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DETERMINATION OF MARKER OF THE ACUTE PHASE OF INFLAMMATION IN PATIENTS WITH ODONTOGENIC PHLEGMONS ON THE BACKGROUND OF ISCHEMIC HEART DISEASE

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One of the factors that can influence the clinical course of odontogenic phlegmons is ischemic heart disease, which is quite common among patients of maxillofacial departments. It was noted the significant increase in the content of C-reactive protein in blood serum all clinical groups on the first day of observation. During the entire period of observation, a gradual and reliable decrease in the content of this indicator was observed in all studied clinical groups. The best results were observed in patients of the control group, as well as in patients with odontogenic phlegmons against the background of ishemic heart disease, who were treated conservatively with quercetin in combination with 2-ethyl-6-methyl-3-hydroxypyridine succinate, which indicates a positive therapeutic effect of the combination of these drugs on the course of purulent-inflammatory processes of maxillofacial localization in patients with ischemic heart disease.

Key words: odontogenic phlegmone, ishemic heart disease, biochemical marker, surgical treatment.

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ВИЗНАЧЕННЯ МАРКЕРУ ГОСТРОЇ ФАЗИ ЗАПАЛЕННЯ У ПАЦІЄНТІВ ІЗ ОДОНТОГЕННИМИ ФЛЕГМОНАМИ ЩЕЛЕПНО-ЛИЦЕВОЇ ЛОКАЛІЗАЦІЇ НА ТЛІ ІШЕМІЧНОЇ ХВОРОБИ СЕРЦЯ

Одним із факторів, який може впливати на клінічний перебіг одонтогенних флегмон, є ішемічна хвороба серця, яка досить поширена серед пацієнтів щелепно-лицевих відділень. Відзначено достовірне підвищення вмісту С-реактивного білка в сироватці крові всіх клінічних груп у першу добу спостереження. Протягом усього періоду спостереження спостерігалося поступове та достовірне зниження вмісту цього показника в усіх досліджуваних клінічних групах. Найкращі результати спостерігались у пацієнтів контрольної групи, а також у пацієнтів з одонтогенними флегмонами на тлі ішемічної хвороби серця, яким проводили консервативне лікування кверцетином у поєднанні з 2-етил-6-метил-3-гідроксипіридину сукцинату, що свідчить про позитивний терапевтичний ефект препарату. поєднання цих препаратів на перебіг гнійно-запальних процесів щелепно-лицевої локалізації у хворих на ішемічну хворобу серця.

Ключові слова: одонтогенна флегмона, ішемічна хвороба серця, біохімічний маркер, хірургічне лікування.

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Despite the rapid development of modern medicine, the problem of the development of purulent-inflammatory complications of an odontogenic nature continues to be relevant and requires the constant and meticulous attention of a doctor to such patients. The course of purulent-inflammatory processes of maxillofacial localization is influenced by a significant cohort of endo- and exogenous factors, such as diabetes mellitus, diseases of the cardiovascular system, immunodeficiencies, diseases of the liver-biliary system and the renal apparatus, abuse of alcohol and strong substances, etc [1, 5, 7, 8, 13].

The problem of treatment of odontogenic phlegmons of maxillofacial localization is the rather aggressive course of these diseases, the high frequency of complications and the formation of pathological scars, often hypertrophic, after surgical intervention, which complicates the rehabilitation of such diseases in the postoperative period. In recent years, close attention has been paid to the issue of complex treatment of odontogenic phlegmon. Their clinical manifestations develop against the background of exhaustion of the body's internal compensatory mechanisms, a decrease in the body's immunoresistance, a decrease in the activity of the antioxidant system, an increased concentration of lipid peroxidation products and other toxic substances in the blood. This contributes to the inhibition of reparative processes and can lead to an unfavorable outcome of the disease [2, 9, 10, 12]. One of the factors that can influence the clinical course of odontogenic phlegmons is ischemic heart disease, which is quite common among patients of maxillofacial departments. This disease significantly increases the duration of the postoperative period and creates an additional threat to life [3, 4].

Therefore, it should be noted that for the treatment of patients with odontogenic phlegmons of maxillofacial localization against the background of ischemic heart disease, drugs with angioprotective,

capillary stabilizing and antihypoxant effects should be used. Among such drugs, we can single out quercetin, which is currently successfully used for inflammatory lung diseases, for the treatment of kidney lesions, heart diseases, including coronary artery disease, etc [4, 15]. Also 2-ethyl-6-methyl-3-hydroxypyridine succinate, which has proven itself well in the treatment of disorders of cerebral blood circulation, encephalopathies, dystonias, heart diseases, acute intoxications and purulent inflammatory processes of the abdominal cavity [6].

The purpose of the study was to analyze the biochemical markers of the acute phase of inflammation in patients with odontogenic phlegmons on the background of ischemic heart disease through the combined use of drugs with antioxidant, antihypoxant and angioprotective effects

Materials and methods. The research was carried out at the Poltava Regional Clinical Hospital in the department of maxillofacial surgery. 80 patients with maxillofacial odontogenic phlegmons took part in the research. The age of the patients ranged from 25 to 68 years.

Patients were divided into the following clinical groups:

The 1st clinical group – patients with odontogenic phlegmons of maxillofacial localization against the background of ischemic heart disease, who were included in the standard treatment protocol quercetin in tablet form (20 people); The 2nd clinical group – patients with maxillofacial odontogenic phlegmons on the background of ischemic heart disease, who were included in the standard treatment protocol with quercetin in combination with intramuscular injections of 2-ethyl-6-methyl-3-hydroxypyridine succinate (20 people); The 3rd clinical group – patients with maxillofacial odontogenic phlegmons on the background of ischemic heart disease, who were treated according to the standard protocol (20 people); The 4th clinical group (control) – patients with odontogenic phlegmons of maxillofacial localization without other somatic diseases, who were treated according to the standard protocol (20 people).

The content of the acute phase inflammation marker C-reactive protein in the blood serum of patients of all clinical groups was determined on an empty stomach on the 1st, 3rd, 5th, 7th, 9th, and 11th days after surgergical treatment of odontogenic phlegmone using immunochemical methods with the help of automatic analyzers.

Results of the study and their discussion. Analyzing the content of C-reactive protein in blood serum, which is an informative marker of the acute phase of inflammation, it should be noted that on the first day of observation, at the time of surgical opening of maxillofacial odontogenic phlegmon in all clinical groups, this indicator had high values, which significantly exceeded standard norms (<5 mg/l) (Table 1).

Table 1

Dynamics of the content of C-reactive protein in the blood serum of patients with odontogenic phlegmons of maxillofacial localization against the background of ischemic heart disease, mg/l

	Day 1	Day 3	Day 5	Day 7	Day 9	Day 11
Group 1 (n=20)	115.8±2.34	98.5±2.63*	60.2±1.70*	34.9±1.19*	13.9±0.98*	4.6±0.42*
Group 2 (n=20)	119.8±3.38	92.6±3.34*	52.6±1.83 * ** ***	31.4±1.24 * ***	11.2±0.63 * ***	3.5±0.39 * ***
Group 3 (n=20)	121.8±3.56	95.6±2.45*	62.8±1.75 * ****	39.3±1.43 *	16.1±0.83 * ****	7.1±0.48 * ****
Group 4 (n=20)	118.8±3.16	92.7±2.65*	53.7±0.02*	32.9±1.37*	11.5±0.87*	4.1±0.37*

Notes: * p<0.05 relative to the previous observation period; ** p<0.05 relative to the 1st clinical group for the same observation period; *** p<0.05 relative to the 3rd clinical group for the same period of observation; **** p<0.05 relative to the 4th clinical group (control) for the same observation period.

Such changes indicate the presence of an acute purulent inflammatory process, which corresponds to the indicated diagnoses. It should be noted that there was no significant difference when comparing clinical groups, which can be explained by the fact that at this stage of observation, conservative treatment of patients was just started.

On the 3rd day after surgical treatment for maxillofacial odontogenic phlegmons, a significant decrease in the content of C-reactive protein in blood serum by 14.9 %, 22.7 %, 21.5 % and 22.0 %, respectively, was noted for all four clinical groups.

A similar trend was persisted for the next observation period (5th day), namely, a statisticaly significant decrease in the content of the studied indicator by 38.9 %, 43.2 %, 34.3 %, and 42.1 %, respectively. It should be noted that in patients with ischemic heart disease who underwent standard

conservative therapy, there was an increase in the content of C-reactive protein in blood serum by 16.9 % compared to the group of patients without this somatic pathology who served as controls.

Under the conditions of combined use as part of conservative therapy of quercetin in tablet form and intramuscular injections of 2-ethyl-6-methyl-3-hydroxypyridine succinate, a significant decrease of this indicator was noted compared to the data of the group of patients with ischemic artery disease, who were treated according to the standard method by 16.2 %, as well as by 12.6 % in relation to patients with ischemic heart disease, who were included in the composition of conservative therapy with quercetin in tablet form. When compared with patients without somatic pathology, the content of C-reactive protein in blood serum was higher by 16.9 % only in the third clinical group, under the conditions of standard conservative treatment.

A significant decrease in the content of C-reactive protein continued to be observed on the 7th day after surgical treatment of patients with maxillofacial odontogenic phlegmons in all four clinical groups by 42.0 %, 40.3 %, 37.4 % and 38.7 % respectively. In the patients of the second clinical group, a significant decrease in the content of the studied indicator by 20.1 % was noted relative to the 3rd clinical group, in the absence of significant changes when compared with other clinical groups.

On the 9th day after the surgical treatment of odontogenic phlegmons of maxillofacial localization, a significant and reliable decrease in the content of this indicator in blood serum by 60.2 %, 64.3 %, 59.0 % and 65.0 % was noted in all clinical groups, respectively. In patients with ischemic heart disease, who as part of conservative treatment used quercetin in combination with intramuscular injections of 2-ethyl-6-methyl-3-hydroxypyridine succinate, a probable decrease in the content of C-reactive protein in the blood serum of patients with odontogenic phlegmons of maxillofacial localization continued to be noted, compared to the group of patients with ischemic heart disease, who received standard conservative therapy on 30.4%. Relative to somatically healthy patients of the 4th clinical group, a statisticaly significant increase of the studied indicator by 40.0% was noted only in the 3rd clinical group.

The 11th day of the postoperative period was characterized by the preservation of the tendency to decrease the content of C-reactive protein in blood serum in all observation groups, which approached the values of the generally accepted norm. Namely, a significant decrease of this indicator by 66.9 %, 68.8 %, 55.9 % and 64.3 % relative to the previous observation period for the 1st, 2nd, 3rd and 4th clinical groups. When compared with the control group, a significant increase in the studied indicator by 73.2 % was noted only in patients of the 3rd clinical group, who received drug therapy according to standard protocols. Similarly to the previous terms of the postoperative period, in the patients of the 2nd clinical group, a significant decrease of the investigated marker by 50.7 % was noted in relation to the results of the 3rd clinical group. The obtained data do not contradict the data of the literature [11, 14].

Thus, it should be noted that the dynamics of changes in the C-reactive protein index in all subjects were similar, but were characterized by different dynamics. A significant increase in the content of C-reactive protein in the blood serum of patients with odontogenic maxillofacial phlegmons confirmed the presence of an inflammatory process, regardless of the presence or absence of ishemic heart disease in the patients [1, 13]. The gradual statistically significant decrease of this indicator confirmed the decrease in manifestations of the inflammatory process in all studied groups. It should be noted that the best results were obtained in the treatment of patients who did not have a history of ishemic heart disease and in the group of patients who were included in the standard treatment protocol with quercetin in combination with intramuscular injections of 2-ethyl-6-methyl-3-hydroxypyridine succinate. Somewhat less dynamics of changes were observed in patients who were included in the standard treatment protocol quercetin in tablet form [6, 15].

The obtained data confirm the positive effect on the course of purulent-inflammatory processes of the drugs quercitin and 2-ethyl-6-methyl-3-hydroxypyridine succinate, which have a pronounced antioxidant effect on the organism, which is confirmed by literature data. It is worth noting that the use of these drugs in combination reduces the negative impact on the course of odontogenic phlegmon of maxillofacial localization of a concomitant disease such as ishemic heart disease, which is confirmed by the dynamics of the level of C-reactive protein in the blood serum of patients of the second clinical group in comparison with the control group [10]. It should also be noted that the level of C-reactive protein in the blood serum of patients with odontogenic phlegmons of maxillofacial localization on the 11th day after surgical treatment reached the reference norms (<5 mg/l) in all clinical groups, except for the third group, in which patients with concomitant coronary heart disease received treatment of the purulent-inflammatory process according to the standard protocol [3, 7].

Conclusion

Thus, it can be stated that in all clinical groups on the first day of observation, at the time of surgical treatment of patients with maxillofacial odontogenic phlegmons, there was a significant increase in the content of C-reactive protein in blood serum, which is characteristic of acute purulent inflammatory diseases. During the entire period of observation, a gradual and reliable decrease in the content of this indicator was observed in all studied clinical groups.

The best results were observed in patients of the control group who did not have concomitant somatic pathology, as well as in patients with odontogenic phlegmons of the maxillofacial localization against the background of ishemic heart disease, who were treated conservatively with tablet administration of quercetin in combination with intramuscular injections of 2-ethyl-6-methyl-3-hydroxypyridine succinate, which indicates a positive therapeutic effect of the combination of these drugs on the course of purulent-inflammatory processes of maxillofacial localization in patients with ischemic heart disease.

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