

Study the Effect of Amethopterin on Visual pathway

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Abstract

Amethopterin is a drug used to treat many types of cancer. It is also used to treat rheumatoid arthritis and severe psoriasis. It stops cells from using folic acid to make DNA and may kill cancer cells. The purpose of this study is to see if using this drug can affect visual pathway. We compared the results of Visual Evoked Potential in patients taking this drug for a while with control population. There was no statistically significant difference of VEP parameters (latency and amplitude) between patients and control group. According to this results, one can conclude that Amethopterin does not affect on visual pathway.

Keywords: *Amethopterin; Visual Pathway; Visual Evoked Potential*

Introduction

Amethopterin also called Methotrexate is usually used for the treatment and management of Acute lymphoblastic leukemia, Osteosarcoma, Choriocarcinoma, chorioadenoma and gestational trophoblastic diseases, non-cancerous conditions such as psoriasis and rheumatoid arthritis.

Common side effects of this drug are fever, chills, tiredness, nausea, upset stomach, dizziness and mouth sores [1]. The mechanisms of action of this drug are complex. It acts by inhibiting the metabolism of folic acid, inhibits purine and pyrimidine synthesis, which accounts for its efficacy in the therapy of cancer as well as for some of its toxicities [2]. Related electrophysiological examination i.e. visual evoked potential (VEP). Electroretinography (ERG) and Electrooculography (EOG) are among the beneficial techniques to diagnose the toxic effect of drugs on retina and visual pathway [3]. The visual evoked potential (VEP) is a measurement of the electrical signal recorded at occipital cortex in response to light stimulus [4]. We used VEP in our research to study the effect of Amethopterin in visual pathway.

Material and Methods

Twenty-one patients taking Amethopterin at least for nine months were selected for the purpose of this study. Control group was included 21 healthy people without history of taking this drug added to our research. Latency and amplitude of VEP, P100 peaks were measured for all 42 subjects using the pattern reversal checker board as stimulator. Finally, the results obtained in two groups were compared together. SPSS was used for statistical in this work.

Result

In case population, VEP, P100 parameters i.e. mean latency and amplitude was 90.26/13.25 and 5.4/9.51. The result in control group was 91.52/11.21 and 5.1/8.39 for latency and amplitude.

Discussion

According to the results obtained in this study, there is no significant difference between amplitude and latency of VEP between control and case groups which indicates that taking Amethopterin has no serious side effect on visual pathway. Glare G et al. reported a case of bilateral optic neuropathy in a middle-aged woman taking methotrexate medication which is contrast with the result of our work [5]. Cavaqna L studied on detection of hydroxychloroquine retinopathy by using VEP and got the same results as this research [6].

Conclusion

Based on the result of this work, one can conclude that Amethopterin is a safe drug as far as visual pathway is concerned and has no serious side effect on the retina in patients using this drug. Although, more researches should be done to support this finding.

Bibliography

1. Methotrexate. "The American society of health- system, pharmacists" (2011).
2. Tian H and Cronstein BN. "Understanding the mechanisms of action of methotrexate: implications for the treatment of rheumatoid arthritis". *Bulletin of the NYU Hospital for Joint Diseases* 65.3 (2007): 168-173.
3. Naser M and Shushtarian SM. "Study the effect of depakine on retina of epileptic patients using electroretinogram". *International Journal of Scientific Research* 3.1 (2014): 392-393.
4. Farabi Y., et al. "Recording of Visual Evoked Potential in Patients Suffering from Epilepsy following Valproate Sodium Treatment". *Journal of Ophthalmology and Research* 2.1 (2019): 6-9.
5. Clare G., et al. "Reversible optic neuropathy associated with low-dose methotrexate therapy". *Journal of Neuro-Ophthalmology* 25.2 (2005): 109-112.
6. Cavaqna L., et al. "Early electroretinographic changes in elderly RA patients treated with hydroxychloroquine". *Reumatismo* 24 (2002): 226-231.

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