Electro Physiological Test

Partha Haradhan Chowdhury*¹ and Brinda Haren Shah²

¹M.Optom, Associate Professor, Principal, Department of Optometry, Shree Satchandi Jankalyan Samiti Netra Prasikshan Sansthan, Pauri, Affiliated to Uttarakhand State Medical Faculty, Dehradun, India

²M.Optom, Guest Lecturer, Department of Optometry, Shree Satchandi Jankalyan Samiti Netra Prasikshan Sansthan, Pauri, Affiliated to Uttarakhand, State Medical Faculty, Dehradun, India

Received: October 26, 2018; **Published:** November 01, 2018

***Corresponding author:** Partha Haradhan Chowdhury, M. Optom, Associate Professor, Principal, Department of Optometry, India

Short Communication

Electro physiological test consist of three test and they are:

- Electro Retinogram
- Electro Oculogram
- Visual Evoked Potential

Electro Retinogram

Electro Retinogram records 'Retinal Action Potential' when Retina is stimulated by light. ERG have two electrodes.

- Active Electrode
- Reference Electrode

Active Electrode is placed on the cornea and Reference Electrode is placed on the forehead. Potential between two electrodes are Amplified and Displayed. Whatever the potential difference is being created that is between two cone cells and it is 1 mili volt only and it is called "Corneo Retinal Potential." At the posterior pole of eye, 1 mili volt potential difference is also created. This potential difference can be modified by changing the light stimulation on the Retina [1].

ERG consist of 3 waves.

- "a wave"
 - "b wave"
 - "c wave"
- a wave: It arises from the rod and cone cells and it is Corneo Negative
 - b wave: It arises from the "NULLER CELLS" and it is Corneo Positive.
 - c wave: It is a prolonged positive wave. It's a very time taking process.

Patient should be kept in a complete dark room up to 30 minutes before taking the 3 readings. Last two readings are taken after staying in diffuse bright light up to 10 minutes.

ERG is performed in cases of

- Retinitis Pigmentosa
- Diabetic Retinopathy
- Central Retinal Artery Occlusion

Because in this case, abnormality is seen in the waves. Drug Retinal Toxicity is also diagnosed by ERG. ERG value is deteriorated in cases of Ptosis, Lens Opacity, Miosis, Inadequate Retinal Adaptation.

Electro Oculogram

Unlike ERG, EOG is being used in both light and dark conditions. In case of EOG, at first, two electrodes are used. 1st electrode is placed at the Lateral canthi and 2nd electrode is placed at the Medial canthi. Another electrode is placed at the Forehead. During the use of EOG, two lights are placed at side by side with thin 30 to 60 sec. and another light is placed just centrally of the patient. Patient is instructed to look that light Rhythmatically. EOG is only used when ERG is not available exceptionally in cases of Vitelliform Macular Degeneration. Here, ERG value is in normal condition but EOG value is reduced [2].

Visual Evoked Potential

It can record the "Electrical activity of the Visual Cortex" by the stimulation of the Retina. In case of VEP, the stimulus will be "Flash of light" on Black and White Checker Board. Here, latency or amplitude of VEP is recorded. The meaning of latency is "DELAY" Specifically, in case of babies, it is used to assess visual function. Optic Neuropathy Demyelinating disorder can also be diagnosed [3].

References

1. Brad Bowling (2016) Kanski's Clinical Ophthalmology E-Book: A Systematic Approach. In: Brad Bowling (Eds.) (8th edn).
2. Sihota, Radhika Tandon (2018) Parson's Diseases of the Eye. In Sihota, Radhika Tandon (Eds.) (22nd Edn).
3. Samar K Basak (2009) Clinical Ophthalmology Atlas.

ISSN: 2574-1241

DOI: [10.26717/BJSTR.2018.10.001991](https://doi.org/10.26717/BJSTR.2018.10.001991)

Partha Haradhan Chowdhury. Biomed J Sci & Tech Res

This work is licensed under Creative Commons Attribution 4.0 License

Submission Link: <https://biomedres.us/submit-manuscript.php>

Assets of Publishing with us

- Global archiving of articles
- Immediate, unrestricted online access
- Rigorous Peer Review Process
- Authors Retain Copyrights
- Unique DOI for all articles

<https://biomedres.us/>