

Electroretinography (ERG) Case Study

Patient Work-Up

Gender	Male	BS (6 month avg.)	95
Age	62	BP	123/84
Ethnicity	Caucasion	Pulse	101
Complaints/Symptoms	Blurred vision, flashes of light x 30 seconds	IOP (mmHg) OD	16
Personal History	Diabetes Mellitus II (Dx 2001), Hypertension, No allergies	IOP (mmHg) OS	14
Family History	Grandmother: Diabetes Mellitus II	Refraction OD	+1.75 -0.75 x 130 + 2.50
Height/Weight	6f / 242lbs	Refraction OS	+1.00
		BCVA OD	20/50
		BCVA OS	20/60

Tests Performed

Fundus Photographs:

Show retinal hemorrhages, exudations and microaneurysms in agreement with a background diabetic retinopathy on both eyes.

Visual Fields:

Show a decreased retinal sensitivity in both eyes with fair reliability.

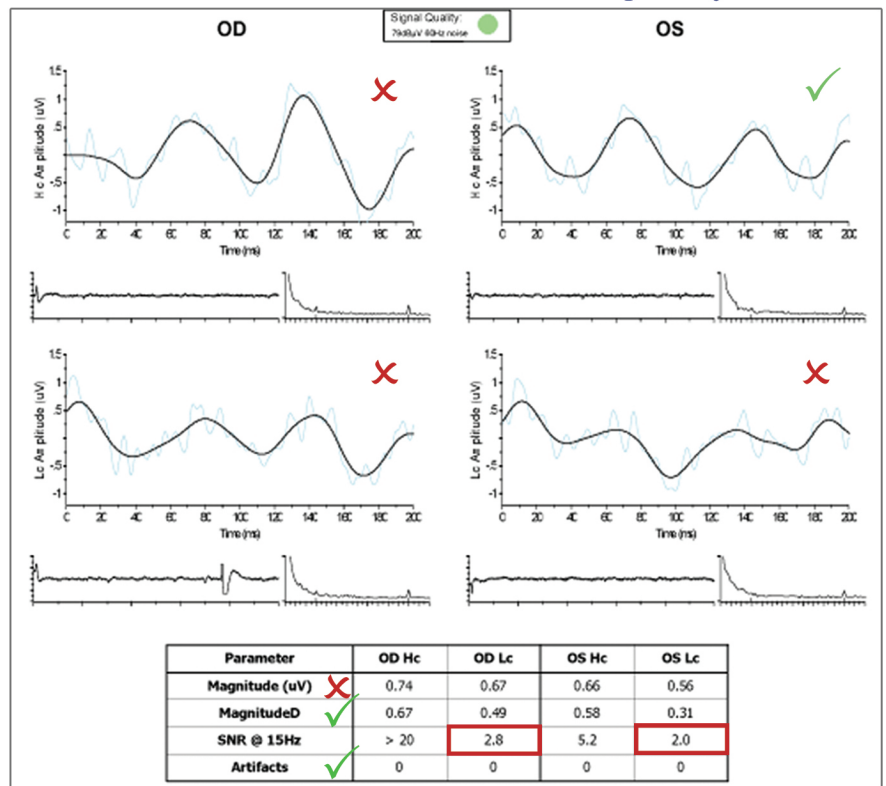
OCT Macular Protocol:

Shows an increase of the macular thickness with some hyporeflective zone in the foveal area, in agreement with a diabetic macular edema.

ERG Contrast Sensitivity Protocol:

Shows reliable low Magnitude (uV) Hc of OD and OS, and also shows a decreased functionality of the macular area OS.

ERG Results of Diabetic Retinopathy Patient



Conclusion

All other diagnostic tests correlate with the ERG results which show a decreased functionality of the macular area. This supports the diagnosis of a dysfunctional retina because of an uncontrolled diabetic Mellitus. Closer follow-up is suggested based on documented dysfunction and rest of clinical appearance.

Normal Diopsys® NOVA-ERG results consist of three criteria:

1. Three relatively equally spaced sinusoidal waves
2. Magnitude (uV) values greater than approximately 1.2
3. MagnitudeD values within 50% of Magnitude (uV)

NOTE: The SNR ratios and number of artifacts are indicators of test reliability. While sick patients are more likely to have lower SNR ratios and a higher number of artifacts than healthy patients, it is possible for healthy patients to have high SNR ratios and a high number of artifacts. This is often due to poor testing conditions.

DIOPSYSS® NOVA-ERG
OFFICE BASED PATTERN ELECTRORETINOGRAPHY TESTING

To learn more, visit www.diopsys.com/ERG

Electroretinography (ERG) Case Study

Patient Work-Up

Gender	Female	BP	110/71
Age	57	Pulse	68
Ethnicity	Caucasion	IOP (mmHg) OD	13
Complaints/Symptoms	None	IOP (mmHg) OS	11
Personal History	Rheumatoid Arthritis (Plaquenil x 2 years)	Refraction OD	+3.00 +2.50
Family History	None	Refraction OS	+2.50 -0.25 x 55 +2.50
Height/Weight	5f / 120Lb	BCVA OD	20/20
		BCVA OS	20/20

ERG Results from Toxic Retinopathy Patient

Tests Performed

Fundus Photographs:

Show normal anterior and posterior segments.

24-2 Visual Field:

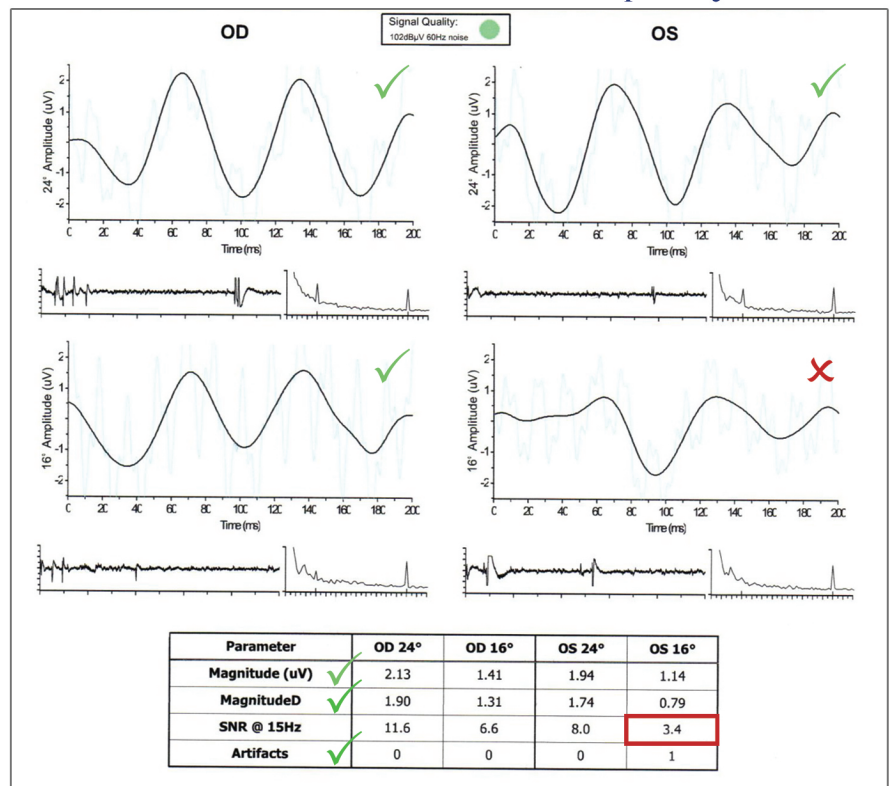
Shows a normal retinal sensitivity in both eyes with good reliability.

10-2 Visual Field:

Shows acceptable foveal sensitivity in both eyes with good reliability.

ERG Concentric Stimulus Field Protocol:

Shows Magnitude (uV) in both eyes within normal limits but inconsistent waveform shape and low signal-to-noise ratio for the 16° OS response.



Conclusion

This patient came to the office for Plaquenil usage follow. The ERG results indicate a very early dysfunction on the foveal area of the left eye because of the suspected retinal toxicity. This patient is scheduled for a visit in 6 months for electrophysiological follow-up.

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