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Visual Evoked Potential in Patients with Valproic Acid Treatment

Maryam Naser* and Shoniz Asnovil*Department of Ophthalmology, Tehran Azad Medical Sciences, Iran****Corresponding author:** Maryam Naser, Department of Ophthalmology, Tehran Azad Medical Sciences, Iran.**Received Date:** May 09, 2019**Published Date:** May 16, 2019**Abstract****Purpose:** The purpose of this study was to find out the safety of valproic acid use in patients with retinitis pigmentosa.**Method:** 19 patients suffering from retinitis pigmentosa with using Valproic Acid as treatment were selected for the present study. Visual evoked potential was recorded for all subjects. The result obtained were compared with the control consist of 27 normal population matched with case group.**Results:** The mean latency and amplitude of VEP were compared in case and control group. The mean latency/ S.D of VEP, P100 peak were 2.8/ 7.23 and 87/4.37 msec and the mean amplitude were 6 ± 1.42 and 9 ± 1.03 μ v in case and control groups respectively. The difference between two groups was significant.**Conclusion:** Based on the findings of present study, it can be concluded that Valproic Acid affects visual pathway which can be proved by visual evoked potential.**Keywords:** Visual evoked potential; Valproic acid; Latency and amplitude of P100 peak; Retinitis pigmentosa**Introduction**

Retinitis pigmentosa (RP) includes a large group of inherited vision disorders that cause progressive degeneration of the retina. This condition changes how the retina responds to light, making it hard to see. People with retinitis pigmentosa lose their vision slowly over time. It presents as blindness at night and then develop to be the narrowing of visual fields (VF), causing tunnel vision and the legal blindness or complete blindness at last [1]. In recent years, the valproic acid (VPA) has drawn people's attention as it has the potential to treat RP [2]. Based on different studies, VPA is effectively treat people suffering retinal dystrophies due to its inhibitory effect on histone deacetylase and inflammatory response pathway through microglial cell apoptosis [3-5]. The visual evoked potential (VEP) is a common test which can show about the working of the visual pathway from the eye along the optic nerve to the brain. When a light flash, an electrical response can be detected from the vision part of the brain. This is the visual evoked potential (VEP). In present study, we want to see if taking valproic acid can affect visual pathway by using VEP.

Material and Methods

19 patients suffering from retinitis pigmentosa with the history of treatment by Valproic Acid (VA) were selected for the study. The age range was 16-32 years, 10 females and 9 males. Visual evoked potential was recorded for all subjects. The result obtained were compared with the control consist of 27 normal population matched with case group. We used Mangoni Machiue which is used for recording VEP, ERG and EOG. Three electrodes were attached to occipital, vertex and forehead. An electrophysiological gel was used for better conduction between the electrodes and skin. Latency (msec) and amplitude (μ v) of VEP, P100 peak were measured for each patient. The same procedure was performed for 19 normal populations with no history of using this drug. The results obtained in both case and control populations were compared together to check the probable differences in two groups.

Result

Two parameters of VEP, P100 peak i.e. latency and amplitude were measured. The mean latency/ S.D of VEP, P100 peak were 2.8/

7.23 and 87/4.37 msec and the mean amplitude were 6 ± 1.42 and $9 \pm 1.03 \mu\text{v}$ in case and control groups respectively. The difference between two groups was significant for both parameters ($P < 0.05$).

Discussion

19 retinitis pigmentosa patients taking valproic acid (VA) were examined by pattern reversal VEP (PRVEP). The result was compared with VEP of control group. The VEP results obtained in two groups were significantly different in amplitude and latency of VEP, P100 ($P < 0.05$). Faught E and his colleague recorded PRVEP in epileptic patients treated with valproic acid. The result showed decrease of amplitude [6]. This finding is similar to the result of present study. Another research in this connection was done by Yuksel A and his colleagues that reported normal VEP in epileptic patient treated with VA [7] Which is not similar to the result of our study. Another work was done on 2013 by Tumay Y reported smaller delay in VEP, P100 peak in patients consuming valproic acid [8]. Farabi Y also reported the same result of VEP changes in patients using valproate sodium [9].

Conclusion

According to the findings in this study, treating retinitis pigmentosa patients with VA significantly affects visual pathway after a while, yet some studies hold controversial opinions about this result. So, more studies should be done to prove the finding in our research.

Also, patients taking valproic acid, need to visit ophthalmologist to check the visual pathway and see if the drug has side effect on vision, they should stop taking VA to prevent more serious visual problems.

Acknowledgement

None.

Conflicts of Interest

No conflict of interest.

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