

Treatment effect of iron tablets on women in productive age with iron deficiency anemia and vascular headaches

Keyvan Ghasami¹, Fardin Faraji², Abolfazal Mohammadbeigi³

ABSTRACT

Objective: Migraine is classified into two groups of vascular and chronic headaches. Also, iron anemia is the most common type of anemia among women who are in the productive age in the world. This study was done to investigate the relationship between the vascular headaches and the iron deficiency anemia and to see the effect of iron deficiency tablets administration on the treatment of these headaches in women who are in the productive age.

Methodology: In this quasi-control clinical trial study, 50 women in the productive age - who had iron deficiency anemia and vascular headaches and were referred to the neurological clinic of Vali-e-Asr hospital, Arak, Iran were included. The patients were treated with ferrous sulfate tablets for three months. For verifying the treatment, the patients' hemoglobin was monitored after one month, and in case of any significant increase in this value, the patients were excluded from the study. The number of headache attacks and the number of analgesic used before, through, and three month after the beginning of the administration of ferrous sulfate were noted for all the patients.

Results: The mean number of the headaches attacks one month before the treatment, during the treatment and three months after the treatment were 19.6 ± 28 , 14.2 ± 11.2 , and 13.3 ± 16.1 , respectively ($p < 0.0001$). In addition, the mean number of used analgesics before the treatment, during the treatment, and three months after the treatment were 30.1 ± 14.1 , 14.3 ± 11.2 , and 13.1 ± 16.1 , respectively ($p < 0.0001$).

Conclusion: It seems that using iron tablets can be useful in treatment of vascular headaches. Moreover, it has a beneficial effect on patients suffering from iron deficiency anemia with headaches.

KEY WORDS: Migraine, Vascular headaches, Tension headaches, Iron deficiency anemia.

Pak J Med Sci April - June 2012 Vol. 28 No. 3 476-479

How to cite this article:

Ghasami K, Faraji F, Mohammadbeigi A. Treatment effect of iron tablets on women in productive age with iron deficiency anemia and vascular headaches. Pak J Med Sci 2012;28(3):476-479

1. Dr. Keyvan Ghasami,
Assistant Professor, Neurologist,
Arak University of Medical Sciences, Arak, Iran
2. Dr. Fardin Faraji,
Assistant Professor, Neurologist,
University of Medical Sciences, Arak, Iran
3. Dr. Abolfazal Mohammadbeigi, PhD Student of Epidemiology,
Qom University of Medical Sciences, Qom-Iran.
- 1,2. Department of Neurology, Vali-Asr Hospital,
Arak University of Medical Sciences, Arak- Iran.

Correspondence:

Dr. Abolfazal Mohammadbeigi, PhD Student of Epidemiology,
Qom University of Medical Sciences, Qom, Iran.
Department of Epidemiology- Health school- Qom-Iran,
Email: beigi60@gmail.com

- * Received for Publication: September 30, 2011
- * Revision Received: October 20, 2011
- * Revision Accepted: March 8, 2012

INTRODUCTION

Headache is one of the most common health complaints.¹⁻⁶ More than 90 percent of people experience at least one headache attack a year; and controlling the headache is considered as a main goal in health interventions.³ Vascular and tension headaches are categorized as the chronic headaches and among the causes of headaches, migraine is classified as the most cause of vascular and chronic headaches.^{3,7} The disease is believed to be very important due to the high prevalence rate (15 percent of women and 6 percent of men) of vascular and chronic headaches as well as the economic losses caused by these diseases including the

absence from work and education, disability, and consuming large amounts of medication to relieve pain.⁸ According to World Health Organization, the nineteenth rank among the debilitating disorder is allocated to headaches which result from migraine.³ In fact, tension headaches are described as a chronic headache syndrome which is often associated with fatigue and stress although the incidence of these headaches is usually slow, their severity has a fluctuation, and they usually continue for a few days.⁹

Migraine is the most common form of vascular headaches which does not have a certain physiopathology, but heredity with a multi-genes design plays an important role. In recent studies, reduction of regional blood flow during migraine attacks in the brain has been reported.⁷ Several risk factors have been mentioned for vascular and tension headaches including stress, anger, taking some medication, and nutritional disorders. Also, in some studies, circulatory disorders in the form of iron deficiency anemia have been mentioned as one of the causes of chronic headaches.¹⁰ In other studies, headache was, also, considered as a symptom of iron deficiency, but the type of headaches and its association with anemia has not been mentioned.¹¹ Iron deficiency anemia is the most common type of anemia. Clinical symptoms of anemia are different depending on the severity of anemia from no symptoms to symptoms such as: fatigue, irritability, and headaches. Based on valid medical texts, the headaches which result from the permanent iron deficiency are vague and happen mostly on the front area. In addition, these headaches do not change in frequency.^{8,12}

The vascular headaches are, also, most common in women and in the productive age. Iron deficiency anemia is prevalent in many women with vascular headaches.¹² In this study we have explored the effect of anemia treatment in improving vascular headaches in women in the reproductive age who also suffer from iron deficiency anemia.

METHODOLOGY

This is a quasi-control clinical trial study in which the effect of taking iron tablets in reduction of Vascular Headache (VH) in women in the reproductive age was investigated. The sample size based on $\alpha=0.05$ and $\beta=0.20$ was calculated as 50 patients. Informed consent was taken from the patients and protocol of the study was approved by ethical committee in Arak University of Medical Sciences.

After determining the type of headaches by a neurologist and a blood test, the cases were chosen from people suffering from headaches who were referred to the neurology clinic of Vali-e-Asr hospital, Arak, Iran. In order to determine the VH, the index of International Headache Society was used. CT scan, MRI, and EEG were used if necessary. In addition, to determine the iron deficiency anemia CBC test, hemoglobin, hematocrit, and Ferritin serum were used by the neurologist.^{8,13} The patients' inclusion criteria were being in productive age, suffering from iron deficiency anemia with hemoglobin below 12 mg/dl, hematocrit below 34%, ferritin serum less than 15 mg/dl, clinical determination of migraine without aura which is accompanied either by five headache attacks and two headache symptom from 4 to 72 hours duration of attacks, one sided and pulsating, stopping daily activities and intensified with the activities, accompanied with nausea, vomiting, photophobia, fear of sound, recovering with sleeping; or at least two headache attacks with three features of one or more reversible aura symptoms with the minimum duration of four and maximum duration of 60 minutes, having headaches at the same time or before the aura or at least 10 headache attacks with the symptom of tension headaches. During the clinical phase of the study, patients whose headaches were identified as not pure migraine, those who were pregnant, or were not present on time during the investigation in any case, were excluded.

Before starting the treatment patients participating in the study were asked about the number of headache attacks as well as the type and the amount of painkillers they took during the last month. In order to treat anemia, they received 60mg ferrous sulfate tablets. During the treatment (one month after beginning) and three months after the treatment, these features were examined again. Also, the patients' level of hemoglobin was examined before and after the treatment. This is a double blind study since the neuro-specialist and the interviewer were not aware of the treatment. The collected data were analyzed by a paired t-test, Wilcoxon test and repeated measurement analysis in the SPSS statistical software (version 16). P value < 0.05 was considered as significant.

RESULTS

The mean age of patients was 29.31 ± 7.6 years old. Among them four patients (8%) suffered from migraine with aura, 30 patients (60%) suffered from migraine without aura, and 16 patients (32%)

Table-I: The mean of the attacks and the taken painkillers during the study in productive age women.

Variables	One month before treatment	Treatment period	Three month after treatment	P Value
Mean of attacks	19.6±12.8	14.2±11.2	13.3±11.8	<0.001
Painkiller	30.1±14.1	14.3±11.2	16.1±13.1	<0.001

suffered from tension headaches. The patients' hemoglobin average level was 11±9 and 12.5±4 before and after the treatment, respectively, and significantly increased after the treatment ($p<0.001$). According to the results (Table-I), the mean number of attacks and use of painkillers in one month before the treatment, the treatment period, and three months after the treatment were examined and it was shown that there was a significant increase in the number attacks ($p=0.01$) as well as the number of consumed painkillers at the end of the treatment in comparison to before the treatment and one month after the treatment ($p<0.05$).

DISCUSSION

The results of this study showed that iron tablets prescribed for the patients who suffered from the vascular headache and iron deficiency anemia significantly reduced in the number and the severity of the headache attacks at the end of the study. Also, by prescribing ferrous sulfate tablets during the treatment period, patients used less painkiller than before they participated in the study. Moreover, the type of the painkillers changed from strong ones – such as Ergotamine and Opioids which were used before the study – to simple ones – such as acetaminophen – during the study.

In 2001 in America¹⁴, a review of 40 patients showed that improving the nutritional status and increasing the quality of life cause a significant decrease in the amount as well as the intensity of headaches in 80% of patients. Also, a study in Ahvaz, Iran¹⁵ showed that neck and shoulder massage twice a week which continued for 5 weeks, 4 times per day and 20 minute in 25 patients who suffered from tension headaches, could reduce the headaches 57%, 39% and 52% in second, third and fourth week after starting of massage. Considering the studies done on migraine, nothing was found to show the relationship between the migraine and the iron deficiency anemia. In 2005 in Brazil, Sylvia et al. conducted a study on 56 patients who suffered from anemia cell cycle and came to the conclusion that 50 percent of them had a severe type of migraine without aura.¹⁶ Also, in 2005 in Portland, Tonia in did a study on 50 children suffering from anemia cell cycle and confirmed that 43.8% of them had

migraine without aura, while 6.2% had migraine with aura.¹⁷ Results of all these studies are similar to another study which was conducted in 2005 in America. In this study, lack of some factors such as Riboflavin, Magnesium, and iron was pointed out the as reasons for these headaches.⁷

In our study, a high percentage of iron deficiency anemias (56.6%) were found in patients suffering from tension headaches. According to the findings of this study and the importance of reducing headache attacks as well as the painkiller consumption, it seems that the findings deserve more attention and a wider investigation.

However, migraine is a chronic, progressive, and debilitating disorder which has an impact on the lives and the quality of life of millions of individuals in the world.¹⁸ Also, iron deficiency anemia is the most common type of anemia especially in women and more specifically in the reproductive age women.^{8,12} So, accurate diagnosis and rapid treatment interventions in girls and women is essential to prevent the length of suffering and the diminished quality of life which are directly attributable to migraine. Although headache can be one of the symptom of iron deficiency^{11,12}, it seems that the treatment of anemia can reduce the intensity and the frequency of headache attacks in patients. This study revealed that the headaches which occur due to iron deficiency anemia are continuous during the life time.

CONCLUSION

The results of this study show a significant difference in the number of attacks and the number of painkillers used among the patients being treated by ferrous sulfate tablets. Considering the results of this study, it seems that taking iron tablets can have a positive effect on vascular headaches.

ACKNOWLEDGMENT

The authors would like to acknowledge Arak University of Medical Sciences for financial support of this study. We are also very grateful for the patients who participated in the study and cooperated with the researchers.

REFERENCES

1. Bogdanov VB, Multon S, Chauvel V, Bogdanova OV, Prodanov D, Makarchuk MY, et al. Migraine preventive drugs differentially affect cortical spreading depression in rat. *Neurobiology of Disease* 2010;41(2):430-435.
2. Evans RW, Seifert TD. The challenge of new daily persistent headache. *Headache: J Head and Face Pain* 2011;51(1):145-154.
3. Kachuee H, Ameli J, Sharifi M, Tavallaei A, Keshavarzi N, Karamay GR. Evaluation of Provocating Factors of Migraine Attacks. *Kowsar Med J* 2006;11(3):279-284.
4. Martin VT, Taylor F, Gebhardt B, Tomaszewski M, Ellison JS, Martin GV, et al. Allergy and Immunotherapy: Are They Related to Migraine Headache? *Headache: J Head and Face Pain* 2011;51(1):8-20.
5. Stovner LJ, Hagen K, Jensen R, Katsarava Z, Lipton RB, Scher AI, et al. The global burden of headache: a documentation of headache prevalence and disability worldwide. *Cephalalgia*. 2007;27(3):193-210.
6. Winter AC, W. H, Meisinger C, Evers S, Vennemann M, Pfaffenrath V, et al. Association between lifestyle factors and headache. *J Headache Pain* 2011;12(2):147-155.
7. Greenberg DA, Aminofh MJ, Simon RP. *Clinical neurology*. New York: Mac Graw Hill; 2002.
8. Kasper DL, Braunwald E, Fauci A, Hauser S, Longo D, Jamesom J. *Harrisons principle of internal medicine*. New York: Mac Graw Hill; 2005.
9. Millea PJ, Brodie JJ. Tension-type headache. *American Family Physician* 2002;66(5):797-806.
10. Wiebe ER, Trouton KJ, Eftekhari A. Anemia in early pregnancy among Canadian women presenting for abortion. *Int J Gynecology & Amp; Obstetrics* 2006;94(1):60-61.
11. Hallman M, Ronald SH, Edward J, Howard L. *Cohen hematology*. New York: Mac Graw Hill; 2005.
12. Ropper AH, Samuels MA. *Adams and victors principle of neurology*. New York: Mac Graw Hill; 2001.
13. Hilla A. Migraine headache; diagnosis and managment. *Optometry J Am Optom Assoc* 2009;80(3):138-148.
14. James Sensenig ND, Jeffrey Marrongelle DC, CCN MJ, Staverosky. T. Treatment of migraine with targeted nutrition focused on improved assimilation and elimination. *Altern Med Rev* 2001;6(5):488-494.
15. Elahie N, Jalali M, Haghighi M, Rahzani K. Effectiveness of masssage on intensity and frequency of headache in women. *Scientific Med J* 2006;4(4):303-307.
16. Silva GS, Vicari P, Figueiredo MS, Junior HC, Idagawa MH, AR. M. Migraine mimicking headache and sickle cell disease: a transcranial Doppler study. *Cephalalgia* 2006;26(6):678-683.
17. Palermo TM, Platt-Houston C, Kiska RE, Berman B. Headache symptoms in pediatric sickle cell patients. *J Pediatr Hematol Oncol* 2005;27(8):420-424.
18. Lewis DW. Pediatric migraine. *Neurologic Clinics* 2009;27(2):481-501.