USE OF TOLPERISONE IN HEADACHE DUE TO POSTTRAUMATIC ENCEPHALOPATHY AT EMERGENCY CARE

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ABSTRACT

Background: Headache is the most common symptom in different periods of traumatic brain injury (TBI) in all clinical forms, and any degree of brain damage. This article states information about the efficiency and safety of Mydocalm ® (Tolperisone hydrochloride) in treating patients with post-traumatic headache at emergency care. Methods: The main group included 29 patients (15 males and 14 females), mean age (±SD) 23.8 ± 4.2 years old. The control group included 19 (10 males and 9 females), mean age (±SD) 22.9 ± 5.1 years old. Patients of main group took intramuscular injection of Mydocalm® at a dose of 100 mg (1 ml) and patients of control group took a standard therapy with non-narcotic analgesics (Paracetamol, Solpadeine), non-steroidal anti-inflammatory agents (Indomethacin, Aspirin per os). Results: The results revealed a decrease of pain syndrome in the main group and control group (93.1 ± 3.1% and 78.9 ± 2.8%, respectively), p> 0.05. Patients of the main group, while using Mydocalm ®, was noted a lower rate of repeated calls to emergency medical service (6.9 ± 2.1%), in comparison with the control group, with standard treatment (21.1 ± 3.2 %), p> 0.05. Conclusion: Clinical trial proved an efficiency of intramuscular injection of Mydocalm® (Tolperisone hydrochloride) to patients with post-traumatic headache at emergency care, which could allow emergency doctors to reserve pain more effectively and reduce the number of repeated calls to emergency medical service.

KEYWORDS

Cephalgia, Mydocalm ®, Emergency Treatment, Central Muscle Relaxants, Analgesics

INTRODUCTION

Pain is one of the most common causes of patients’ calls for medical care. The frequency of appealability for medical care associated with pain is about 65% of total number of calls to the emergency medical service. Headache (cephalalgia) is one of the most common symptoms of various diseases. Anatomical structure, which is most often associated with the development of headaches, large circle of blood vessels in the brain, venous sinus of basilar dura mater; V, IX, X cranial nerves; pain receptors - which are rich all the tissues of the scalp. In most cases, headache has vascular genesis, i. e. it’s determined to spasm or dilatation in intra- and extra cranial arteries: migraine’s various types and related vasomotor cephalgia, cerebrovascular disease, and headache caused by hypertension. Intense headache is induced by irritation of the meninges (meningitis, subarachnoid hemorrhage) [1,2,3,4]. Headache is the most common symptom in different periods of traumatic brain injury (TBI) in all clinical forms, and various degrees of brain damage.

Choice of drug for the pain treatment gives precedence to drugs, which have the analgesic and marked muscle relaxant effects. High importance has full – fledged anesthesia, lasting effect and the degree of safety by the drugs at emergency care.

Mydocalm ® was synthesized in 1955, and initially taking as a drug that increases peripheral blood flow, also has central acting muscle relaxant effect. As a result, the drug had gotten the status of a classic central acting muscle relaxant. After detailed study about the drug’s actions and mechanisms was found inhibitory effect on the level of terminals in peripheral nerves, level of the spinal cord (decreasing pathologically increased reflex activity of the spinal cord) and level of the trunk, mostly at the caudal region in the reticular formation. The chemical affinity, with the drug Lidocaine, ensures an easy anesthetic effect. The drug reduces the muscle tone and muscle rigidity [5,6,7]. Mydocalm ® is usually well tolerated. In some cases, there are feeling of light intoxication, headache, irritability, sleep disturbance. These
phenomena are disappeared by the dose reduction or
temporary interruption at treatment.

According to previous clinical trials, at patients
with post-traumatic, tension-type headache and
vertebrogenic pain had been proven the efficiency
and safety of Mydocalm®, including patients with
restrictions in using of medicines for elderly, or liver
and kidney diseases [2, 3, 8, 9, 10, 11].

Despite the fact, that Mydocalm® makes a good
showing and effects on all pathogenic mechanisms
of post-traumatic headaches, its exhibition is not
sufficiently investigated at emergency care [12, 13].

METHODS

The aim of the study was to investigate Mydocalm®
(Tolperisone hydrochloride) in treating the syndrome
of post-traumatic headache at emergency care.

For that end, in 2013-2014, was analyzed
intramuscular injection of Mydocalm® to patients,
who sought to emergency medical service with post-
traumatic headache.

The study was included 48 patients, who sought
emergency medical service during the long term,
with mild closed head injury, which long standing
was from 1 to 3 years with a clinical syndrome of
headache.

The main group included 29 patients (15 males and 14
females), mean age (±SD) 23.8 ± 4.2 years old. The
control group included 19 (10 males and 9 females),
mean age (±SD) 22.9 ± 5.1 years old. Diagnosis,
with distant period of traumatic brain injury, is
made according to the brain injury’s classification
and aftermaths caused by traumatic brain injury [4,
14]. Patients, who had other associated diseases and
injuries, were excluded from the study. Neurologists
followed up all patients. Thus, the groups were
comparable in age, sex and etiology of pain.

Location, intensity, duration, nature and frequency of
pain were analyzed by the survey, with the help of
questionnaire, which was developed by us.

Mydocalm® has a complex effect on the central
nervous system (CNS): blocks polysynaptic spinal
reflexes, reduces the toxicity by strychnine and
suppresses reflex excitability. These properties of
the drug Mydocalm® bring it to the centrally acting
muscle relaxants [15, 16, 17]. It has been affirmed,
that Mydocalm® has a selective inhibitory effect
on the caudal portion in the reticular formation of
the brain, which caused decrease in spasticity; has
central N-cholinolytic properties and no pronounced
effect on the peripheral nervous system, also with
weak spasmylytic and vasodilator effects [18,19].
Mydocalm® has a vasodilator effect and used
to relieve vasospasm, improve blood and lymph
circulation and reduces adhesive activity of platelets.
An important advantage, over other muscle relaxants,
is the absence of sedation and muscle weakness in its
exhibition [20, 21].

Patients of main group took intramuscular injection of
Mydocalm® at a dose of 100 mg (1 ml) and patients
of control group took a standard therapy with non-
narcotic analgesics (Paracetamol, Solpadeine), non-
steroidal anti-inflammatory agents (Indomethacin,
Aspirin per os).

RESULTS

The results of treatment were evaluated in 30 minutes,
after intramuscular injection of Mydocalm®. At the
same time, the patients of main group, even after a
single intramuscular dosing of Mydocalm®, making
by doctor of emergency medical service, was shown
a decrease of pain syndrome (93.1 ± 3.1% and 78.9 ±
2.8%, respectively) (Fig. 1), p> 0.05, more frequently
than in the control group. As we have noted, the
highest efficacy by Mydocalm® was observed at
patients under the age of 30 years. While getting the
drug, there were no side effects at patients.

Patients of the main group, while using Mydocalm®,
was noted a lower rate of repeated calls to emergency
medical service (6.9 ± 2.1%), in comparison with the
control group, with standard treatment (21.1 ± 3.2 %),
p> 0.05. It is also, an advantage for the using this drug
at emergency care.

CONCLUSION

Clinical trial have proved an efficiency of
intramuscular injection of Mydocalm® (Tolperisone
hydrochloride) to patients with post-traumatic
headache at emergency care, which could allow
emergency doctors to reserve pain more effectively
and reduce the number of repeated calls to emergency
medical service.
CONFLICT OF INTEREST
The authors confirm that this article content has no conflicts of interest.

AUTHOR CONTRIBUTION
All authors contributed to the study design, interpretation of the literature data, and the manuscript drafting. All authors read and approved the final version of the manuscript for publication.

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