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Results of Studies of the State of the Autonomic Nervous System in Patients with Glossodynia

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Abstract Clinical manifestations of glossina are inconstant, varied and changeable. Possible: pain in the oral mucosa, changes in taste, xerostomia, etc., the intensity of which often increases at the end of each day. Various studies prove that patients with glossina have non-specific health complaints, including headaches, pain in the TMJ, dizziness, musculoskeletal disorders, irritable bowel syndrome, dermatological and mental disorders. It is believed that the clinical course of glossina depends on the characteristics of autonomic regulation. Improving the effectiveness of treatment for patients with glossina based on the study of changes in local hemodynamics of the tongue, autonomic dysfunctions and psych emotional state, as well as the development of a method for correcting disorders identified in the context of complex treatment.

Keywords Autonomic dysfunctions and psych emotional, Complex treatment, Effectiveness of treatment

1. Introduction

In accordance with the purpose and objectives of the study, 45 patients with glossina aged 45-64 years who applied to the Department of Therapeutic Dentistry of the Samarkand State Medical University in 2022-2024 were examined. The examined patients were divided into 2 groups according to the WHO age classification: middle-aged (45-59 years old - 27 people) and elderly (60-74 years old - 18 people). There were 6 men (13.3%), 39 women (86.7%). Glossina was diagnosed according to the diagnostic criteria of ICD-11. [1]

The presence of autonomic dysfunction was examined using the "Questionnaire for identifying signs of autonomic changes. According to this questionnaire, the total number of points in healthy individuals should not exceed 15. Exceeding this number indicates the presence of vegetative dysfunction. To assess the initial vegetative tone, the Kerdo vegetative index (KVI) was calculated:

$$VIK = (1 - dBP/p) \times 100,$$

where dBP is diastolic pressure, p is pulse rate.

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In complete vegetative equilibrium (eutonia) in the cardiovascular system, VIC=0. The obtained numerical value VIC>0 indicates sympathicotonia, and the value VIC<0 indicates vagotonia. To analyze intersystem cardiorespiratory relationships, the Hildebrandt coefficient (the ratio of the heart rate to the respiratory rate per 1 minute) was calculated. The obtained coefficient between 2.8 and 4.9 indicates normal intersystem relationships, the index ≤ 2.7 indicates discoordination of the vegetative support of the respiratory and cardiac systems according to the vagotonic type, the index ≥ 5.0 - according to the sympathectomy type. [2]

The results of the assessment of the presence of signs of dysfunction of the autonomic nervous system and the degree of its severity are presented in Table 1. The obtained results of the questionnaire indicate a significant violation of the regulatory functions of homeostasis and home kinesis in patients with glossina. Thus, signs of dysfunction of the autonomic nervous system in elderly patients were established in 91.4% of cases, in middle-aged people - in 84.2% with a reliability level in relation to the control group of 95%.

2. Materials and Methods

Table 1. State of the autonomic nervous system in healthy people of the control group and patients with glossina, points

Indicators	Middle-aged people		P	Elderly people		P
	Main group	Control group		Main group	Control group	
Wayne questionnaire, scores	27,14±1,54	12,92±0,84	<0,001	28,67±2,3	12,3±0,7	<0,001
Kerdo Index, points	-15,04±2,6	1,61 ± 3,35	<0,01	-11,12±4,34	-0,81±4,1	<0,05
Hildebrandt coefficient	2,7±0,12	3,11±0,21	>0,05	2,7±0,12	2,72±0,1	>0,05

Note: p – reliability of the difference in indicators between the main and control groups

Table 2. Results of the study of the frequency of signs of autonomic dysfunction in patients with glossodynia and individuals in the control group according to the questionnaire of A. Vein, %

Research assessment (points)	Middle-aged people			Elderly people		
	Main group	Control group	P	Main group	Control group	P
>15	91,65	15,5	<0,05	84,6	12,2	<0,05
<15	8,35	84,5	<0,05	15,4	87,8	<0,05

Note: p – reliability of the difference in indicators between the main and control groups
At the same time, the absence of signs of dysfunction of the autonomic nervous system (<15 points) was noted only in 8.35% of middle-aged patients and 15.4% of elderly patients. [3]

3. Results and Discussion

Determination of the numerical values of the Vein questionnaire in points also confirmed changes in the regulation of vital processes in patients with glossina. The average statistical value of the vegetative test in middle-aged patients was 27.14±1.54 points, in elderly patients - 28.67±2.3 points (versus 12.92±0.84 and 12.3±0.7 points, respectively, in the control groups ($p<0.001$).

Vegetative tone determines the activity of the body, with the help of which the function of all organs is regulated in order to maintain life and balance under external influences [4]. A study of the direction of the functions of the autonomic nervous system using the Kerdo index revealed parasympathetic symptoms in 81.25% of middle-aged patients and in 75.3% of elderly patients ($p<0.05$).

Sympathetic manifestations, on the contrary, occurred, respectively, 5.0 and 2.9 times less frequently than in the control groups ($p<0.05$). In terms of the frequency of eutocia, patients with glossina differed from groups of practically healthy individuals of the same age by 2.0 and 1.72 times, ($p> 0.05$).

Table 3. Results of the study of vegetative tone in patients with glossodynia and control group individuals according to the Kerdo index, %

Indicators	Middle-aged persons, %		Elderly persons, %	
	Main group	Control group	Main group	Control group
Sympathetics	7,25	36,4	<0,05	11,5
Eitonics	10,5	21,7	>0,05	13,2
Parasympathitonics	81,25	41,9	<0,05	75,3

Note: p – reliability of the difference in indicators between the main and control groups

Table 4. Results of the study of the nature of intersystem relationships in patients with glossina and individuals in the control group according to the Hildebrandt coefficient, %

Values of the Hildebrandt coefficient	Middle-aged persons			Elderly persons		
	Main group	Control group	P	Main group	Control group	P
Intersystem balance	53	57	>0,05	47	55	>0,05
Predominance SSS	42	32	>0,05	47	43	>0,05
Predominance DS	5	11	>0,05	6	2	>0,05

Note: p – reliability of the difference in indicators between the main and control groups at the same time, the prevalence of the cardiovascular system over the respiratory system was clearly observed. Perhaps this is due to the age characteristics of the candidates. At the same time, there are a greater number of patients with a predominance of the cardiovascular system in the nature of intersystem relationships (10 and 4% more, respectively, than in practically healthy individuals), which emphasizes the negative impact of the disease on the state of the autonomic nervous system, innervation of the heart and blood vessels.

The obtained results are reflected in the Kerdo index values, which in the patient groups are -15.04±2.6 and -11.12±4.34 points in middle-aged and elderly individuals (confidence interval compared to the control groups is 95-99%). It should be noted, however, that there was a predominance of individuals suffering from parasympathicotonia over sympathectomies in the control groups, which is consistent with the authors' data [5] on an increase in diastolic pressure and a decrease in heart rate with age. Determination of the intersystem ratio indicators in patients and practically healthy individuals using the Hildebrandt coefficient revealed that its average statistical value was within the normal range (from 2.7±0.12 to 3.11±0.21 points) and did not differ significantly from each other ($p>0.05$). It is noteworthy that the number of people with intersystem balance in the main and control groups was almost the same; when comparing them, no reliable difference acceptable in medical research was found ($p>0.05$).

4. Conclusions

Thus, significant signs of autonomic dysfunction were found in patients with glossina, which indicates that this disease is accompanied by disorders of the autonomic regulation of vital processes.

The established shift in tone towards the predominance of parasympathetic functions in patients with glossina reflects the age-related characteristics of central hemodynamics and the negative impact of the disease on circulatory factors.

The calculated Hildebrandt coefficient confirmed the discoordination of the autonomic support of the cardiac and respiratory systems according to the vagotonic type and the predominance of parasympathetic influences on the heart over the respiratory tract.

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