Treatment Of Encephalomyelitis And Myelitis In Children With Ozone Therapy

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ABSTRACT

The problem of neuroinfection in children is particularly relevant due to its high proportion in the structure of neurological diseases. As a result of the diffuse inflammatory process of the brain substance, severe neurological complications arise, and there is a delay in the rate of development of the functional systems of the brain that provide such integrative functions as memory, attention, thinking and other types of higher mental activity. Cognitive processes underlie the acquisition of school skills: reading, writing, counting, etc.

Keywords: Ozone therapy, diagnosis, method, treatment.

INTRODUCTION

Violation of integrative functions leads to a decrease in educational motivation, deformation of interpersonal relationships, and later to social and labor maladjustment. In childhood, psychophysiological functions are actively formed, and the foundations of such aspects of personality as character, socially oriented values, level of aspirations, etc. are laid. During this period, neuropsychological examination is especially important in order to take urgent corrective or therapeutic measures. The problem of treating inflammatory diseases of the central nervous system in children has been and remains relevant, which is associated with the high frequency of disability in this category of patients. In all cases, broad-spectrum antibiotics should be prescribed in the highest possible doses.

MATERIALS AND METHODS

We examined 52 children diagnosed with encephalomyelitis and myelitis. All patients underwent CT and MRI examination. The severity of neurological deficit, in particular motor disorders, were expressed by peripheral (pathological focus in the lumbar spinal cord) and spastic paraparesis (pathological focus in the thoracic spinal cord), spastic tetraparesis (the upper cervical region is affected), as well as mixed tetraparesis (the lower cervical region is affected) in patients of the first and second groups. Differences in the clinical picture and different degrees of neurological deficit allow us to conclude that the inflammatory process in the brain and spinal cord in these patients is different in severity. This, in turn, aroused interest in studying the degree of recovery of the neurological defect, as well as the dynamics of the level of consciousness in the patients we examined, against the background of the treatment we conducted and offer.

RESULTS AND DISCUSSION

According to the therapy received, all patients were divided into two groups: basic therapy and basic therapy + ozone therapy. Basic therapy included antibiotics and sulfonamides, hormonal drugs, antihistamines, diuretics, vasodilators, etc. From the first days of the disease, it is very important to carefully care for the patient's skin in order to prevent bedsores, monitor the cleanliness of bed linen. When bedsores appeared, local UV irradiation was prescribed, they were treated with a 5% solution of potassium permanganate, ointment

dressings were applied. In case of urinary retention, periodic catheterization of the bladder is performed under strict aseptic conditions. The bladder was washed with a 2% solution of boric acid, potassium permanganate (0.1: 200). When cystitis or pyelocystitis appears, antibiotics and plenty of fluids are prescribed. To prevent contractures from the first days of paralysis development, it is necessary to monitor the position of the limbs (they are placed in a certain position using sandbags). Already in the early stages of the reverse development of the process, passive and then active therapeutic exercises and massage should be used. To improve nerve conduction, we prescribed anticholinesterase drugs (neuromidin 0.5% - 1.0 or 1.5% - 1.0 ml intramuscularly) [1].

Against the background of the therapy, we noted positive dynamics of the general condition of patients in the second group. The main indicators of the severity of the patient's condition are motor impairment. In this regard, the priority of our studies was to study the level of consciousness, speech, orientation, muscle strength of the limbs, gait and pelvic functions according to the unified MAST scale.

Analysis of the dynamics of the level of consciousness and neurological status in the group of patients who received treatment with the inclusion of ozone therapy showed different dynamics in patients of the 1st and 2nd groups. Relatively better results were obtained by us in the group of patients who received traditional therapy with intravenous ozonoids. It should be noted that the results were compared with the indicators of the control group, whose patients received only traditional therapy [2]. With initially equal point indicators of the level of consciousness in the II group, an improvement in consciousness was noted already on the 4-5th day after treatment (13.5 and 13.0 points, respectively), while in the control group these values were much lower and amounted to 10.2 points on the MAST scale on the 6-8th day, which was (by 3.3 points) less than in the II group. On the 20th day, the point expression of the level of consciousness in the II group was 14.7 ± 0.23 points, respectively, which corresponds to clear consciousness, while in patients of the control group it corresponded to 13.4 ± 0.51 points. With impaired consciousness, patients also had impaired speech, since the inflammatory process occurred not only in the cortex, but also in the brain matter itself. Difficulty communicating was noted in 2 (9.1±0.07%) patients of group I and in 8 (36.7±0.23%) patients of group II. Some patients had great difficulty answering questions (very difficult speech): 7 (31.8±0.27%) in group I, 18 (60.0±0.51%) in group II, and only 2 (6.7±0.056%) cases of aphasia were observed, since the patients were in a soporous state. In patients receiving basic therapy, speech was restored on the 8th-9th day of treatment, and in patients of the main group, it was restored on the 4th-6th day of treatment. Speech recovery according to the scale in the main group improved from 5.0±0.34 points before treatment to 9.8±0.17 after treatment, and in the control group - from 8.0±0.54 to 9.5±0.31 points, respectively. With the recovery of consciousness and speech in sick children, orientation was also restored. In comparison with the main group and the control group, orientation recovery began on the 3rd-4th day of treatment. By the 20th-21st day, it averaged 14.3±0.43 points, respectively [3].

It should be noted that the formidable complications of EM and M are paresis and paralysis of the limbs, which require long-term treatment and, unfortunately, lead to disability. Therefore, the violation of motor activity of patients' arms and legs was studied. Thus, changes in the strength of the muscles of the arms and legs in patients with EM are given in Table 1.

Table 1

Indicators of arm muscle strength in patients of the main and control groups with EM, (average scores)

Arm muscle strength	Before treatment		After treatment	
	I-group (n=22)	II-group (n=30)	I-group (n=22)	II-group (n=30)

	n	%	n	%	n	%	n	%
Lifts arm with normal muscle strength	15	68,2±0,58	5	16,7±0,14	19	86,4±0,73	25	8,3±22,1
Lifts arm, but muscle strength is reduced	11	50,0±0,42	5	16,7±0,14	0	0	4	13,3±0,11
Lifts arm not fully	3	13,6±0,12	1	3,3±0,03	2	9,1±0,07	1	3,4±0,28
Can only move arm, no resistance	1	4,5±0,04	4	13,3±0,11	1	4,5±0,04	0	0
Plegia	0	0	8	26,,7±0,23	0	0	0	0

Note: the reliability of the results in relation to the initial state is P>0.05.

The strength of the muscles of the lower extremities after intravenous administration of ozonoids in the main group of patients increased almost 2.5 times [4].

In patients of the main group with M, the use of ozone therapy led to the normalization of movements and muscle strength in all patients. Thus, according to the unified MAST scale, the overall average score before treatment was 6.1 ± 0.94 points, and after ozone therapy, muscle strength increased to 9.3 ± 0.30.

A similar outcome was observed in the lower extremities. Thus, the condition of patients who could move their legs and lift them without overcoming gravity noticeably improved after the ozone therapy we offered.

Ozone therapy contributed to the normalization of muscle tone in the arms of patients of the main group with EM, where the overall average score was 4.5 ± 0.28 [5].

CONCLUSION

Based on the above data, it can be concluded that the % improvement in the main group is times higher than that with the traditional treatment method, which indicates the high efficiency of the method in the treatment and rehabilitation of children with encephalomyelitis and myelitis, which will reduce the treatment and rehabilitation time for people with these pathologies. From this, it can be concluded that it is necessary to include intravenous ozonoids in the complex therapy.

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