Correlation between OCT and Multifocal ERG Findings in Patients with Central Serous Chorioretinopathy who Underwent PDT

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CSC

- (CSC) is characterized by choroidal hyperperfusion and serous exudative detachment of the retina usually affecting the macular area.

The current treatment options are:

-Medical treatment

-Argon laser photocoagulation

-Intravitreal anti-VEGF injection

-Photodynamic therapy (PDT)

PDT

- A recent meta-analysis showed that PDT was effective in the treatment of CSC:
- Improves BCVA
- Decreases CMT
- Causes resolution of SRF
- Good safety profile

AIM

- To evaluate the efficacy and safety of half- dose PDT in the treatment of central serous chorioretinopathy (CSC)

- To assess the correlation between the the functional mfERG responses and structural OCT findings after PDT treatment.

METHODS:

- Patients were included if they had:
- Unilateral
- Treatment naïve CSC
- More than 3 and less than 6 months duration of disease

METHODS:

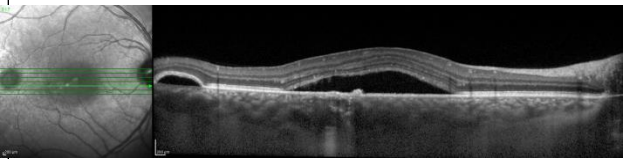
- Patients have complete ophthalmologic examination and tests before PDT and at 3 months after PDT
- Tests were OCT (central foveal thickness(CFT)and choroidal thickness (CCT)) measurements mf-ERG recordings
- Half-dose PDT was performed using a total light energy of 50J/cm^2 for 83 seconds delivered to the area of choroidal hyperperfusion

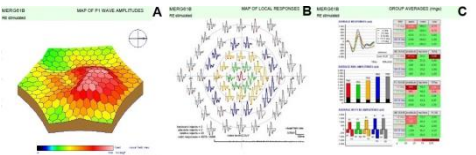
RESULTS:

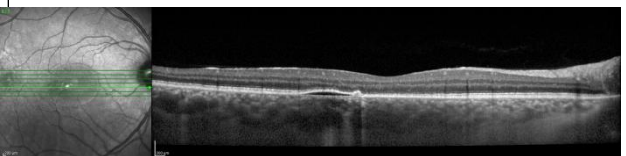
- A total of 31 CSC (62 eyes) patients were compared to 30 healthy (60 eyes) controls.
- The mean duration of symptoms was 4.4±1.1 months.
- At 3 month after PDT, the mean BCVA improved from 20/50 to 20/25 .
- The mean CFT reduced from 328.5 µm to 241.6 µm.
- The mean CCT reduced from 374.3 µm to 333.8 µm.
- The horizontal and vertical diameters of SRF decreased significantly.

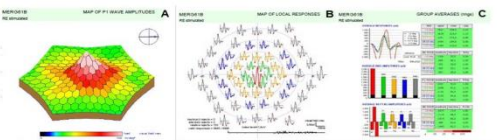
RESULTS:

- There was significant decrease in the wave amplitudes of both affected and fellow eyes of CSC patients compared to control subjects before treatment.
- We found significant increase in the wave amplitudes of mf ERG at 3 months after PDT treatment.
- mfERG latencies showed no significant changes before and 3 months after PDT treatment.
- BCVA was significantly correlated with wave amplitudes of mf ERG and OCT parameters.









Example of mfERG recordings and macular OCT scan of a CSC patient's affected eye before and 3 months after FDT

DISCUSSION

- The multifocal ERG (mfERG) evaluates the topographical assessment of retinal electrophysiological response.
- Choroidal vascular dilatation was found in 70% of CSC eyes and 60% of unaffected fellow eyes in a study.
- In our study there was significant decrease in the wave amplitudes **of both affected and fellow eyes** of CSC patients compared to control subjects.
- Although patients did not suffer from decreased vision in their fellow eyes both eyes had decreased mfERG amplitudes.

- Kim YT. Kang SW. Bai KH. Choroidal thickness in both eyes of patients with unilaterally active central serous chorioretinopathy. Eye (Lond) 2011; 25:1635-40.

CONCLUSIONS:

- Half-dose PDT treatment appeared to be safe and beneficial in patients with CSC.
- mfERG and OCT are useful for functional and anatomical assessments of CSC patients.
- BCVA significantly correlated with mfERG amplitudes and OCT parameters after PDT.
- Functional disturbances could be detected in the unaffected fellow eyes with mfERG.