

ARTÍCULO DESTACADO DEL MES



Optical Coherence Tomography Angiography of the Peripapillary Retina in Glaucoma

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COMENTARIOS

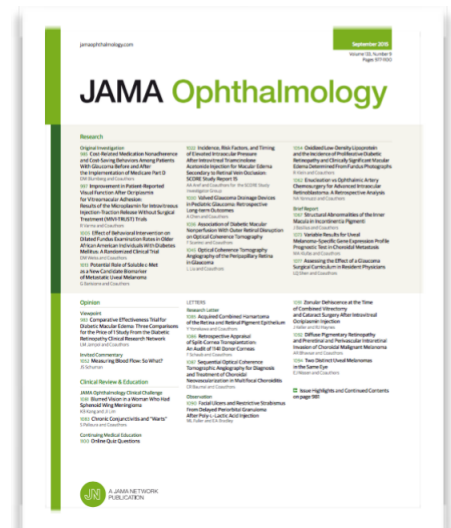
Los autores utilizan una angiografía por tomografía óptica de coherencia y estudian los índices vasculares peripapilares mediante un algoritmo de procesamiento de imágenes (SSADA). Obtienen el índice de flujo peripapilar y la densidad vascular peripapilar, observando reducción de ambos índices en pacientes con glaucoma, con una alta repetibilidad y reproducibilidad.

Las áreas de las curvas ROC para diferenciar valores en normales y glaucomatosos fueron de 0.892 para el índice de flujo peripapilar y de 0.938 para la densidad vascular peripapilar.

Ambos índices vasculares se correlacionaron con la desviación estándar del patrón de las perimetrías en pacientes con glaucoma.

Debido a estos esperanzadores resultados, la angiografía cuantitativa por tomografía óptica de coherencia puede tener valor en próximos estudios que determinen la utilidad para el diagnóstico, el estadiaje y el seguimiento de glaucoma.

Comentarios realizados por el Dr. Rafael Giménez



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IMPORTANCE:

Vascular factors may have important roles in the pathophysiology of glaucoma. A practical method for the clinical evaluation of ocular perfusion is needed to improve glaucoma management.

OBJECTIVE:

To detect peripapillary retinal perfusion in glaucomatous eyes compared with normal eyes using optical coherence tomography (OCT) angiography.

DESIGN, SETTING, AND PARTICIPANTS:

Prospective observational study performed from July 24, 2013, to April 17, 2014. Participants were recruited and tested at Casey Eye Institute, Oregon Health & Science University. In total, 12 glaucomatous eyes and 12 age-matched normal eyes were analyzed. The optic disc region was imaged twice using a 3 × 3-mm scan by a 70-kHz, 840-nm-wavelength spectral OCT system. The split-spectrum amplitude-decorrelation angiography algorithm was used. Peripapillary flow index was calculated as the mean decorrelation value in the peripapillary region, defined as a 700- μ m-wide elliptical annulus around the disc. Peripapillary vessel density was the percentage area occupied by vessels. The data statistical analysis was performed from October 30, 2013, to May 30, 2014.

MAIN OUTCOMES AND MEASURES:

Variability was assessed by the coefficient of variation. The Mann-Whitney test was used to compare the 2 groups of eyes. Correlations between vascular and visual field variables were assessed by linear regression analysis.

RESULTS:

In 12 normal eyes, a dense microvascular network around the disc was visible on OCT angiography. In 12 glaucomatous eyes, this network was visibly attenuated globally and focally. In normal eyes, between-visit reproducibilities of peripapillary flow index and peripapillary vessel density were 4.3% and 2.7% of the coefficient of variation, respectively, while the population variabilities of peripapillary flow index and peripapillary vessel density were 8.2% and 3.0% of the coefficient of variation, respectively. Peripapillary flow index and peripapillary vessel density in glaucomatous eyes were lower than those in normal eyes ($P < .001$ for both). Peripapillary flow index (Pearson $r = -0.808$) and peripapillary vessel density (Pearson $r = -0.835$) were highly correlated with visual field pattern standard deviation in glaucomatous eyes ($P = .001$ for both). The areas under the receiver operating characteristic curve for normal vs glaucomatous eyes were 0.892 for peripapillary flow index and 0.938 for peripapillary vessel density.

CONCLUSIONS AND RELEVANCE:

Using OCT angiography, reduced peripapillary retinal perfusion in glaucomatous eyes can be visualized as focal defects and quantified as peripapillary flow index and peripapillary vessel density, with high repeatability and reproducibility. Quantitative OCT angiography may have value in future studies to determine its potential usefulness in glaucoma evaluation.