L’avanzamento della diagnosi strutturale nel glaucoma: ruolo dell’angio-OCT

www.amedeolucente.it
Disclosure

Consulting Free

- Carl Zeiss Meditec
- Alfa Intes


Relationship between visual field loss and RGC numbers. A normal visual field in a healthy individual has approximately **1 million RGCs**. At a mean deviation of **-2 dB**, which equates to an early field defect, RGC number has decreased by around **350,000 cells**. At **-10 dB**, a field defect that can result in functional impairment and quality of life decline, RGC number has decreased by a further **250,000 cells** from the RGC number at -2 dB.
Optical coherence angiography of the optic nerve head of a glaucomatous disc (left) and a healthy disc (right). In addition to the general reduction in the visibility of the disc and peripapillary microvasculature in the glaucomatous disc, focal areas of vascular attenuation are visible (arrows). OCTA images can help our understanding of the pathogenesis of ONH diseases.
A) An example of highlighted prelaminar vessels in a normal eye. The vascular flow index of the prelaminar area is calculated by measuring the mean decorrelation in the column between 50 and 250 µm deep within Elschnig’s scleral ring.

B) In the sagittal section image of the same optic nerve head, a large part of the prelaminar region is included between the two red lines 50 and 250 µm from the disc surface (size, 3x3mm)

by: Etsuo Chihara et al. http://arvojournals.org/ on 06/04/2017
50 glaucoma patients and 30 normal subjects

In the glaucoma group
- total ONH vessel density were reduced by 24.7% (0.412 versus 0.547; \( p < 0.0001 \))
- temporal ONH vessel density were reduced by 22.88% (0.364 versus 0.472; \( p = 0.001 \)).

Significant correlations were found between temporal and total ONH vessel density and
- RNFL
- GCC
- VF MD mean deviation - Visual field index.
(A) The highlighted RPC (Radial Peripapillary Capillary) of the superficial retina
(B) En face image of the retinal nerve fiber layer defects (between arrows) in an eye with **POAG**.

In this image, there is a **defective RPC** between the arrows and a **corresponding** retinal nerve fiber layer defect between the arrows. In this case, the tissue depth is between **0 and 80 µm**, and the highlighted area is **700 µm from the disc margin** (size, 4.5mm x 4.5 mm)

by: Etsuo Chihara et al. http://arvojournals.org/ on 06/04/2017
In summary, the PLFI/UA (prelaminar flow index of the optic disc unit area PLFI/UA), and VD (peripapillary vessel density of the superficial retina) decreased in glaucomatous eyes. The discriminatory power of the PLFI/UA and VD to differentiate POAG from normal eyes was less than that of the structural parameters; that is, the GLV (global loss volume of the ganglion cell complex) and cp NFLT (circumpapillary retinal nerve fiber layer thickness)

by: Etsuo Chihara et al. http://arvojournals.org/ on 06/04/2017
Retinal nerve fiber layer thickness map, GCC map, VF pattern deviation map, structural OCT image, original OCTA of RPC layer, and the corresponding contour map derived from OCTA of:

(A) preperimetric, (B) early, (C) moderate, and (D) severe glaucomatous eye

by: Rajesh S. Kumar et al. IOVS j November 2016 j Vol. 57 j No. 14 j 6080
(A) En face OCTA image of the optic disc (B) structural OCT (image), (C) RNFL thickness map, (D) VF pattern deviation map, (E) GCC map, and (F) the corresponding contour map derived from OCTA of RPC layer of a severe glaucomatous eye with the affected/damaged regions shown in red (C–F)

by: Rajesh S. Kumar et al. IOVS j November 2016 j Vol. 57 j No. 14 j 6080
CONCLUSIONS. Vascular parameters could be a useful adjunct tool to evaluate/diagnose glaucoma. **Longitudinal studies are needed to determine their use in early detection and prognostication**

by: Rajesh S. Kumar et al. IOVS j November 2016 j Vol. 57 j No. 14 j 6080
C'è vero progresso solo quando i vantaggi di una nuova tecnologia diventano per tutti

Henry Ford 1863-1947
Simposio GOAL
Moderatore: Danilo Mazzacane

Thank you for your kind attention!

www.amedeolucente.it