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Efficacy of using of lydasa medication in complex treatment of non-traumatic intracerebral hematoma with small volumes

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Abstract
The efficacy of using of lydasa in treatment of non-traumatic intracerebral hematoma studied in two identical matched by sex and age groups were treated by conventional standards. In the group of patients who received conventional treatment with additional lydasa medication resorption of intracerebral hematomas, recovery of neurological deficits occurred with accelerated pace compared to other similar group of patients who had not recieved lydasa. The results indicate the expediency of using of lydasa in treatment of intracerebral hematomas with small volumes.

Keywords: hemorrhagic stroke, etiology, pathogenesis, diagnosis, treatment, lydasa

Introduction

Actuality of the problem

Historically, the countries in Asia have used priority sector lending as a policy tool to improve access to credit for underserved sectors. Today India, Indonesia, Malaysia, the Philippines, Thailand, and Vietnam implement some form of roke affects from 8 million to 10 million people and takes from 5 million to 6 million lives in the world every year [3,8].
The main causes of hemorrhagic strokes is arterial hypertension - 50%, cerebral amyloid angiopathy - 10-12%, anticoagulant intake - 10% and tumors - 8%. Arteriovenous aneurysms, reperfusion manipulations, venous sinus thrombosis, vasculitis, venous and cavernous angiomas, alcoholism etc. are among other causes (20%) of hemorrhagic strokes. Mechanical compression and the isolation of vasoconstrictor substances from the hemorrhage focus lead to the formation of a zone of secondary ischemia and edema around the hematoma, which is clinically manifested by a further increase in neurologic symptoms [3,8,9].
The most difficult and responsible aim is to diagnose accurately and quickly the nature of the stroke, because the further treatment tactics and prognosis for the patient largely depend in the acute period of the disease. Practice shows that in average, for every 4 to 5 patients, the clinical diagnosis of the nature of stroke, even completed by an experienced doctor, is erroneous, which is equally true for both hemorrhage and cerebral infarction [9]. That is why, after a brief neurological examination, multispiral computed tomography (MSCT) or magnetic resonance imaging (MRI) of the brain is necessary, since the effectiveness and timeliness of the medical care depends on it. Considered that at small volumes of intracerebral hematoma it is possible to treat without neurosurgical care, patients with this pathology can be recommended for resorption of intracerebral stroke-hematoma, with medications which affect to the tissue metabolism, i.e. enzyme preparations. One such drug is lydase, a drug containing the enzyme hyaluronidase. Hyaluronidase is an enzyme whose specific substrate is hyaluronic acid, mucopolysaccharide, the composition of the drug includes acetylglucosamine and glucuronic acid. The therapeutic effect of lydase is manifested by resorption of hematomas. The effect of this drug is more significant in the initial stages of the stroke [11].

Purpose of the study

To study and to evaluate the resolving effect of the enzyme drug lydase in the complex treatment of hemorrhagic stroke with the formation of small intracerebral insult - hematomas.

Materials and methods of research

We observed 48 patients with stroke-hematoma (from 20 to 50 ml size). Men were 28 (58.3%) and women were 20 (41.7%), at the aged from 44 to 76 years, who were treated at neurorescusitation and neurology departments of the SB RRCEB during the period 2014-2015. The average age of the patients was 58 years. The presence of a diagnosis of hemorrhagic stroke, the corresponding volume of intracerebral hematoma, the presence of general cerebral (headache, nausea, vomiting, etc.) and focal (hemiparesis, aphasia, deviation of the tongue, etc.) neurological symptoms, the consciousness of patients from deep stunning to superficial Coma (from 12 points to 8 points on the coma scale of Glasgow). It is common knowledge that, according to the classification of non-traumatic intracerebral hematomas are divided into small (up to 20 ml), medium (20-50 ml) and large (>50 ml) hematomas.
All patients received a MSCT of the brain on admission, where was detected an intracerebral stroke - a small hematoma (29 patients - 60.4%) and an average (19 patients - 39.6%) size, 15 of them with small hematomas were included in the first, 14 of them in the second group.
During the selecting to the relevant groups, the patient's

neurological (general cerebral, focal) symptoms and the level of disturbance were taken according their uniformity and reliability.

Of the total number of 48 patients, in 15 (31.2%) patients the consciousness was deeply deafened, 22 (45.8%) - in the comparative and 11 (23%) patients were in a state of superficial coma. On the way to hospitalization: 32 (66.7%) patients were taken by ambulance, and 16 (33.3%) by patients with gravity of the total number of patients. From the number of hospitalized, 18 (37,5%) patients were delivered up to 6 hours, 22 (45,8%) patients from 6 to 24 hours, and 8 (16.7%) patients over a day after the onset of the disease, 15 of them with small hematomas were included in the first group, 14 of them in the second group.

All patients were examined on the fundus and ophthalmoscopy: in 39 (81.3%) of 48 patients angiospasm of retinal vessels was detected, in 9 (18.7%) patients we discovered retinal vascular angiopathy with congestive optic disc disease.

The volume of the intracerebral hematoma was measured according to the MSCT using the following formula: maximum height x maximum length x maximum width.

Results and its discussion

Patients of the main group (25 patients) were assigned an enzyme preparation - lydase 64 units subcutaneously and basic therapy of hemorrhagic stroke from the moment of admission to hospital. The preparation of lydase was diluted in a 0.5% solution of novocaine in the amount of 2.0 ml before application and was administered subcutaneously. Considering that the effect of the drug is more pronounced in the initial stages of the pathological process, we used the drug lydase from the first day. The drug was administered for 10-12 days 2 times a day, i.e. every 12 hours. A control group of 23 patients received only basic therapy for hemorrhagic stroke. All patients (48 patients) at the admission, on the 4th-5th day of the hospitalization and discharge (12-14 days) recieved MSCT of the brain.

Disease was accompanied by severe headaches accompanied by nausea and repeated vomiting in all patientsx. Of the 25 patients in the main group, 14 (56%) patients had the an intracerebral stroke-hematoma in the right hemisphere of the brain. Accordingly to these patients, 11 (78.5%) had left-sided hemiparesis, and 3 (21.5%) had left-sided hemiplegia.

In 11 (44%) patients from the main group, the intracerebral stroke of the hematoma was in the left hemisphere of the brain. In 9 (81.8%) right-sided hemiparesis was observed, and in 2 (18.2%) patients right-sided hemiplegia, in 6 (54.5%) patients - motor aphasia.

From 23 patients in the control group, 13 (56.5%) patients had an intracerebral stroke - the hematoma was in the right hemisphere of the brain. In 9 (69.2%) left-sided hemiparesis, and in 4 (30.8%) patients left-sided hemiplegia were observed. The remaining 10 patients (43.5%) of the control group had an intracerebral hematoma in the left hemisphere of the brain. In 8 (80%) right-sided hemiparesis was observed, and in 2 (20%) patients right-sided hemiplegia was observed. In 5 (50%) patients, motor aphasia was detected. All the 48 patients that were observed had positive pathological reflexes of Babinsky, Poussep, Scheffer, Oppenheim and Gordon.

In the main group, a significant reduction in the volume of intracerebral hematoma was observed in 14 (56%) patients in the main group on the MSCT of the brain, in 7 (28%) patients a slight decrease in the volume of intracerebral hematoma and in 4 (16%) patients no changes were observed in the volume of intracerebral hematoma.

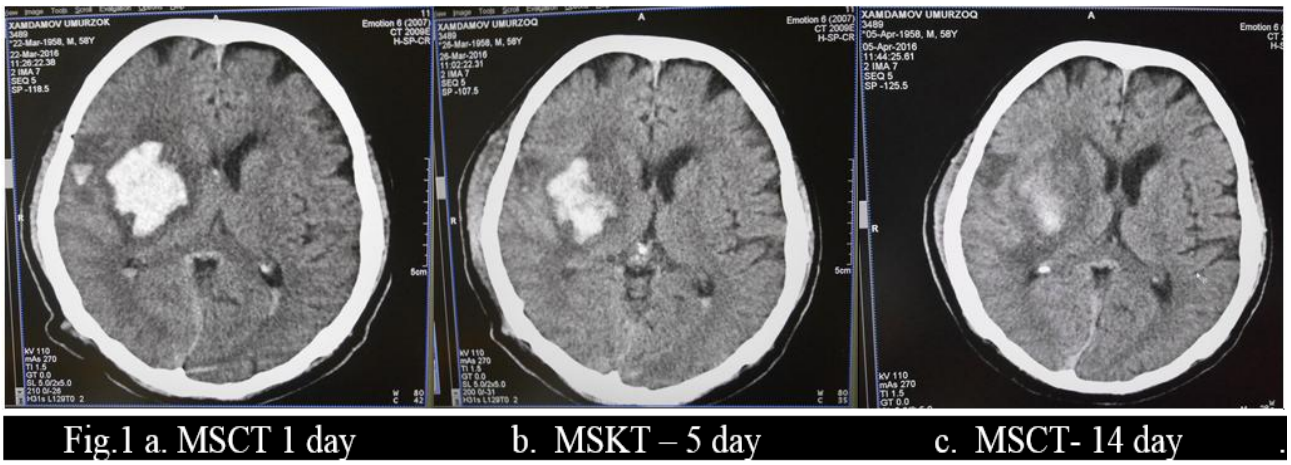

Fig 1: MSCT dynamics of the patient H.U, 58 y. included in the main group.

In the control group with repeated MSCT of the brain, in 5 (21.7%) patients of 23 patients, an insignificant decrease in the volume of intracerebral hematoma was detected, in 12 (52.2%) patients the volume of intracerebral hematoma remained unchanged and 6 (26.1%) patients, an insignificant increase in the volume of intracerebral hematoma was found (Fig. 2a, b, c).

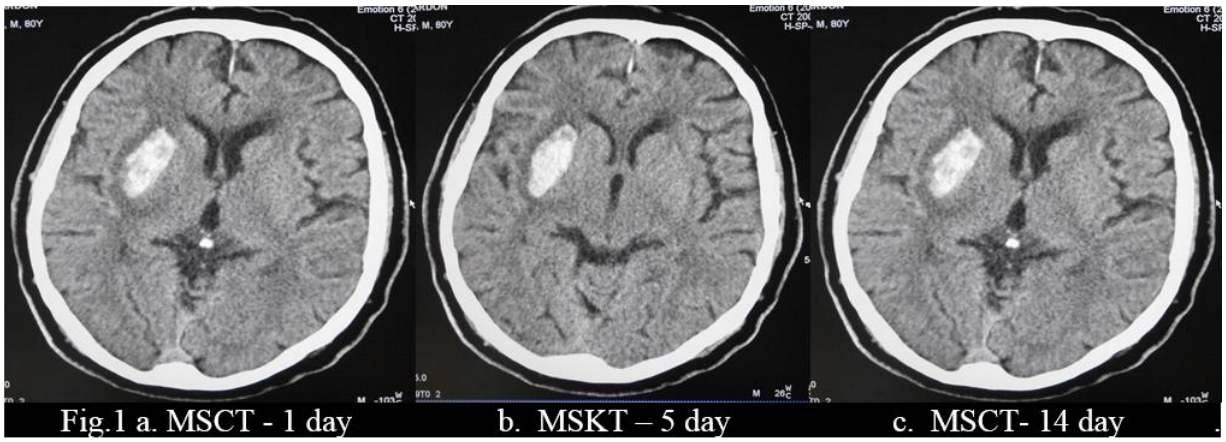

Fig 2: Intracerebral hematoma.

The average length of stay of the patient in the hospital was 10-14 days on average. Neurologic symptoms in the main group of patients (who received additional lydase complex treatment) were characterized by a rapid and significant regression of focal neurological symptoms. In this group, hemiparesis was resolved in 21 (84%) patients and at the discharge in all patients the muscle strength in the affected limbs was 5 points, in 4 (16%) patients hemiparesis was resolved to mild hemiparesis and the muscle strength in the affected limbs was 4 points. All 6 patients with motor aphasia completely recovered speech. Patients of the main group were discharged for further rehabilitation 3-4 days earlier than patients in the control group.

At the same time, the dynamics was unstable and the neurologic status was characterized by a slight regression of focal neurological symptoms in the control group of patients with baseline therapy of hemorrhagic stroke. Hemiparesis was resolved in 5 (21.7%) patients, and in 18 (78.3%) patients hemiparesis persisted. In 2 (40%) patients speech was recovered, and in 3 (60%) patients, motor aphasia persisted.

Conclusions

1. Hemorrhagic stroke occurs with severe cerebral and focal symptoms, impaired consciousness, accumulation of intracranial hematomas, characterized by severe (disability, lethality) consequences.
2. Non-traumatic stroke with hematomas ranging from 20 to 50 ml can be successfully treated conservatively. The use of lydase in the acute period of insult with hematomas contributes to the acceleration of their resorption, which in turn causes regression of focal symptoms, reducing the length of patient's stay in hospitals.
3. Considering the advisability of using lydase in the complex treatment of small intracerebral non-traumatic hematomas, it can be recommended for use in neurological and resuscitation departments of district and regional hospitals.

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