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Analysis of Clinical Parameters of the Oral Cavity in Patients with Acute Ocd Stomatitis Before Treatment

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Abstract This study investigates the clinical, microbiological, and immunological features of acute herpetic-candidal stomatitis in children. Despite ongoing preventive measures, the incidence of combined viral and fungal lesions of the oral mucosa continues to rise, largely due to immunosuppressive factors and widespread irrational use of broad-spectrum antibiotics and corticosteroids. A total of 172 children with acute herpetic-candidal stomatitis were examined. Oral hygiene practices, including toothbrushing technique, toothbrush hardness, and type of toothpaste, as well as plaque and gingival indices, were evaluated. Molecular genetic diagnostics (PCR) revealed Candida spp. in 87.8% of children, while microbiological analysis confirmed pronounced dysbiosis characterized by a decrease in beneficial Lactobacillus and Streptococcus species and a significant increase in Candida albicans and associated pathogenic bacteria. Moreover, markers of local immunity lysozyme activity, neutrophil phagocytic index, and secretory immunoglobulin A were markedly reduced, especially in moderate to severe forms of the disease. The findings indicate that acute herpetic-candidal stomatitis in children is accompanied by significant disturbances in oral microflora and local immune defense, which exacerbate the severity of the clinical course. Strengthening oral hygiene, early diagnosis, and targeted antimicrobial therapy are essential components of effective treatment and prevention.

Keywords Analysis of clinical parameters, Oral cavity condition, In patients with acute OCD stomatitis, Treatment

1. Introduction

Effective work is underway in our country to develop and implement measures for the early diagnosis and prevention of acute herpetic and candidal stomatitis. There is sufficient information in the foreign and domestic literature showing that Candida fungi occupy an important place among opportunistic microorganisms (HeS., WangJ., 2017). The increase in morbidity observed in recent years is associated with the immunosuppressive effect of various factors of modern civilization on the human body: the irrational use of antimicrobial and immunosuppressants, cytostatics, glucocorticosteroids and other drugs that affect the antifungal immunity of the macroorganism, as well as broad-spectrum antibiotics and their active use are among the etiological factors of the disease. Tasks such as the implementation of a set of measures to increase the incidence of candidiasis infection related to the use of chemicals and radiation in everyday life and medicine. Candidiasis in HIV infection is a sign of diseases of the skin and mucous membranes in patients without immunodeficiency. Candidiasis is a lesion of the mucous membranes, skin and internal organs caused by the pathogenic action of yeast like fungi of the genus Candida, presented in the sources of scientific literature. According to WHO, more than 20% of the world's population suffers from various forms of fungal diseases. In addition, in 40-60% of cases, Candida remains unrecognized or is diagnosed late, which significantly worsens its prognosis [1,3,5]. Late diagnosis and effective treatment can lead to the development of severe pathologies.

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2. Results and Analyzes

When assessing the state of personal oral hygiene in the examined patients, such indicators as the technique of brushing teeth (the predominant type of toothbrush movements), the stiffness of the bristles, as well as the type of toothpaste used were taken into account. During the observation and interview, patients were asked to brush their teeth in their usual way, after which the dominant type of toothbrush movements was recorded, classified as "horizontal", "vertical" or "mixed". If the patient used an electric toothbrush, the movements were classified as "mixed". More than half of the patients with acute herpetic-candidal stomatitis brushed their teeth mainly with horizontal movements (56.1%), while 43.9% brushed their teeth vertically. Horizontal and mixed types of movements prevailed among girls 41.3% and 10.87% of

the total number of examined patients, respectively. At the same time, the majority of boys (51.2%) preferred horizontal movements when brushing their teeth. The hardness of the toothbrush used was evaluated separately, classified as "hard", "medium hardness" and "soft". Among the examined patients, only 7.3% used soft bristled brushes, 61% used medium-hard brushes, and 31.7% of children practically did not brush their teeth. As for the toothpaste used, the majority of the children surveyed 42 people (14 boys and 28 girls, which is 24.3% and 31.7% of the total number of surveyed, respectively) used "hygienic toothpaste for children."

The analysis showed that in children with acute herpetic-candidal stomatitis, the initial level of awareness of oral hygiene rules was low, and the proportion of unsatisfactory practical skills was high. Given the direct relationship between the level of oral hygiene and the development of dental caries and periodontal diseases, it should be emphasized that regular and proper oral care, as well as professional hygiene, are the most important elements of a complex of preventive measures [2,4,6,8]. The values of plaque indicators in the main group before treatment were "Satisfactory" and were determined in children with mild OGS. We noted unsatisfactory oral hygiene, which corresponds to 2.1 – 2.5 points. The average GI index was 2.6 – 3.4 points, which corresponds to poor oral hygiene.

The conducted molecular genetic studies by PCR showed that 151 (87.8%) patients out of 172 children showed a positive reaction, and in 12.2% (21) cases the result was negative. The negative result was obtained due to the late treatment from the onset of the disease, the difficulty of taking samples from children 1 year old. However, the diagnosis in children was confirmed by clinical and laboratory indicators. When conducting quantitative microbiological studies in the oral fluid of sick children suffering from herpetic and candidal stomatitis, we found that dysbiotic changes in the microflora develop in sick children with oral cavity, i.e. the number of beneficial bacteria such as Lactobacillus (lactobacilli), Streptococcus salivarius and Streptococcus mitis (streptococci that are part of the normal microflora), Common bacteria: Lactobacillus and Bifidobacterium (probiotic bacteria Neisseria and Veillonella (Neisseria and Veonella), Aerobic bacteria: Actinomyces naeslundii and Actinomyces israelii: and at the same time, the number of fungi of the genus Candida has increased: Candida albicans, other Candida species (e.g. Candida glabrata, Candida tropicalis), pathogenic bacteria: Streptococcus mutans and Streptococcus sobrinus (Streptococcus), Porphyromonas gingivalis and Fusobacterium nucleatum (bacteria associated with gum disease), Staphylococcus aureus (Staphylococcus aureus), Actinomyces (actinomycosis), herpes simplex viruses (HSV-1 and HSV-2) and some anaerobic bacteria:Prevotella and Bacteroides. As a result , the number of anaerobic microbes was lg 3.0±0.2 CFU/ml and the facultative flora group was lg 7.35±0.5 CFU/ml. An analysis of the state of the oral microflora in children with OGS, depending on the clinical forms of the disease, mild and moderate severe forms, showed that the more severe the disease, the higher the degree of dysbiotic changes.

According to current data, human herpesviruses type 1 and 2 belong to the Alphagerpesvirinae and are characterized by effective destruction of affected cells, a relatively short reproductive cycle, and the ability to remain latent in the ganglia of the nervous system. The virus is contained in saliva both in the presence of lesions of the mucous membranes of the oral cavity and without them, when the disease is asymptomatic. Along with viral infections, fungal diseases have also become widespread in recent years, among which candidiasis occupies a special place. As most mycologists point out, candidiasis accounts for the vast majority of cases of damage to the mucous membranes, among which oral candidiasis in children plays a significant role [7,9,10].

The widespread prevalence of candidiasis is not surprising, considering that Candida albicans is found on the mucous membranes and skin of more than half of the world's population /Sergeev V.P., 2001/. At the same time, more attention was paid to studying the state of local protective factors, such as the level of lysozyme, the phagocytic index of neutrophils, and the titer of the secretory fraction of class A (s IgA) immunoglobulins in the oral fluid [8,9,10]. The activity of these indicators in combined infections (candidiasis and herpes) in the oral cavity decreases due to inflammation, disruption of the salivary glands and increased secretion of cytokines, damage to the mucous membrane and hyperreactivity of the immune response. The quantitative index of local oral protection factors in patients with OGS was: lysozyme 11.5±0.35mg/%, phagocytosis 38.5±1.5% and the level of immunoglobulin A secretory fraction 0.61±0.12 g/l. In the severe clinical form of the disease, immunodeficiency is most pronounced, in fact, all the studied indicators are reduced by 1.96, 1.92 and 1.9 times, respectively.

3. Conclusions

Thus, based on the conducted microbiological and immunological studies in children with acute herpetic candidal stomatitis, the following conclusions can be drawn: In children with acute herpetic and candidal stomatitis, dysbiotic changes in the oral cavity are observed, a characteristic feature of such changes is a clear decrease in the number of lactobacilli and a significant increase in the average facultative flora against this background. In children with acute herpetic candidal stomatitis, this leads to the development of immunodeficiency in the oral cavity, while at the same time there is a decrease in phagocytosis of secretory immunoglobulin A in the indicators of the studied local protective factors.

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