

Case Report

Dizziness and Nausea Feeling During Pattern Reversal Checkerboard Visual Evoked Potential Recording in a Multiple Sclerosis Patient

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Abstract

Dizziness and nausea are among the symptoms of multiple sclerosis (MS). The present manuscript reports a case suspected of MS who experienced severe dizziness and nausea while recording pattern reversal checkerboard (PRC) visual evoked potential (VEP), whereas she felt comfortable during the flash type of VEP (FVEP). Therefore, we suggest recording FVEP in patients with any problem produced due to PRC VEP.

Keywords: Dizziness; Nausea; Visual Evoked Potential; Multiple Sclerosis.

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Introduction

Multiple sclerosis (MS) is the most prevalent chronic inflammatory disease of the nervous system which is characterized by brain and spinal cord involvement. Patients suffering from MS may also have visual pathway involvement ¹.

Visual evoked potential (VEP) is a potential evoked in the visual cortex by stimulation of the visual system. VEP is a suitable technique to screen the visual pathway ². VEP can be used in a number of physiological and pathological conditions. Shushtarian SM et al (1999) measured VEP in healthy female subjects during their physiological menstrual cycle. The authors observed that VEP parameters changed during this period. The reason for this change may be the hormonal changes that occur during this period ³.

Sarzaeim F et al (2022) worked on flash VEP (FVEP) in patients with head trauma and commented that VEP recording is a suitable tool to evaluate the extent of injury to the visual pathway following head trauma ⁴. Similarly, multiple other studies have explained the usefulness of VEP in different pathological conditions ⁵⁻¹⁶.

For recording VEP, there are two stimulation techniques; flash and pattern reversal checkerboard (PRC). FVEP is used in patients with fall in visual acuity, whereas PRC-VEP is a technique used in patients with normal visual acuity ¹⁷. Keramti et al (2021) measured VEP with PRC stimulation for early diagnosis of pathological changes in the visual system of prolactinoma patients. They observed a delay in the VEP P100 peak of the patients compared to the control group with a healthy visual system. This shows that prolactinoma can affect the visual pathway of the patients, which can be measured by PRC-VEP ¹⁸.

In the present case, despite having normal

visual acuity, the patient was examined with FVEP, which is explained in detail in the following.

Case report

A 35-year-old lady, prediagnosed with MS, was referred to the Basir eye clinic for VEP recording. The magnetic resonance imaging (MRI) reports showed three to four plaques in the visual pathway. She was admitted to the hospital for five days and underwent pulse therapy. Her visual acuity in both eyes was good enough to record PRC-VEP, but she complained of dizziness and vomiting feeling as soon as the recording was started. Thus, the operator used FVEP after giving 10 to 15 minutes of rest to the patient, and in this condition, the patient felt comfortable with VEP recording.

Discussion

A lady was referred to the Basir eye clinic for VEP recording as part of the diagnosis. She was tested with FVEP despite having normal visual acuity in both eyes. Noteworthy, although the optimum visual stimulator for recording VEP is PRC-VEP, the type of visual stimulator for recording VEP should be selected carefully in various pathological conditions. In this regard, Shushtarian SM et al (2020) worked on suitable stimulation techniques to record VEP in migraine patients, and they concluded that for recording VEP in migraineurs, the PRC stimulator is an optimum one unless the patient's visual acuity is not proper. In that case, flash stimulation is preferred ¹⁹. Several other studies have also reported similar findings ²⁰⁻²³. Some types of stimulators for recording VEP may be harmful to certain patients. For instance, it was found that stripped pattern induces strong visual illusion and discomfort in migraineurs ²⁴. The most related case was

reported by Shushtarian SM (2017). They reported a patient with monocular optic neuritis and a history of migraine headaches. The patient was referred to the Basir eye clinic for VEP measurement, during which she suffered from a severe headache initiated by flash stimulation [25]. The only difference between the present case report and the previous one is the difference between the type of stimulators; in the present work, the patient suffered from dizziness and vomiting feeling by PRC stimulation while in the former one, the patient suffered from a severe headache by flash stimulation.

Conclusion

The laboratories recording VEP should be equipped with various types of visual stimulators to be prepared for unpredictable conditions in different patients.

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Footnotes and Financial Disclosures

Conflict of interest:

The authors have no conflict of interest with the subject matter of the present manuscript.