



The Use of Ozonized Sesame Oil in Complex Treatment of Ulcerative Necrotic Gingivostomatitis

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Abstract: Ulcerative necrotizing gingivostomatitis (UNGS) is a severe inflammatory-destructive disease of the oral mucosa characterized by tissue necrosis, severe pain syndrome, intoxication, and impaired general condition. Despite conventional treatment protocols, the disease often demonstrates prolonged clinical course and recurrence.

This study evaluates the effectiveness of ozonated sesame oil in the комплекс treatment of UNGS. The inclusion of ozonated oil in the therapeutic regimen resulted in a significant reduction of inflammatory indices (OHI-S and PMA), accelerated epithelialization of ulcerative-necrotic lesions, and shortened treatment duration.

Keywords: Ulcerative necrotizing gingivostomatitis, ozone therapy, ozonated sesame oil, inflammation, epithelialization.

1.Introduction:

Ulcerative-necrotic gingivostomatitis (UNGS) is one of the most severe forms of inflammatory diseases of the oral mucosa of infectious origin. The disease is characterized by an acute onset, pronounced inflammatory process, necrosis of the interdental papillae, bleeding, an unpleasant odor from the mouth, and a disruption of the patient's general condition. In

the pathogenesis of UNGS, the association of anaerobic microflora (Fusobacterium, Borrelia, Prevotella) plays a leading role, activating against the background of a decrease in the body's local and general resistance. Stress, hypovitaminosis, immunodeficiency conditions, concomitant somatic diseases, and poor oral hygiene contribute to the development of the disease.

Ozone is a gas with a sharp characteristic odor, a stronger oxidizer than oxygen. There is literature data on ozone's antibacterial, fungicidal, antiviral, anti-inflammatory, immunomodulatory, and analgesic properties. Ozone, when applied locally, enhances the activity of the antioxidant defense system. Low ozone concentrations increase the activity of epithelialization [2,8].

Purpose of the study: To improve the treatment of ulcerative-necrotic gingivostomatitis with ozonized sesame oil.

2. Methods

The source of ozone is the "Ozonator clinical OZ," developed at the "Azia-R" Scientific and Production Enterprise of the Republic of Uzbekistan, which is distinguished by its ease of use, high efficiency, good tolerance, practically no side effects, and economic feasibility. The operating principle of the apparatus is that the bubbling of sesame oil takes place in an ozonizer tank for 5-15 minutes until it reaches the required concentration (foam formation) [2,3,6].

We observed 62 patients with ulcerative-necrotic gingivostomatitis, of whom ozonated sesame oil was used in the complex treatment of 32 patients (main group). The comparison group of 30 people with UNGS received traditional treatment using sesame oil, of which patients constituted 63.33%. The age of the patients was from 18 to 60 years. All patients received local and general treatment. Local treatment consisted of anesthetic application, antiseptic treatment with chlorhexidine bigluconate, and sesame oil application. In the main group, we did not use chlorhexidine due to the antimicrobial properties of ozone, which exert a destructive effect on the cytoplasmic membranes of bacteria, after applying the anesthetic, we used ozonated sesame oil. The control group consisted of 18

people, of whom 11 (61.1%) had no oral mucosa pathology. The research methods were clinical, laboratory, and statistical. The duration of remission (months) in the main group was 2.53±0.6, in the comparison group - 2.49±0.7.

3. Results and Discussion

Patients with ulcerative-necrotic gingivostomatitis complained of pain in the ulcer, coating on its surface, halitosis, and dry mouth. The general condition of the patients was usually disturbed, the regional lymph nodes were somewhat enlarged and painful, and no adhesions with tissues were observed. Patients experience sleep and appetite disturbances, frequent salivation, sleep disturbances, and loss of appetite. Upon examination of the gastrointestinal tract on hyperemic and edematous oral mucosa (retromollary region of the mucous layer, cheeks, lateral surface of the tongue) painful erosions and ulcers covered with fibrinous coating were observed. Patients had difficulty eating due to severe pain, and their appetite and sleep were disturbed. [1,4,8]. The general condition of the patients was usually disturbed, weakness was noted, a decrease in the chewing load of the teeth, due to poor quality dental prostheses. Dental status deterioration, increased caries intensity, and secondary adentia were observed. Sometimes, removable lamellar dentures had a traumatic effect on the oral mucosa. During the clinical examination, attention was paid to the presence of somatic pathology, a decrease in the body's reactivity, the addition of secondary infection, a deterioration in the hygienic condition of the oral cavity, and the effect of local traumatic factors that lead to an exacerbation of the inflammation of the oral mucosa. We assessed the oral hygiene status according to Green-Vermilion OHI-S and PMA - papillary-marginal-alveolar index in patients with UNGS before and after treatment (Table 1).

The hygiene level in these patients before treatment was significantly lower compared to the control group. Thus, before treatment in the main group and the comparison group, the HI (OHI-S) indicators were 2.46±0.22 and 2.89±0.24, respectively, in the control group - 0.78±0.21. The PMA indicator in the main and comparison groups before treatment was 41.32±2.05 and 38.21±0.05, respectively, in the control group - 5.28±2.P (Table 1).

Table 1. Dynamics of changes in index indicators by observation periods (M±t)

Treatment periods	HI (OHI-S)		PMA (%)	
	Main group	Comparison	Main group	Comparison

	n=32	group n=30	n=32	group n=30
Before treatment	2,46±0,22	2,89±0,24	41,32±2,05	38,21 ±0,05
1 day	2,44±0,11	2,51 ±9,23	22,66±2,13	32,42±2,18
3 day	1,03±0,25	1,73±0,05	14,69±2,66	17,33±1,44
7 day	0,63±0,25	0,92±0,22	10,27±2,13	11,62±2,66
10 day	0,40±0,27	0,61 ±0,25	7,15±2,64	9,17±2,17
Control n=18	0,78±0,21		5,28±2,11	

On the 3rd day after starting treatment with ozonated sesame oil, the hygienic state of the cavity (OHI-S) and the PMA index significantly improved compared to the comparison group, the values of these indicators were recorded at 61.2% (1.03±0.25) and 44.38% (1.73±0.05) respectively, which shows a decrease of 2.5 times and 1.8 times, respectively, compared to the indicators before treatment ($p<0.05$).

After treatment, on the 7th day in the main group and the comparison group, the hygiene index (OHI-S) significantly decreased compared to pre-treatment indicators and corresponded to 79.91% (0.63±0.25) and 70.42% (0.92±0.22), showing a decrease of 4.9 times and 3.4 times, respectively, compared to pre-treatment indicators ($p<0.05$). The PMA indicator in the main group and the comparison group on the 7th day of treatment was 75.15% (10.27±2.13) and 69.59% (P,62±2.66), respectively, which indicates a decrease in the inflammatory process by 4.02 times and 3.2 times, respectively, compared to the indicators before treatment ($p<0.05$).

On the 10th day after treatment in the main group and the comparison group, the hygiene index (OHI-S) significantly decreased compared to pre-treatment indicators and corresponded to 87.27% (0.40±0.27) and 80.39 (0.61±0.25), which indicates a decrease in GI (OHI-S) by 7.8 times and 5.1 times, respectively, compared to pre-treatment indicators ($p<0.05$). The PMA indicator in the main group and the comparison group on the 10th day of treatment was 82.7% (7.15±2.64) and 76.01% (9.17±2.17) respectively, which indicates a decrease in the inflammatory process by 5.77 and 4.16 times, respectively, compared to the indicators before treatment ($p<0.05$).

(Table 1).

4. Conclusion

Complex treatment of patients with ulcerative-necrotic gingivostomatitis with ozonated sesame oil 10 days after treatment in the main group and the comparison group showed a significant decrease in the hygiene index (OHI-S) compared to pre-treatment indicators and corresponded to 87.27% (0.40±0.27) and 80.39% (0.61±0.25), which indicates a decrease in HI (OHI-S) by 7.8 times and 5.1 times, respectively, compared to pre-treatment indicators ($p<0.05$). The PMA indicator in the main group and the comparison group on the 10th day after treatment decreased by 82.7% (7.15±2.64) and 76.01% (9.17±2.17) respectively, which indicates a 5.77 and 4.16-fold regression of the inflammatory process compared to the indicators before treatment ($p<0.05$). In this regard, in patients of the main group after ozone therapy, the duration of remission increased by 2.27 times ($p<0.05$) - and reached the value of 5.75±0.06 months in 96.86% of cases (31 people).

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