Ultra-wide-field fundus flourescein angiography

An essay
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ABSTRACT

Fundus imaging has become an integral part of ophthalmology practice. the image landscape extent can be small-angle or wide-angle and most standard cameras provide small-angle viewing, whereas a few specialized systems that provide wide-angle viewing include Pomerantzeff equator plus camera, RetCam™, Panoret™, Optos™, and manual montage or auto-montage on standard cameras**.** Most of these use transpupillary illumination techniques. Those that use the transcleral technique include Pomerantzeff and Panoret™ systems.

None of these modalities can compare to the ultra-wide views of up to 200° provided by the Optos 200Tx scanning laser ophthalmoscope (Optos PLC, Dunfermline, United Kingdom). But perhaps even more valuable than the wider range of field, its images are captured simultaneously.

The technology has unveiled new insights regarding the role of peripheral pathology in retinal vascular, degenerative and inflammatory diseases.

The use of UWFFA as a basis for improving treatment patterns by identifying areas of nonperfusion as a means for better targeting and applications of more precise laser therapy (targeted retinal photocoagulation).

Key Words:

Anatomy, Optical principle of fundus imaging, Fundus Flourescein Angiography Basic Principle, Hazards and complications of fluorescein angiography, Advantages & disadvantages of Imaging with a Scanning Laser Ophthalmoscope, Clinical use of wide field imaging

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List of abbreviation

-AMD : Age related macular degeneration

-APMPPE : acute posterior multifocal placoid pigment epitheliopathy

-ARN : Acute retinal necrosis

-BBB : blood–brain barrier

-BRB : blood retinal barrier

-C-AMP : cyclic Adenosine monophosphate

-CCD : charge-coupled device

-CHRPE : congenital hypertrophy of the retinal pigment epithelium

-CMV : cytomegalovirus

-CNVM : Choroidal neovascular membrane

-CRA : the central retinal artery

-CRVO : Central retinal vein occlusion

-CSCR : Central serous chorioretinopathy

-cSLO : confocal scanning laser ophthalmoscopy

-CSME : clinically significant macular edema

-CVOS : Central Vein Occlusion Study

-D : Dalton

-DM : diabetes mellitus

-ECG : electrocardiogram

-ELM : the external limiting membrane

-ETDRS : Early treatment diabetic retinopathy study

-FA : fluorescein angiography

-FFA : Fundus Flourescein Angiography

-IBRB : inner BRB

-ICG : indocyanine green

-ILM : the inner limiting membrane

-ISI : ischemic index

-JAMs : junctional adhesion molecules

-KD : kilo Dalton

-LPCA : lateral posterior ciliary arteries

-MMPs : matrix metaloproteinases

-MPCA : medial posterior ciliary arteries

-MRI : magnetic resonance imaging

-NPDR : nonproliferative proliferative diabetic retinopathy

-NV : neovascularization

-NVE : neovessels elsewhere

-OA : ophthalmic artery

-OBRB : outer BRB

-ON : the optic nerve

-ONL : The outer nuclear layer

-OPL : the outer plexiform layer

-PCAs : posterior ciliary arteries

-PCR : polymeriase chain reaction

-PDR : proliferative diabetic retinopathy

-PEHCR : peripheral exudative hermorrhagic chorioretinopathy

-PSR : Proliferative sickle cell retinopathy

-ROP : Retinopathy of prematurity

-RPE : retinal pigment epithelium

- PVL : peripheral vascular leakage

-SC : sickle-cell c disease

-SS : sickle cell anemia

-SThal : sickle cell [beta]-thalassemia heterozygote

-SLO : Scanning laser ophthalmoscope

-SPCAs : Short PCAs

-TJs : tight junctions

-TRP : targeted retinal photocoagulation

-UWFFA : ultra-wide-field fluorescein angiography

-VHL : von Hippel-Lindau

-µm : micron

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