

SS-OCT and OCT-A in different patterns of glaucomatous nerve fiber layer defects

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Purpose

To study if SS-OCT is able to detect different patterns of glaucomatous nerve fiber layer defects and to investigate if there are associated disorders in OCT-Angiography (OCT-A) and dynamic retinal vessel analysis (DVA).

Methods

Besides standard ophthalmological examinations, patients visiting the glaucoma unit of the Ev. Krankenhaus were examined for different patterns of glaucomatous nerve fiber layer defects and related blood supply disturbances by means of SS-OCT and OCT-A (Triton SS-OCT, Topcon, Japan) as well as DVA (Dynamic Vessel Analyzer, Imedos Systems UG, Jena, Germany). Characteristical findings were evaluated for the present study.

Results

In SS-OCT, we could find all different signs of glaucomatous nerve fiber layer defects as reduced modulation as a sign of diffuse damage, concavities or plateaus and steep in- or decreases of the superior and inferior peaks, differences between the left and right eye as well as between superior and inferior bundles, last 'islands' around larger retinal vessels, and nerve fiber bundle defects.

Mostly, we could observe corresponding deficiencies in DVA measurements representing larger retinal vessels and reduced OCT-A results describing small vessel deficits of different layers of the retina and the optic nerve.

Conclusions

SS-OCT is able to detect different patterns of glaucomatous nerve fiber layer defects and is a helpful tool in glaucoma diagnostics.

Studies with long time follow-up have to show the impact of reduced OCT-A and DVA measurements for clinical practice as possible signs of blood supply disturbances.

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