Program#/Poster#: 4553/B911
Abstract Title: ERG Findings in Patients Using Hydroxychloroquine
Presentation Start/End Time: Wednesday, May 04, 2005, 3:00 PM - 4:45 PM
Location: Hall B/C
Reviewing Code: 165 electroretinography: techniques development (clinical) - VN
Keywords: 499 electrophysiology: clinical, 501 electroretinography: clinical, 496 drug toxicity/drug effects

Purpose:
To study the electroretinographic findings derived by full-field electroretinogram and multifocal electroretinogram in patients taking chloroquine or hydroxychloroquine (HCQ) for different periods of time, including those without clinically visible evidence of toxicity.

Methods:
Ophthalmologic evaluation was performed in 18 patients (36 eyes) aged from 13 to 66 years, treated with HCQ for various inflammatory disease (systemic lupus erythematosus, rheumatoid arthritis, or localized atypical scleroderma). Treatment duration varied from 6 months to 15 years.
Each examination included measurement of Snellen visual acuities, funduscopic examinations, which were complimented in some cases, by photography and fluorescein angiography, recording of full-field electroretinogram (ISCEV standard) and multifocal electroretinogram (mFERG). Multifocal ERG was recorded with 61-hexagons stimulations, amplitudes and implicit times were evaluated in rings surrounding the center.

Results:
In 2 of the 18 patients, hydroxychloroquine was discontinued because of toxic maculopathy.
Two patients (four eyes) without clinical signs of toxicity, were found to have distinctive abnormalities on multifocal ERG consisting of pericentral depression of ERG signals.
All affected patients had been taking hydroxychloroquine for at least 5 years. Fourteen patients (twenty eight eyes) had relatively normal response density in one or both eyes, and 2 of these patients (4 eyes) had significant attenuation of response densities in one or both eyes because of glaucoma or amblyopia.

Conclusions:
Chloroquine retinopathy is a rare complication of the treatment but a serious ophthalmologic concern. Its different severity presents with characteristic alterations in the multifocal electroretinogram.
The multifocal electroretinogram can detect retinal dysfunction in chloroquine retinopathy despite having no clinical signs of toxicity (visual or subtle fundus changes), and even when full-field electroretinogram is normal. Multifocal ERG may be useful for monitoring patients at risk and may provide an earlier opportunity to identify maculopathy.

Commercial Relationship: L. El Matri, None; A. Merdassi, None; F. Mghaieth, None; R. Baccouri, None; F. Turki, None.
Support: None.

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