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A study of the effects of IV Metoclopramide in relieving of migraine type headache

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A B S T R A C T

Migraine is defined as unilateral and usually pulsatile headache. It is usually associated with nausea, vomiting, photo and sound phobia and feeling of fatigue. It has a prevalence of 7-10% in general population. 2.3-3.4 of migraine occurs in women. Most of the affected patients have a positive family history of migraine type headache. In current management of migraine, Metoclopramide is used as an agent to treat nausea associated with migraine and side effects of drugs used to treat migraine. It is administered as IM doses. In this study, we assessed the effects of IV Metoclopramide alone without other regimes to use anticholinergics effect of the drug. In a clinical trial on patients with migraine which was performed in neurology department of Tabriz University of Medical Sciences, the effects of Metoclopramide and Dihydroergotamine in the treatment of patients with migraine were evaluated. Our cases consisted of 200 patients groups: First group under treatment with Metoclopramide IV 100 patients. Second group under treatment with Hydroergotamine IV 100 patients. Patient with migraine on the comment of the headache. They went under treatment With Metoclopramide 0.1 mg/kg IV + Dihydroergotamine 1 mg/kg IV. The collected data were analyzed by SPSS-15 statistical software. The collected data were expressed as percentage and mean \pm Std. P-value ≤ 0.05 was considered statistically significant. Patients treated with IV Metoclopramide in 100% of cases and those treated with Dihydroergotamine in 86% of cases got the most efficacies in 10.56 and 16.6 minute, respectively. Because of the prevalence of $P=0.0001 < 0.05$ the effect of Metoclopramide and Dihydroergotamine were meaning full. Considering following hypothesis and using T test we have to independent samples. The P-value = $0.0001 < 0.05$ which is meaningful and indicated faster effect of Metoclopramide compare to Dihydroergotamine in migraine headache. These results show that IV administration of Metoclopramide during 2-3 minute as first step in urgent management to the migraine headache. We recommend it regarding availability and Cost-effectiveness.

Introduction

Migraine headache is one of the most common and most debilitating disorders seen in primary care that is. Almost 18% of women and 6% of men are suffering from migraines in the United States and 51% of these people complain reduced productivity

in the workplace or school due to headaches (Aminoff, et al., 2005).

Patients have often recurrence headaches with the same symptoms and one-third of them are experiencing the aura before a headache. Other important causes that

should be considered in the differential diagnosis of migraines include temporal arthritis, cluster headaches and acute glaucoma. Fever, mental status changes or meningismus should lead to immediate check out of meningitis or subarachnoid bleeding (Rowland, 2010).

Several different pharmaceutical medicine for treatment of acute migraine are available, since relatively few investigations were done in order to compare different drugs for treatment of acute migraines, a definite therapeutic algorithm have not been available (Aminoff, et al., 2005).

More than half of patients try to cure their migraine headaches with the use of drugs without prescription and patients often visit the doctor after their failed therapy with several non-prescription medicine.

The Triptans are regarded as the first line treatment of acute attacks for moderate to severe migraine or minor attacks which are not treated with non-prescription drugs. Use of compounds containing Ergotamine may also be useful in these cases. The prediction of an individual response to a particular drug is difficult. Complete pain improvement is not always possible. The rate of effectiveness of non-prescription pain reliever is comparable to Triptans if enough doses be consumed immediately after the start of the headache (Rowland, 2010).

The evidences support the role of anti-nausea drugs in improvement of acute migraine regardless of their anti-nausea action.

Results of a meta-analysis on 13 randomized controlled trials indicated that venous Metoclopramide should be used as a

main migraine treatment in emergency departments (Aminoff, et al., 2005).

Attending to the possibility of returning pain and dependence on drugs in case of Opiates consumption, anti-nausea drugs are considered a suitable alternative in acute conditions (Colman, et al., 2004).

There is no evidence of the specific impacts of anti-nausea drugs on improvement of migraines and these drugs exclusively impact improvement of the nausea (Colman, et al., 2004).

The aim of this study was determine the effects of IV Metoclopramide in relieving of migraine type headache and compared with Dihydroergotamine.

Methods and materials

In a clinical trial on patients with migraine which was performed in Neurology department of Tabriz University of Medical Sciences, the effects of Metoclopramide and Dihydroergotamine in the treatment of patients with migraine were evaluated.

First of all, adequate explanations with an understandable language were given to patients about being in research step the intravenous Metoclopramide treatment and possible side effects of this drug and written testimonial was taken from patients. Upon starting migraine headache in patients, they informed the Executive Coordinator of project and went under treatment with medicinal regime of intravenous Metoclopramide of 0.1mg per body weight (kg) in addition to 1 mg venous hydroergotamine randomly at the emergency section of Imam Reza hospital or Sina hospital after an initial examination and acquisition of recent headache is migraine and not using reliever drugs.

During the treatment, Executive was presence in the place and obtained and registered the necessary information of the patient. Criteria for responses to treatment in this study were regarded as patient's comment on reduction of pain and being tolerable.

The patients were considered only in one of their migraine attack for this study. Patients with migraine headache referred to hospital after consumption of pain reliever were excluded from the study.

Statistical analysis

The collected data were analyzed by SPSS-15 statistical software. The collected data were expressed as percentage and mean \pm Std. Continuous (quantitative) variables were compared by Independent samples. Categorical (qualitative) variables were compared by contingency tables and Chi-square test or Fisher's exact test. P-value ≤ 0.05 was considered statistically significant.

Result and Discussion

In this study, 200 patients with migraine were evaluated in the two groups of Metoclopramide and Dihydroergotamine and the following results were obtained:

Clinical findings of studied patients which are shown in chart 1 is representative of the fact that the majority of patients suffer significantly from pulsating headaches accompanied by nausea, fatigue and photophobia.

Rate of response to treatment in the group of Metoclopramide was 100% while it was 86% in Dihydroergotamine group. Response to treatment was significantly higher in the Metoclopramide group. The duration of response to treatment was 10.56 and 16.6 minute in Metoclopramide and Dihydroergotamine group, respectively. The duration of response to treatment with Metoclopramide was significantly lower than treatment with hydroergotamine which indicate that Metoclopramide can control and improve acute attacks of migraine faster and more efficiently.

Conclusion

Pain is the most common complication in different kinds of diseases. Nature, location and cause of the pain are different in each case. Pain is the primary complaint of almost half the patients referring to physicians (Gharabaghi, et al., 2011).

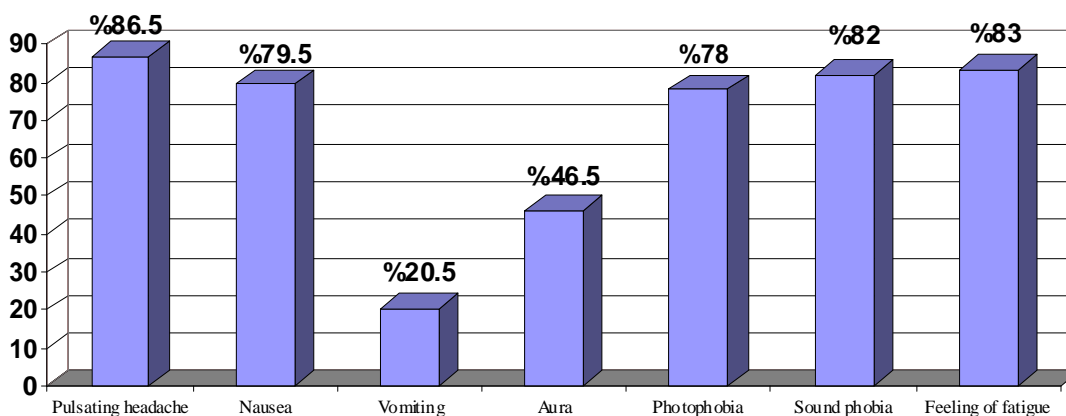


Chart.I Clinical findings of studied patients with migraine

Abundant efforts have been done to control, reduce or relieve pain from long time ago (Gharabaghi, et al., 2011).

In a study on patients with migraine which was performed by Dr. Talabi et al. at the Department of emergency medicine in the University of Isfahan, the effect of Metoclopramide in the treatment of migraine headaches was investigated and it was indicated that Metoclopramide was more effective than other therapeutics that were examined in this study in the treatment of migraine headaches (Talabi, et al., 2013).

In a study by Friedman et al, at emergency medicine department in the Albert Einstein College of Medicine of Bronx which was done on patients with migraine, after assessing the effect of Metoclopramide in these patients they expressed that 73% of patients had an appropriate response to Metoclopramide (Friedman, et al., 2007). Results of study of Ellis et al. at emergency medicine department in Western Pennsylvania Hospital of Pittsburgh on treatment of migraine with Metoclopramide showed that using Metoclopramide is effective for nausea in addition to pain reduction in these patients, as well; the duration of response to treatment in patients receiving Metoclopramide was less than other studied therapeutic methods (Ellis, et al., 1993).

According to the results of data analysis and with a view to the country's drug market and the high prevalence of migraine headaches, administration of venous Metoclopramide with slow injection during 2-3 minutes shall be recommended as a first step therapy for emergency referring for recurrence of migraine headache owing to more therapeutic effects, less time and less

expense. Comparing regimens of Metoclopramide and other drugs used for migraine headaches relieving, considering the duration of the onset of symptoms and having a background on duration of the headache in all samples without doing any drug treatment will increase the sensitivity of the future studies.

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