current national guidelines for vision care," said Dr. Varma, professor of ophthalmology and preventive medicine at the Doheny Eye Institute, Keck School of Medicine, University of Southern California.

Latinos, the largest minority group in the United States and the fastest growing minority segment of the population, have a high prevalence of type 2 diabetes and a greater risk of developing diabetic retinopathy. "Because vision loss associated with diabetic retinopathy can be prevented with appropriate vision care, the American Diabetes Association (ADA) guidelines recommend that people with type 2 diabetes undergo a dilated eye examination at diagnosis and that this examination be repeated yearly thereafter," the authors wrote.

## LALES BACKGROUND

The investigators undertook the present study to examine the prevalence of Latinos who do not comply with the ADA guidelines in a population-based sample of adult Latinos. LALES is study of the prevalence of

Latinos, the fastest growing minority segment of the population, have a greater risk of developing diabetic retinopathy.

ocular disease, quality of life and access to care in self-identified Latinos, predominantly of Mexican ancestry, aged  $\geq 40$  years, living in and around La Puente, Calif. Data collection ended in May 2004; 6,357 eye examinations were completed.

Of the 6,357 participants in LALES who had a completed eye exam, 13% (n=821) reported having a history and treatment of diabetes during the home interview portion of the study. According to the investigators, the average age of these patients was 59.8 years, and more than half were female. Sixty-five percent (n=535) of the 821 participants with type 2 diabetes had not complied with the ADA vision guidelines for diabetes, having had their last dilated eye exam  $>12$  months before the date of the clinic exam (n=344) or never having a dilated eye exam (n=191). Fifty-three participants with type 2 diabetes said they had never had a routine physical exam.

## DIFFERENCE BETWEEN COMPLIERS, NONCOMPLIERS

Dr. Varma and colleagues found that patients who did not comply with the ADA guidelines for vision care were more likely to be younger (aged  $<65$  years), to be

**TABLE 1. SOCIODEMOGRAPHIC PROFILE OF PATIENTS WITH TYPE 2 DIABETES\* STRATIFIED BY LEVEL OF COMPLIANCE WITH ADA VISION CARE GUIDELINES† (N=821)**

	Total Cohort	Compliance With ADA Guidelines (n=286) (35%)	Noncompliance With ADA Guidelines (n=535) (65%)	P Value ‡
Age (yrs) (mean ± SD)	59.8 ±10.1	61.4 ±9.7	58.6 ±10.1	.0002
Education level (did not graduate high school) [n (%)]	582 (70.1)	184 (64.3)	398 (74.4)	.003
Annual income below \$20,000 (n [%])	402 (56.9)	129 (51.8)	273 (59.7)	.04
Current smoker (n [%])	85 (10.4)	21 (7.4)	64 (12.1)	.04
No self-administration of blood glucose testing (n [%])	276 (33.6)	81 (28.3)	195 (36.5)	.019
Last routine physical examination ≥1 yr ago (n [%])	366 (44.6)	100 (35.0)	266 (49.8)	<.0001
No health insurance (n [%])	226 (27.5)	45 (15.7)	181 (33.8)	<.0001
No vision insurance (n [%])	331 (40.7)	80 (28.1)	251 (47.5)	<.0001
No particular clinic or doctor usually seen (n [%])	104 (12.7)	20 (7.0)	84 (15.7)	.0004
≥2 comorbidities (n [%])	700 (85.3)	254 (88.8)	446 (83.4)	.04
<p><i>SD = standard deviation.</i></p> <p><i>The total number of subjects for each item (frequency [%]) varies depending on completion rates for the item.</i></p> <p><i>* Defined as patients reporting having diabetes at the in-home interview and who met criteria for type 2 diabetes during their clinical examination.</i></p> <p><i>† ADA guidelines recommend that patients with type 2 diabetes undergo a dilated eye exam at diagnosis and yearly thereafter.</i></p> <p><i>‡ Obtained from chi-square tests comparing those patients who complied with those who did not comply with ADA vision care guidelines for discrete variables and from a test for continuous variables.</i></p> <p style="text-align: right;"><i>Source: Ophthalmology. 2006;113:1372-1377.</i></p>				

less educated (ie, did not complete high school), to have an income level <\$20,000, not to be current smokers, to have at least two comorbidities, not to self-administer blood glucose testing, to have no health or vision insurance, to have had no routine physical exam in ≥1 year and to have no particular clinic or doctor to which they go for routine medical care (Table 1).

"In terms of clinical variables, noncompliers, relative to compliers were more likely to have higher levels of [HbA1c]," Dr. Varma wrote. "Interestingly, compliers were more likely to have glaucoma, any lens opacities and diabetic retinopathy than noncompliers."

The investigators wrote that, with regard to education, those with less than a high school diploma in LALES were more likely to not comply with ADA guide-

lines. Less education has been cited as an important factor that may affect compliance with vision care guidelines in persons with type 2 diabetes, as evidenced in the Wisconsin Epidemiologic Study of Diabetic Retinopathy, which had similar findings.

#### LACK OF EDUCATION, INSURANCE

A possible explanation for this connection, the authors wrote, is that patients with less education are less likely to be exposed to education materials and therefore may be less likely to understand diabetes-related guidelines.

"Despite the existence of national education programs, most people with type 2 diabetes still do not receive adequate vision care," Dr. Varma and col-

**TABLE 2. CLINICAL PROFILE OF PATIENTS WITH TYPE 2 DIABETES\*  
STRATIFIED BY COMPLIANCE WITH ADA VISION CARE GUIDELINES† (N= 821)**

	Total Cohort	Compliance With ADA Guidelines (n=286) (35%)	Noncompliance With ADA Guidelines (n=535) (65%)	P Value ‡
HbA1c (n [%])				
<7.0%	244 (29.9)	93 (32.5)	151 (28.5)	
≥7.0% to 9.0%	295 (36.2)	120 (42.0)	175 (33.0)	.0008
≥9.0%	277 (34.0)	73 (25.5)	204 (38.5)	
Random blood glucose ≥200 mg/dL (n [%])	333 (40.9)	106 (37.1)	227 (42.9)	.11
Lens opacities* (n [%])	266 (32.4)	111 (38.8)	155 (29.0)	.004
DR†(n [%])	406 (51.7)	153 (55.4)	253 (49.6)	
NPDR	358 (45.6)	121 (43.8)	237 (46.5)	
PDR	48 (6.1)	32 (11.6)	16 (3.1)	<.0001
Glaucoma‡ (n [%])	54 (6.6)	26 (9.1)	28 (5.2)	.034
Hypertension <sup>  </sup> (n [%])	291 (35.4)	105 (36.7)	186 (34.8)	.58
Any visual impairment (n [%])	101 (12.3)	37 (13.0)	64 (12.0)	.67

DR = diabetic retinopathy; NPDR = nonproliferative DR; PDR = proliferative DR.

\*Any nuclear or posterior subcapsular or cortical lens opacity in at least one eye.

†Any DR: levels 14-85; NPDR: levels 14-20; PDR: levels 60-85; no DR: levels 10-13. P value for DR compares any diabetic retinopathy to no diabetic retinopathy based on grading of fundus photographs.

‡ Presence of glaucomatous optic neuropathy based on optic disc and visual field data. Two of three glaucoma specialists agreed on the diagnosis of open-angle glaucoma in at least one eye.

<sup>||</sup>Defined as systolic blood pressure >140 mm Hg and/or diastolic blood pressure >75 mm Hg.

Source: Ophthalmology. 2006;113:1372-1377.

With regard to education, those patients with less than a high school diploma were more likely not to comply with the ADA guidelines.

leagues wrote. Even though a population might have access to the materials, their level of understanding might be inadequate, previous studies revealed. Additionally, there is often a gap between what is stated in the materials and what patients actually understand.

"It is important to note, however, that even with appropriate educational programs, people without

insurance and those who cannot afford vision care still may not receive the recommended eye examinations," the investigators concluded. "Timely detection and treatment of diabetic retinopathy would decrease greatly the burden of vision impairment and blindness caused by inadequate vision care in this population." ■

Rohit Varma, MD, MPH, is at the Doheny Eye Institute and the department of ophthalmology, Keck School of Medicine, University of Southern California in Los Angeles. He may be reached at [rvarma@hsc.usc.edu](mailto:rvarma@hsc.usc.edu).



Paz SH, Varma R, Klein R, et al for the Los Angeles Latino Eye Study Group. Noncompliance with vision care guidelines in Latinos with type 2 diabetes mellitus. *Ophthalmology*. 2006;113:1372-1377.