

Multifocal Electroretinogram Functional Aspects in Different Phenotypes of Age Related Macular Degeneration

Alain Zourdani, MD (Creteil, France), Patricia Haymann, MD (Creteil, France), Joelle Marciano, MD (Creteil, France), Eric Souied, MD (Creteil, France), Gabriel J. Coscas, MD (Creteil, France), Gisele Soubrane, MD (Creteil, France)

PURPOSE

A pre requisite for a successful treatment of age related macular degeneration (AMD) requires preservation of functional macular photoreceptors. The aim of this study was to establish potential correlations between Multifocal Electroretinogram (MF-ERG) pattern and different sub-types of AMD lesions.

METHODS

Three groups of AMD patients are described: atrophic AMD (n=10); occult CNV and fibrovascular PED (n=10); classic CNV (n=10). All patients underwent: colour fundus photography, fluorescein angiography, Indocyanine Green Angiography and Optical Coherence Tomography. A multifocal ERG was performed previously to the treatment. The MF-ERG data were compared with a control group (normal patients > 60 years old).

RESULTS

The MF-ERG data between control and AMD patients were significantly different ($p < 0.005$). In AMD patients, the MF-ERG alterations are related to the altered retinal areas. These data may suggest photoreceptors or inner retinal cells alteration. In AMD patients, there was a good correlation between the altered area of the retina determined by funduscopy, and MF-ERG patterns suggesting photoreceptor and/or inner retinal cell alteration. There was no difference between atrophic and exudative AMD, or between occult and classic CNV. In some cases, the MF-ERG signal was non normal even if there was obvious morphological alterations on fundus imaging. The follow-up of these patients seems interesting, because they could have a better outcome.

CONCLUSION

The multifocal ERG could help for therapeutic decision in different AMD sub-types. The treatment results could be in relation with the initial functional retinal response.