

Psychoneurological Complications In Children With Facial Nerve Neuropathy

Inobat Ahmedjanovna Sharafova¹, Aziza Tahirovna Djurabekova² and Saodat Sur'atovna Igamova³

¹Assistant of the Department of Rehabilitation, Samarkand State Medical Institute. Samarkand. Uzbekistan.

²Head of the Department of Neurology, DS, professor. Samarkand State Medical Institute. Samarkand. Uzbekistan.

³Assistant of the Department of Neurology, PhD, Samarkand State Medical Institute. Samarkand. Uzbekistan.



Abstract – The prevalence of facial nerve neuropathy (NLN), according to the WHO, per 1000 population is about 20 cases, and is one of the leading pathologies of the peripheral system. Most of those with literary sources describe clinical cases of the disease, relying on the forms of lesion, primary and secondary. Primary, or idiopathic NLN occurs up to 90%, respectively, according to the etiological factor in percentage in the first place. The cause of the disease, according to modern scientific research, involves a connection with viruses, the herpes virus occupies a leading position. As a result of the reactivation of the virus, the immune system begins to produce antibodies, as a result, causing an inflammatory reaction in the narrow fallopian canal and, as a result, damage to the facial nerve. During this period, there is an acute demyelization of the nerve trunk. Along with the viral theory, there are theories of the development of ILN, such as hereditary, vascular, immune, compression, lymphatic, the theory of histocompatibility of antigens. The pathological mechanism of NLN, therefore, is complex-ischemic, with dysfunction of the vascular apparatus in the areas of the bone canal and autoimmune, leading to demyelization.

Keywords – Demyelization, Facial Nerve Neuropathy.

I. INTRODUCTION

Since children have an anatomical feature (length of the canal, blood circulation of the nerve), then also minor swelling leads to squeezing of blood vessels and impaired conduction. The outcome of the disease in children with IMF is favorable, compared with the adult category of patients and in terms of the number of complications in the aisles 5%, and in adults it is more than 55%. With NLN, the fact of distortion of the face, the increased interest of others in patients, is reflected in the emotional sphere. Evaluation of the psycho-emotional state will help to identify emotional stress that affects the recovery of the disease. And if we take into account the connection of the mimic muscles with the limbic brain, which in turn is responsible for emotion, it is promising to establish a connection and prognosis of NLN, which depends on the psycho-emotional state of the patient.

II. AIM

To study the neuropsychiatric features of the facial nerve neuropathy in children.

III. MATERIAL AND RESEARCH METHODS

The examination included 40 children from 2 to 16 years old, who were treated in the children's neurological department of the 1st Clinic of SamMI. All children were diagnosed with IMF in the acute period. During hospitalization and dynamics, a clinical and

neurological examination was carried out, with a view to identifying lesions of the trigeminal and facial nerves. Examination by an ophthalmologist, an ENT doctor was obligatory. The psycho-emotional sphere was assessed according to the questionnaire of Aizit G.Yu. (only in children 13-16 years old) in the amount of 20 patients. The use of the Spielberg-Khanin scale was important in identifying anxiety. The degree of cut prose was assessed according to the qualifications of Rosier C.M. the ENMG program included the registration of cutaneous derivation using standard electrodes, and the average amplitude was determined. The use of ENMG was carried out on the side of the cut and on the healthy part of the face. Several children underwent MRI as indicated. Statistical data processing was carried out on an individual computer using the Student-Khanin test.

IV. RESEARCH RESULT

Among the surveyed children, 41% for a boy, 59% for girls, respectively. In 48% of cases, WFN developed on the right side of the face. In 3 children there was a relapse of the disease, in 2 children on the other side, in contrast to the primary lesion. The repeated cases were severely prolonged and with complications. These children underwent neuroimaging studies, MRI revealed signs of organic disorders in the form of internal hydrocephalus. In anamnesis, one patient began on the background of otitis media and on a heratic rash on the auricle. In many other cases, an idiopathic form of NLN was diagnosed, with a history of hypothermia or signs of acute respiratory viral infections. The degree of cut, taking into account the qualifications of the 2nd degree is 14%, the 3rd degree is 55%, the 4th degree is 31% (in this category, many had signs of contracture beginning). According to the main clinical signs, the localization of the nerve lesion was determined in the distal segment of the phallionial canal. This was indicated by the following signs, taste disturbance and hypercausia in 5 children. Of the older children examined, 8 children had pain in the behind-the-ear region, both constant and aching, the duration of pain varied within a week. These children also felt constriction or numbness in the paretic part of the face. In order to assess the psycho-emotional state in older patients, they were carried out according to the Aizik questionnaire, according to which the nature of the types of temperament was determined, by the analysis of mental factors. In 11 children, the type of sanguine person was identified, which is characterized by balance. 5 children have a type of melancholic, who have periodic breakdowns in a psycho-emotional state. In 4 patients, phlegm was noted, characterized by the constancy of the nervous system. The results on the Silberg-Khanin scale showed a high level of anxiety, that is, a response to stress in this case, medium and high, which proves an emotional experience of the current situation (Table 1). In comparison with the type of character, there was no difference, all adolescents perceived the disease emotionally, which showed an increase in the level of reactive anxiety.

Table 1. Reactive anxiety in ILN children with different types of temperament

Temper-t	sanguine n = 11	melancholic n = 5	phlegmatic n = 4
PT	42(34;51)	48,6 (42;54)	47,1 (38;54)

In accordance with the set goal, the examined children underwent ENMG. The degree of paresis was determined using the formula in the ratio of the amplitudes of the paretic and healthy sides, 69% of which were 3 and 4 degrees. ENMG was carried out in the dynamics of treatment, so the M-response on admission was high compared to the repeated study (Table 2). A statistically significant lengthening of the latent period of the M-response was noted upon admission to treatment, which indicates the onset of the nerve demilination (Table 3).

Table 2. M-response to stimulation of the facial nerve on the diseased, healthy side in children with HFN

M-answer	Side of paresis n = 40	Healthy side n = 40
M amplitude, mV	0,71(0,49;1,01)*	1,45(1,15;1,99)

Table 3. Latency of the M-response during stimulation of the facial nerve on the diseased, healthy side in children with IMF

M-answer	Side of paresis n = 40	Healthy side n = 40
M лат, мс	3,1 (3;3,5)*	2,3 (2,1;2,6)****

The same indicators can be traced when examining the duration of the M-response. The increase in changes is associated with uneven myelination of motor fibers. The data from the analysis of the blink reflex turned out to be interesting and controversial. In

almost 50% of children, the reflex was blocked. The block of conduction includes the pathways of the trigeminal and facial nerves, respectively, the afferent links of the chain are included in the pathological process of NLN (Table 4).

Table 4. Blinking reflex on the side of paresis, the healthy side in children with ILI

Blinking reflex	Side of paresis n = 20	Healthy side n = 20
Latency, ms	11,6 (10,8;13,1)*	10 (9,6; 10,4)**
Amplitude, mV	0,3 (0,17; 0,59)*	0,59 (0,44;1,35)**
Duration, ms	5,7 (5,4;6,6)*	8,25 (6,1;9,1) **

ENMG of children with NLN on the background of pain syndrome, more often gives a severe degree of paresis, compared with patients without pain syndrome. So the M-response is significantly reduced, the assessment of the blink reflex in all children with pain syndrome is blocked, which is confirmed by the literature data and speaks of a more pronounced affective-effective disintegration with a change in the functional state of both the trigeminal and facial nerves.

V. CONCLUSION

1. Analysis of the clinical features of NLN in children showed that the lesion at the level of the lower part of the fallopian canal corresponded, which gives pain symptoms to the face
2. Indicators of the level of reactive anxiety are high in older children and does not depend on the nature of the personality
3. The ENMG is indicative in the diagnosis of NLN, the revealed parameters on the paretic side indicate the involvement of the entire chain of effective afferent pathways of the trigeminal and facial nerves in the process.

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