Diagnosys Multi-Focal ERG

Industry leading functional imaging for clinical private practice

Diagnosys LLC, the industry leader in ophthalmic electrophysiology for over thirty years, presents the first Multifocal Electroretinography (mfERG) system tailored for use in clinical private practice.

The mfERG has been well documented to aid in the diagnosis and monitoring of retinal disorders, hereditary diseases and drug toxicity.

Clinical Applications

- **Retinotoxic Drug Screening**: mfERG is the only preferred functional test for plaquenil screening\(^1\) and has been shown to detect toxicity before other preferred methods.\(^2\)
- **Age-related Macular Degeneration**: Physicians can now visualize functional degradation that has been shown to predict drusen progression.\(^3\)
- **Diabetic Retinopathy**: Functional delays seen with mfERG testing can precede structural damage, allowing physicians to intervene in patient care before permanent damage occurs.\(^4\)

Diagnosys Objective Functional Imaging

- Most sensitive objective functional test for maculopathy
- Aids in streamlined patient care with simplistic interpretation
- Correlates functional test results with structural tests such as OCT and fundus photography
- Increases sensitivity and specificity in the diagnosis of maculopathies when combined with other diagnostic tests
- Maximize patient flow with quick and easy protocols
- Includes normative data
**Plaunenil Toxicity**

**What the Experts Say**

- Only 54.8% of patients receive appropriate evaluation for hydroxychloroquine screening.\(^1\)
- mfERG may have the ability to detect cases of toxicity earlier than other modalities.\(^2\)
- Updated American Academy of Ophthalmology screening guidelines for plaquenil toxicity specifically recommends multifocal ERGs as they “objectively evaluate function and can be used in place of visual fields”\(^5\)

**Normal mfERG:**

- All ring average responses within normal ranges for both amplitude and implicit time
- Trace array consistent with normative data
- ‘Volcano-shaped’ 3D plot represents healthy macular response with good fixation

**Plaquenil Toxicity:**

- Degradation in 2nd ring response OU demonstrates paracentral functional loss found in bull’s-eye maculopathy
- Parafoveal functional degradation illustrated by trace arrays and 3D plots allows practitioners to discontinue retinotoxic drugs and limit both functional and structural losses
**Age-related Macular Degeneration**

**What the Experts Say**

- mfERG Implicit times are shown to be an important predictor of drusen regression.\(^3\)
- mfERG ... should be used more to enhance the clinical monitoring of disease progression.\(^6\)

**Dry AMD:**

- Degraded central response OU outside normal limits for both amplitude and implicit time
- 2\(^{nd}\) and 3\(^{rd}\) ring responses OU show borderline results in both trace array and group averages
- 4\(^{th}\) and 5\(^{th}\) ring responses OU and trace array quantify residual parafoveal function
- Absent ‘volcano-shaped’ 3D plot represents loss in foveal response

**Wet AMD:**

- Degraded central response OD outside normal range for both amplitude and implicit time (OS response within normal limits)
- 2\(^{nd}\) and 3\(^{rd}\) ring responses OD show borderline results in both trace array and group averages
- 4\(^{th}\) and 5\(^{th}\) ring averages and trace arrays OU validate and quantify residual parafoveal function
- Absent ‘volcano-shaped’ 3D plot represents total loss in foveal functional response OD
What the Experts Say

- Localized functional abnormalities of the retina reflected by mfERG delays often precede the onset of new structural signs of diabetic retinopathy (DR).  
- mfERG implicit time provides clinicians a powerful tool to screen, follow up, and even consider early prophylactic treatment of the retinal tissue in diabetic patients.

Non-Proliferative DR:

- Trace array and 3D plot OU provide geographic evidence of retinal dysfunction that may precede vascular changes

Proliferative DR:

- Trace array and 3D plots illustrate clear functional degradation OU compared against normative data and non-proliferative cases, as well as geographic evidence of retinal dysfunction
- Trace arrays more important than group averages as averages may hide latency shifts
- Changes in latency - particularly of the PI peak - are the hallmark of diabetic retinopathy

References:

www.diagnosysllc.com