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The Application Of Preparation Mavix In The Complex Treatment Of Ischemic Stroke In The Elderly Age

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ABSTRACT

Based on the results of clinical and neurological studies, the use of mavix in the complex treatment of elderly patients with ischemic stroke is justified. The obtained data on the differentiation of the therapeutic response contribute to the optimization of therapy for acute ischemic stroke in order to stop or slow down its progression and maintain the quality of life of both the patients themselves and their families.

KEYWORDS

Ischemic stroke, elderly patients, treatment, neurocytoprotector, mavix.

INTRODUCTION

Considering the importance of the regulatory functions of mavix, their participation in the modulation of the most significant molecular and cellular processes in the nervous tissue, it is of particular interest to study the possibility of their neuroprotective effect on the brain

under ischemic conditions. The first experimental studies of mavix in cerebral ischemia were associated with an assessment of their effect on the rate and severity of reparative processes. It was found that the introduction of monosialoganglioside 30

minutes after the induction of acute focal cerebral ischemia significantly accelerates the normalization of oxygen and glucose metabolism.

At present, the basic principles of complex treatment of ischemic stroke, which makes up about 80% of all types of acute cerebrovascular accident, have been determined. The management of patients after stroke involves the use of a whole range of different medical methods, including drug therapy, at all stages of the rehabilitation process, starting with the acute period of the disease, when the patient's rehabilitation potential is largely determined. Since the recovery process after a stroke is multicomponent and multidisciplinary, drug therapy consists of basic (correction of basic vital functions) and reperfusion therapy (use of anticoagulants, antiplatelet agents and tissue plasminogen activators); neuroprotection (preventing, interrupting and reducing the damaging effects on the brain),

Neuroprotective therapy is one of the most attractive and promising directions in the treatment of patients with ACVA, the main task of which is to increase the resistance of cerebral neurons to acute ischemia.

The main directions of neuroprotection are associated with the restoration of neurons in ischemic penumbra and stimulation of reparative processes. A large number of studies are devoted to the study of the effects of neuroprotectors of various classes after suffering a cerebrovascular accident, and they are actively continuing. There are serious reasons to believe that it is an individualized, pathogenetically grounded rehabilitation approach that will allow this strategic direction to obtain the greatest effect and level of evidence in clinical trials of drugs [15].

Mavix are glycoconjugates related to glycosphingolipids and containing sialic acid in the carbohydrate moiety. Mavix carry out a number of important functions in the body. Some of these glycoconjugates are specific cellular receptors for a number of toxins, bacteria and viruses, are involved in cell-cell interactions, the transfer of ions across biological membranes, determine the antigenic properties of the cell surface, and are considered mediators of the immune response. In those areas of nerve endings in which the binding of neurotransmitter molecules occurs in the process of chemical transmission of a nerve impulse, G. are also present. They take part in the reception of serotonin in serotonin-sensitive tissues,

Thus, neuroprotective therapy is a strategically important and pathogenetically grounded therapeutic direction for patients after ischemic stroke, which must be used throughout the entire recovery period after cerebrovascular accident in compliance with the principles of evidence-based medicine.

The purpose of the study was the study of the effectiveness of a new group of neurocytoprotectors - mavix in the treatment of patients with acute ischemic stroke.

MATERIALS AND RESEARCH METHODS

The group that received the study drug "Mavix" included 25 patients (group 1), group 2 included 25 patients with the basic method of treatment of ischemic stroke.

In group 1, there were 13 men (52.0%), women - 12 (48.0%), and the average age of patients was 61.9 ± 0.6 years. In group 2, there were 14 (56.0%) men, 11 (44.0%) women, and the average age of patients was 62.7 ± 0.5 years.

Basic therapy included for the treatment of the underlying disease and other drugs compatible with the drug, in particular, according to indications, antihypertensive, antiplatelet and lipid-lowering drugs.

The groups of patients examined by us are quite comparable in gender, age, clinical manifestations, and localization of the stroke.

All patients underwent a comprehensive clinical and somatic, clinical and neurological, laboratory, functional and instrumental examination.

The study was carried out on admission (1st day), after the end of the administration of

drugs (11th day) and 21 days from the start of treatment.

Statistical analysis of the results obtained was carried out using the methods of variation statistics. The significance of the mean differences was assessed on the basis of the Student's t-test with a 95% confidence interval ($p < 0.05$).

RESEARCH RESULTS

Dynamics of changes in indicators of neurological deficit (in points) according to scales NIH and SNSS is presented in table 1.

Table 1

Change in mean total score on the NIH and SNSS scales in patients with ischemic stroke

Examination terms	Group 1 (n = 25)		Group 2 (n = 25)	
	NIH	SNSS	NIH	SNSS
Before treatment	14.8 ± 0.5	30.8 ± 2.4	15.6 ± 0.6	31.6 ± 3.2
11 days	13.5 ± 0.6 *	35.7 ± 0.6 * ^	14.71 ± 0.6	32.6 ± 2.5
21 days	10.2 ± 0.3 * ^	41.9 ± 0.4 * ^	12.94 ± 3.2	32.2 ± 3.1

Note: * - $p < 0.05$ - in relation to the indicators before treatment; ^ - $p < 0.05$ in relation to group 3

An increase in the average total score for each neurological function is observed in all groups of patients on both the 11th and 21st days. This indicates a positive trend in terms of impaired functions. But in the 1st group of patients, the restoration of the impaired functions was noted much better than in the 2nd group.

When applying the drug "Mavix", i.e. in group 1, there was a significant positive dynamics of indicators of cranial innervation., so the number of patients with pronounced deviation of the tongue and asymmetry of the nasolabial fold due to paresis of the facial muscles

decreased from 96% (24 patients) to 48% (12 patients), versus from 88% (22 patients) to 56% (14 patients) in the 2nd group. These symptoms regressed to mild corticonuclear insufficiency on the part of the VII and XII pairs of FMN.

By day 21, the number of patients with mild corticonuclear insufficiency on the part of the VII and XII pairs of FMN in group 1 was 92.0% (23 patients), in 2 (8%) patients' disorders from the FMN completely recovered. In group 2, 3 (12.0%) patients had severe lesions, 21 (84.0%) had mild corticonuclear insufficiency, and 1

(4.0%) had no symptoms of cranial nerve damage.

On admission, movement disorders in group 1 were noted as: hemiplegia in 2 (8.0%), severe hemiparesis - in 10 (40.0%), moderate hemiparesis - in 11 (44.0%), mild hemiparesis - in 2 (8.0%); in group 2, hemiplegia was detected in 1 (4.0%), severe hemiparesis - in 11 (44.0%), moderate hemiparesis - in 11 (44.0%), mild hemiparesis - in 2 (8.0%). The average score for assessing motor disorders in the limbs was 2.54 ± 0.06 in group 1 and 2.58 ± 0.05 points in group 2.

By the 21st day, the number of patients with severe paresis decreased from 11 (40.0%) to 1 (4.0%) in group 1, from 11 (44.0%) to 2 (8.0%) in group 2 ... There was also a decrease in patients with moderate hemiparesis from 11 (44.4%) to 7 (28.0%) in group 1, from 11 (44.0%) to 8 (32.0%) in group 2. ...

Pyramidal insufficiency was observed in group 1 in 17 (68.0%) patients, in group 2 - in 13 (52.0%). By day 21 in group 1, the lesion of the pyramidal tract was 4.0 ± 0.08 points, in group 2 - 3.24 ± 0.07 points ($p < 0.05$).

Muscle tone on admission was changed in all patients. In group 1, 8 (32.0%) had muscle hypotension, 5 (20.0%) patients had a changing muscle tone in the paralyzed limbs, 7 (28.0%) had muscle spasticity, 5 (20.0%) - moderate tone asymmetry. In group 2, muscle hypotension was observed in 8 (32.0%) patients, changing muscle tone was detected upon admission in 6 (24.0%) patients, muscle spasticity - in 7 (28.0%), moderate asymmetry in 4 (16, 0%) of patients.

The average score for assessing the tone in the extremities was 1.51 ± 0.05 in group 1 and 1.49 ± 0.05 points in group 2.

Differences in the state of muscle tone in patients who received and did not receive Mavix, remained distinctly visible by 21 days. In group 1, the normalization of muscle tone was observed in 8 (32.0%) patients, moderate asymmetry of muscle tone persisted in 12 (48.0%) patients, muscle spasticity in 5 (20.0%) patients. In group 2, normalization of muscle tone was observed in 3 (12.0%), moderate asymmetry of tone - in 7 (28.0%), muscle spasticity - in 12 (48.0%), changing tone - in 3 (12.0%) %).

The average muscle tone score by day 21 in group 1 was 4.1 ± 0.06 , in group 2 — 3.61 ± 0.06 ($p < 0.01$; in relation to group 1).

Sensory disorders in the form of hemihypalgesia were found in the majority of patients with IS. In group 1, hemihypalgesia was observed in 18 (72.0%), partial hypesthesia - in 4 (16.0%), there were no violations - in 3 (12%) patients. In group 2, hemihypalgesia was observed in 16 (64.0%) patients, partial hypesthesia - in 5 (20.0%), no disturbances - in 4 (16.0%) patients.

The average score for assessing sensitivity was 0.46 ± 0.03 in group 1, and 0.43 ± 0.03 in group 2.

By day 21, hemihypalgesia persisted in 8 (32.0%) patients, partial hypesthesia occurred in 2 (8.0%), and there were no disorders in 15 (60.0%) patients of group 1. In group 2, hemihypalgesia remained in 9 (36.0%) patients, partial hypesthesia occurred in 10 (40.0%), there were no disorders in 6 (24.0%) patients. The average sensitivity score in group 1 was 1.23 ± 0.03 , in group 2 - 0.98 ± 0.04 ($p < 0.05$).

Speech disorders on admission to group 1 were noted in the form of gross sensorimotor aphasia in 4 (16.0%), moderately expressed

motor aphasia - in 7 (28.0%), elements of motor or sensory aphasia - in 4 (16.0%) patients, there were no speech disorders in 10 (40.0%) patients. In group 2, gross sensorimotor aphasia was recorded in 4 (16.0%), moderately pronounced motor or sensory aphasia in 6 (24.0%), elements of motor aphasia in 5 (20.0%) patients, there were no disorders speech in 10 (40.0%) patients. The average score for assessing cerebral functions at admission was 1.89 ± 0.06 in group 1, 1.81 ± 0.05 in group 2.

On day 21 in group 1, gross sensorimotor aphasia remained in 1 (4.0%) patient, moderately pronounced sensory or motor aphasia remained in 2 (8.0%), elements of sensorimotor aphasia - in 8 (32.0%), 14 (56.0%) patients had normal speech function. In group 2, 2 (8.0%) patients retained gross sensorimotor aphasia, 3 (12.0%) - moderately pronounced sensory or motor aphasia, elements of sensorimotor aphasia - 10 (40.0%), 10 (40, 0%) - there was a normal speech function. The average score of higher cerebral functions in group 1 was 2.49 ± 0.05 , in group 2 - 2.16 ± 0.05 ($p < 0.05$).

Thus, the introduction to the treatment program for ischemic stroke Mavix injection 20 mg / 2 ml manufactured by Jilin Qijian Bio-Pharmaceutical Co. Ltd. "led to a reduction in symptoms of FMN lesions, sensory disorders, pyramidal symptoms, changes in muscle tone and speech disorders by 21 days of treatment, much faster than in group 2.

Assessment of the social adaptation of patients, their dependence on outside help, and the determination of the quality of life was carried out using the Bartel scale upon admission to the department, and compared with that on the 11th and 21st days from the start of treatment.

Upon admission to the hospital, the average total score on the Bartel scale (Fig. 1) in group 1 was 46 ± 1.7 , in the second group - 45.0 ± 1.8 points. On day 11, this indicator in group 1 is 70 ± 2.5 , in group 2 - 61.2 ± 2.4 points ($p < 0.05$). On day 21 in group 1 it was 90 ± 1.8 , in group 2 - 82 ± 1.9 points ($p < 0.01$).

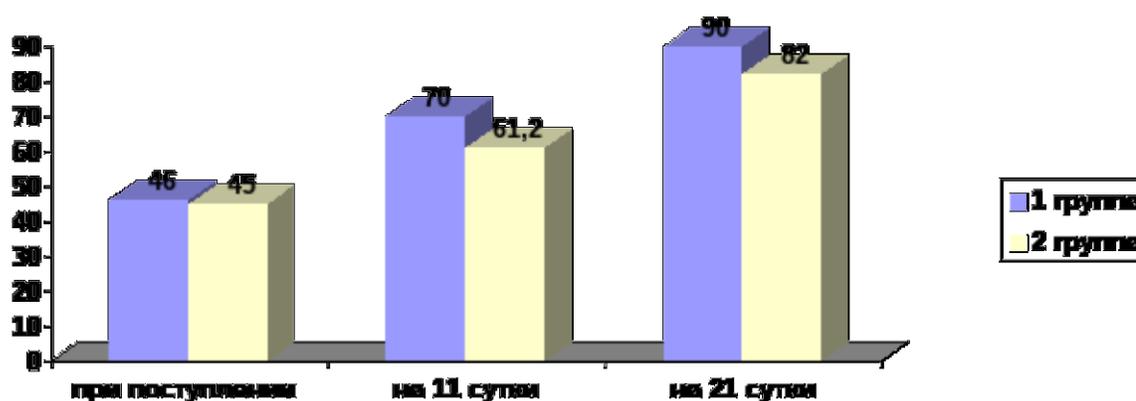


Figure: 1. The dynamics of the increase in the total score on the Bartel scale with IS on day

Thus, the introduction of the drug into the treatment program for ischemic stroke Mavix, led to a reduction in the symptoms of CNS lesions, sensory disorders, pyramidal symptoms, changes in muscle tone and speech disorders by 21 days of treatment, which was accompanied by an improvement in the quality of life of patients. There were no significant changes in the blood flow velocity in the extracranial and middle cerebral arteries, but there was a positive dynamics of cerebral blood flow autoregulation processes.

When studying the data of cognitive function in patients with IS after treatment (on day 21), some positive dynamics in the leveling of impairments in cognitive function was established, depending on the methods of therapy. Thus, in patients with IS, the most effective indicators were obtained in group 1 ($P < 0.01$). In group 2, a slight positive dynamic of these indicators was recorded (Fig. 2).

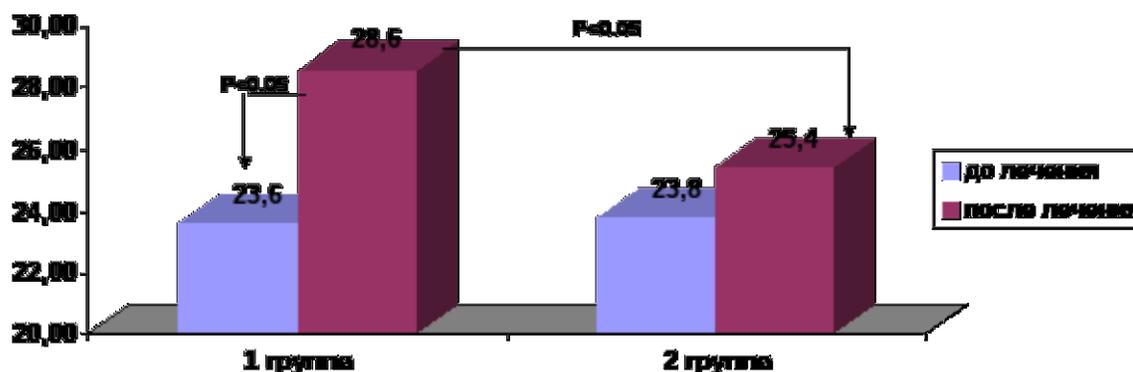


Figure: 2. Dynamics of indicators of mental state according to the MMSE scale in patients with IS

Thus, in patients of group 1, the sum of points on the MMSE scale before treatment was equal to 23.6 ± 0.5 ; in group 2 - 23.8 ± 0.56 , whereas after treatment these data were 28.6 ± 0.48 , 25.4 ± 0.5 , respectively ($P < 0.05$).

In general, in the group taking the drug "Mavix", the effectiveness of treatment

averaged 2.2 ± 0.01 points in terms of objective and specific indicators ($P < 0.05$). In the group of patients with the basic method of treatment, the effectiveness of treatment in terms of objective and specific indicators averaged 1.8 ± 0.01 points (Fig. 3).

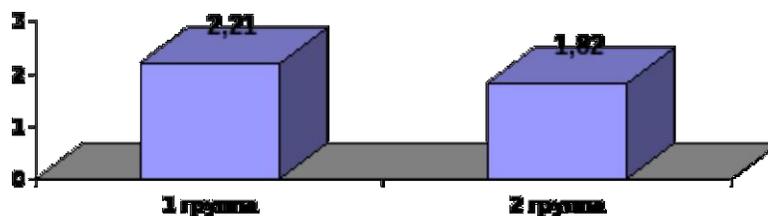


Figure: 3. The effectiveness of treatment for objective and specific indicators

Clinical studies have shown a high nootropic effect of Mavix, a solution for injection 20 mg / 2 ml manufactured by Jilin Qijian Bio-Pharmaceutical Co. Ltd. ", China in the treatment of patients with acute ischemic cerebrovascular accident (cerebral infarction ICD No. 10, I63).

This drug was well tolerated by patients throughout the study and did not cause side reactions and side shifts in the peripheral blood picture and blood biochemistry.

As can be seen from Diagram 4, patients with IS in all groups showed positive dynamics.

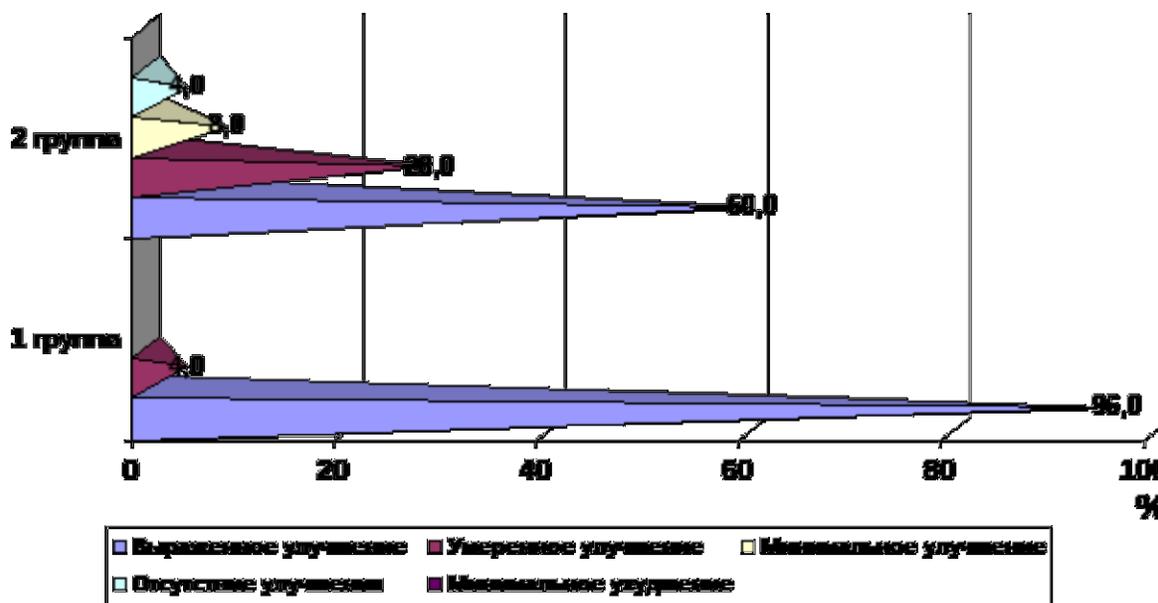


Figure: 4. Dynamics of treatment efficiency indicators according to the CGI clinical scale (30 days after treatment)

However, in patients undergoing traditional treatment, it was less pronounced than in

patients with the inclusion of Mavix in the treatment complex.

In group 1, the effectiveness of treatment was 100%, of which 96.0% showed a marked improvement, and 4.0% had a moderate improvement.

Low results of the effectiveness of treatment were obtained in groups of patients who were on traditional treatment (group 2).

Thus, we can conclude that, based on the results of clinical and neurological studies, the use of Mavix in patients with IS is justified. The data obtained on the differentiation of the therapeutic response contribute to the optimization of therapy for acute ischemic stroke in order to stop or slow down its

progression and maintain the quality of life of both patients and their families.

When conducting a cost-benefit analysis, the compared options, in contrast to the cost-minimization analysis, are characterized by greater or lesser, but not equivalent, efficiency. In this regard, it is important to assess the degree of appropriateness of the analysis depending on the level of reliability of the clinical data, i.e. ways of obtaining information on the results of the comparison of clinical effectiveness.

CONCLUSIONS

1. Introduction to ischemic stroke treatment program Mavix injection 20 mg / 2 ml manufactured by Jilin Qijian Bio-Pharmaceutical Co. Ltd. "led to a reduction in the symptoms of FMN lesions, sensory disorders, pyramidal symptoms, changes in muscle tone and

speech disorders by 21 days of treatment.

2. Complex therapy, including additional administration of mavix to the basic therapy, has shown high efficiency in the treatment of acute ischemic stroke.
3. The obtained data on the comparative effectiveness of the studied types of therapy contribute to the solution of complex psychopharmaco-therapeutic problems that arise when it is necessary to choose certain methods of drug action on the development of neurological disorders.

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