Journal of Applied Biological Sciences 6 (2): 1-3, 2012
ISSN: 1307-1130, E-ISSN: 2146-0108, www.nobel.gen.tr

The Comparative Study of Sodium Valproate and Topiramate as Prophylactic Therapy for Migraine in Imam Hospitals of Tabriz and Urmia, Northwestern Iran

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Received: January 01, 2012
Accepted: February 10, 2012

Abstract

Introduction

Migraine, generally unilateral and throbbing, is a periodic headache with a genetically background. It begins from childhood, adolescence or early in middle age and is more common among the women. According to conventional terminology two main clinical syndromes associated with migraine: migraine with and without aura. Although extensive studies and hypotheses have been done, the definite pathology of migraine is not clear. However, two main neurogenic and vasogenic hypotheses are generally accepted. Although the criteria proposed by ICHD-2 are suitable for research purposes, almost physicians diagnose the migraine based on its general manifestations. The 80% of the untreated patients will suffer moderate to severe pains and only in 20% of the cases they experience a mild pain. In this study, we tried to evaluate the general and detailed effects of sodium valproate and topiramate as a prophylactic therapy for migraine episodes.

Materials and Method

This is a double-blind study, which was conducted in the main hospitals of Tabriz and Urmia, the capitals of both main provinces of northwestern Iran, on 200 patients with migraine who needed prophylaxis. Of them, 150 cases were female and 50 cases were male. They all were grouped in two groups, each group included: 75 females, and 25 males, in order to avoid the bias. The first group received sodium valproate (15-30 mg/kg) and the second group received topiramate 2-3 mg/kg. Medication discontinuing occurred in 10% of topiramate-treated patients and occurred in 5% of sodium valproate-treated patients. The prophylactic therapy continued 2-3 months after healing.

Results

According to the results of this study, the administration of topiramate and sodium valproate in two different treatment groups, caused a 50% decrease in the headache frequency in 80% of the patients in both groups. They cause also a 75% decrease of the headache in 15%, and in the rest of 5% of the patients the headache completely prohibited and went away in both groups. These two groups had no significant difference in the average ages of the cases ($p > 0.05$). The effects of both drugs were identical in decreasing the frequency, intensity, and elongation of the headaches, and there were no significant differences in the results of both groups ($p>0.05$). The discontinuing the therapy occurred 10% with topiramate (males 4%, females 6%) and 5% of cases with sodium valproate (males 2%, females 3%). This demonstrated the higher incidence of therapy termination in the female cases with both drugs. According to the results of our study, sodium valproate and topiramate had the same efficacy and potency in prophylaxis of the severe migraine ($p > 0.05$). According to the results of our study, sodium valproate decreased the headache frequencies from 6 to 0.6 cases per month, and topiramate decreased this rate from 6 to 1 cases per month.

Conclusion

Reviewing the literature and according to the results of our study, that they all agree that both sodium valproate and topiramate have identical effects on prophylaxis of severe migraine episodes, we suggest using sodium valproate for thin and topiramate for fat patients. In this study, we found that sodium valproate decreases the headache frequencies from 6 to 0.6 cases per month, and topiramate decreases this rate from 6 to 1 cases in the same period.

Keywords: Migraine, sodium valproate, topiramate, drug complications, prophylactic therapy

INTRODUCTION

Migraine is a periodic headache, which is generally unilateral and throbbing with a genetically background. It begins from childhood, adolescence or early in middle age (80% before age thirty) and is more common among the women [1]. The headache differs from mild to severe and may be characterized by photophobia, sonophobia, nausea and vomiting. Since it is more common in the ages of 25-55 years, these ages are the most active period of an individual's lifetime. This disease imposes each year expensive costs on populations in the societies [2]. According to conventional terminology of headache, there are two main clinical syndromes associated with migraine: migraine with and without aura [3], which the prevalence of the latter is five times more than the former. The migraine without aura usually begins with a unilateral and sudden headache and rarely with a generalized headache with or without nausea and vomiting. Nevertheless, in the migraine with aura, in the early stage, there is neurological disorders (usually visual), which are soon, in a few minutes change into a unilateral and sometimes bilateral headache with or without nausea and vomiting. It may last from several hours to several days. Although extensive studies and hypotheses have been done, the definite pathology of migraine is not clear. However, two main neurogenic and vasogenic hypotheses are generally accepted. Although the criteria proposed by ICHD-2 are suitable for research purposes, almost physicians diagnose the migraine based on its general manifestations. The migraine headaches are unilateral in 60% cases and bilateral in 40% of the cases. The 15% of the patients have ipsilateral unilateral headaches, which they occure always in a certain hemisphere of their head. The pain usually is more intensive in the frontotemporal and periocular regions before radiating to the parietal and occipital regions. Any part of the head and neck may be involved including parietal, maxillary, mandibular, cheeks, zygomatic processes and superioanterior parts of the neck [4]. The throbbing pain may be present in the 85% of the migraine episodes, although about the 50% of the patients experienced the non-throbbing type during the migraine onset. Additionally, the 75% of the patients complain the stiffness, rigidity, spasms and unilateral or bilateral throbbing pains in the nape region in addition to their pain in the head. The neck-ache may occur in the preliminary stage of the migraine, during or after the episodes. The migraine episodes if left untreated or retracted to the treatment may be last to 72 hours [5]. If it exceeds more than 72 hours, it is called sustained migraine. The 80% of the untreated patients will suffer moderate to severe pains and only in 20% of the cases they experience a mild pain. We have tried to evaluate the general and detailed effects of sodium valproate and topiramate as a prophylactic therapy for migraine episodes.

MATERIALS AND METHOD

This is a double-blind study, which was conducted in the main hospitals of Tabriz and Urmia, the capitals of both main provinces of northwestern Iran, on 200 patients with migraine who needed prophylaxis. Of them, 150 cases were female and 50 cases were male. They all were grouped in two groups, each group included: 75 females, and 25 males, in order to avoid the bias. The first group received sodium valproate (15-30 mg/kg) and the second group received topiramate 2-3 mg/kg. These two groups had no significant difference in the average ages of the cases ($p > 0.05$). There were no significant psychiatric problems of the patients in any of the both groups. Medication discontinuing occurred in 10% of topiramate-treated patients and occurred in 5% of sodium valproate-treated patients. The prophylactic therapy continued 2-3 months after healing. The data collected by neurologist and were analyzed by SPSS package, version 17. The p value more than 0.05 was statistically considered as significant.

RESULTS

According to the results of this study, the administration of topiramate and sodium valproate in two different treatment groups, caused a 50% decrease in the headache frequency in 80% of the patients in both groups. They cause also a 75% decrease of the headache in 15%, and in the rest of 5% of the patients the headache completely prohibited and went away in both groups (See **Figure 1**). The effects of both drugs were identical in decreasing the frequency, intensity, and elongation of the headaches, and there were no significant differences in the results of both groups ($p>0.05$). However, the complications of topiramate, including paresthesia, lethargy, nausea, weight loss, causes more patients to discontinue the therapy in comparison to sodium valproate with complications including drowsiness, hand tremor, nausea and overweighting. The discontinuing the therapy occurred 10% with topiramate (males 4%, females 6%) and 5% of cases with sodium valproate (males 2%, females 3%). This demonstrated the higher incidence of therapy termination in the female cases with both drugs. According to the results of our study, sodium valproate and topiramate had the same efficacy and potency in prophylaxis of the severe migraine ($p > 0.05$). This is agreed with other studies in the literature [3-6]. On the other hand, in viewpoint of adverse effects, the topiramate therapy, comparing sodium valproate, caused to more side effects and led to drug termination. Considering the side effects, as sodium valproate cause overwieghting and topiramate causes weight loss, we suggest their use for thin and fat people, respectively. According to the results of our study, sodium valproate decreased the headache frequencies from 6 to 0.6 cases per month, and topiramate decreased this rate from 6 to 1 cases per month.

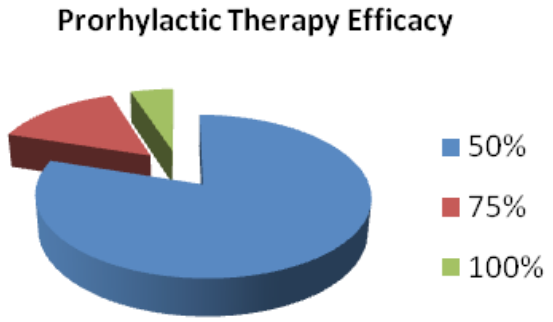

Figure 1. Comparison of the efficacy of the prophylactic therapy; In two different treatment groups the used agents caused a 50% decrease in the headache frequency in 80% of the patients in both groups. They cause also a 75% decrease of the headache in 15%, and in the rest of 5% of the patients the headache completely prohibited and went away in both groups.

DISCUSSION AND CONCLUSION

The indications of prophylactic therapies of headaches include: a type of headache which has not interfere the common daily activities of the patient, in spite of the acute therapeutic interventions; the used drugs are contraindicated, or ineffective or finally with intractable side effects for acute therapies; the drugs which have been used longtime; presence of intermittent headache episodes more than two times a week; presence of uncommon migraine types, e.g. hemiplegic, basilar, with persistent aura or migraine infarction. Additionally, when the costs of routine therapies is more expensive than the prophylactic therapy, the latter is preferred. Sometimes the preference of the patient may lead the health care staff to prophylactic therapies, e.g. as the numbers and intensity of the onsets decreases, the patient may accept the prophylactic therapies to avoiding the probable side effects in the long term of the common therapies. The physician should start the prophylactic therapy in the lower doses, and considering the patient's responses and the probable complications, will increase the doses [6]. Any medicine should be tentatively administered in an adequate dose at least for a period of 2 to 3 months. The medicines which have been long used with no effective consequences or may interfere the prophylactic therapies or may induce remitting headaches, should be gradually tapered and discontinued. The patient him-/herself should monitor the condition of his/her headaches in a checking book. The physician should explain explicitly the rationale of the prophylactic therapy and the probable complications of the procedure and also he/she should consider the expectations of the patient of his/her therapy.

Almost the patients wish radical cures, which although it is understandable, but unfortunately, it is not always possible. The underlying diseases should be observed [7]. Some medications may be useful both for migraine and the concomitant conditions of the patient. These conditions, which anti-migraine drugs are also effective for them include: epilepsy (sodium valproate, topiramate, gabapentine), hypertention (beta-blockers), depression (tricyclic antidepressants), bipolar disorders (sodium valproate), insomnia (tricyclic antidepressants), primary tremor (beta-blockers, topiramate), overweight or obesity (topiramate). On the other hand, some comorbid diseases, e.g. depression and asthma may be considered as a relative contraindication for using beta-blocker agents. In the pregnant or maybe-mothers, the teratogenicity should be considered due to the drugs [8]. The patients with a slight response to a prophylacting agent, may benefit of adding another drug to the therapy regiment. Eventually, if some drugs, i.e. tricyclic antidepressants and beta-blockers, need for discontinuing, they should be tapered. According to the literature beta-blockers (propranolol), tricyclic antidepressants (amitriptyline), anticonvulsives (sodium valproate and topiramate) are the most effect agents as prophylactic therapies, which cause decrease the number of episodes to 50% in the almost 50% of the patients [9]. In general, the patients will demonstrate the best results if they are treated according to a calibrated program aimed reaching to the least therapeutic target dose [10]. Reviewing the literature and according to the results of our study, that they all agree that both sodium valproate and topiramate have identical effects on prophylaxis of severe migraine episodes, we suggest using sodium valproate for thin and topiramate for fat patients. In this study, we found that sodium valproate decreases the headache frequencies from 6 to 0.6 cases per month, and topiramate decreases this rate from 6 to 1 cases in the same period.

REFERENCES

[1] Lipton, RB, Stewart, WF, Diamond, S, et al. Prevalence and burden of migraine in the United States: data from the American Migraine Study II. Headache 2001; 41:646.

[2] Ramadan, NM, Schultz, LL, Gilkey, SJ. Migraine prophylactic drugs: Proof of efficacy, utilization and cost. Cephalalgia 1997; 17:73.

[3] Ziegler, DK, Hurwitz, A, Hassanein, RS, et al. Migraine prophylaxis. A comparison of propranolol and amitriptyline. Arch Neurol 1987; 44:486.

[4] Silberstein, SD. Practice parameter: evidence-based guidelines for migraine headache (an evidence-based review): report of the Quality Standards Subcommittee of the American Academy of Neurology. Neurology 2000; 55:754.

[5] Law, M, Morris, JK, Jordan, R, Wald, N. Headaches and the treatment of blood pressure: results from a meta-analysis of 94 randomized placebo-controlled trials with 24,000 participants. Circulation 2005; 112:2301.

[6] Nadelmann, JW, Phil, M, Stevens, J, Saper, JR. Propranolol in the prophylaxis of migraine. Headache 1986; 26:175.

[7] Rosen, JA. Observations on the efficacy of propranolol for the prophylaxis of migraine. Ann Neurol 1983; 13:92. Linde, K, Rossnagel, K. Propranolol for migraine prophylaxis. Cochrane Database Syst Rev 2004; :CD003 225.

[8] Limmroth, V, Michel, MC. The prevention of migraine: a critical review with special emphasis on beta-adrenoceptor blockers. Br J Clin Pharmacol 2001; 52:237.

[9] Greenberg, DA. Calcium channel antagonists and the treatment of migraine. Clin Neuropharmacol 1986; 9:311.

[10] Polizzotto, MJ. Evaluation and treatment of the adult patient with migraine. J Fam P Pract 2002; 51:161