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DIAGNOSTIC CRITERIA FOR DRUG-INDUCED STOMATITIS

Relevance. An allergic reaction in the form of contact stomatitis is one of the most common dental diseases. Despite the rapid development and significant advances in dentistry, the number of patients with sensitization is steadily growing [6]. In 22% of cases, drug-induced contact stomatitis occurs during dental procedures [1]. Among which the most relevant are inflammatory reactions of allergic genesis [4]. The results of various studies indicate that allergic intolerance to dental materials is growing every year [9], and now the prevalence of stomatitis reaches 40% [4]. Therefore, it is relevant to conduct research aimed at creating innovative approaches to their prediction, based on a deep understanding of the etiopathogenesis of the disease.

Key words: allergic, stomatitis, drug-induced, immune

MATERIAL AND METHODOLOGY OF THE STUDY. 54 patients aged 42 to 88 years were examined. Among the examined persons there were 38 women and 16 men. There were no contraindications to prosthetics. The prostheses were prepared from acrylic polymer according to the standard technique. After installation of the prostheses A standard regimen of oral hygiene and denture care was recommended.

One month after prosthetics, a clinical examination of patients was performed to identify signs of stomatitis. In this case, the patients were examined for complaints of discomfort in the oral cavity, pain, burning and tingling sensations of the oral mucosa, dry mouth, impaired sensitivity and changes in taste, headaches, and sleep disorders. During the examination, the presence of hyperemia, edema, and petechial hemorrhages of the oral mucosa were noted. In order to conduct a comparative assessment of immunological parameters, the patients were divided into 2 groups. The first group included 16 patients with stomatitis one month after prosthetics, and the second group consisted of the remaining 38 patients who did not have signs of complications. Laboratory studies of immunological parameters were performed in patients immediately before prosthetics: the levels of interleukin-4 (IL-4), tumor necrosis factor alpha (TNF- α) and secretory immunoglobulin class A (sIgA) were studied. In addition, the concentrations of total immunoglobulin class E – IgE, total immunoglobulin class G4 – IgG4, as well as specific to acrylic antibodies class E – IgE-specific and class G – IgG-specific were determined in the blood serum. Along with this, the method of leukocyte migration inhibition (LMI) under agarose was used for specific diagnostics. Methyl methacrylate monomer was used as an allergen. Due to the fact that the distribution of most of the studied parameters differed from normal, nonparametric statistical methods were used. Differences were considered statistically significant at $p < 0.05$.

RESULTS OF THE STUDY. The results of the performed mathematical processing of the obtained data showed that the development of stomatitis on acrylic dentures was combined in the examined individuals with higher initial levels of IL-4 ($p=0.007$) and total IgE ($p=0.031$) in the blood serum. According to other factors of the blood serum (TNF- α , IgG4, sIgA, specific anti-acrylic antibodies of the IgE and IgG classes), oral fluid (TNF- α , IL-4, sIgA), the two groups of dental patients did not differ significantly ($p>0.05$). No reliable differences were found in the results of RTML with methyl methacrylate monomer ($p=0.348$). Thus, the RTML values in the group of persons with stomatitis ($n=16$) and without its signs ($n=38$) were 0.14 (0.09-0.21) and 0.11 (0.06-0.20), respectively. At the next stage, a correlation analysis was performed between the studied parameters. All identified relationships were weak or very weak. The development of stomatitis on acrylic plastics had positive associations ($p<0.05$) with the concentrations of IL-4 ($\tau=0.31$), total IgE ($\tau=0.24$) in the blood serum of patients established before prosthetics. Along

with this, a positive correlation was found between the values of IL-4 in the blood serum and oral fluid ($\tau=0.230$). In addition, among the oral fluid parameters, connections were established between TNF- α and IL-4 (positive, $\tau=0.23$) and sIgA (negative, $\tau=-0.24$).

Thus, the assessment of the factors of general immunological reactivity (individual cytokines and sIgA in the blood serum and oral fluid, serum levels of total IgE and IgG4) showed a predisposition to the development of stomatitis on acrylic dentures in individuals with initially elevated concentrations of IL-4 and total IgE in the blood serum ($p<0.05$). Based on the fact that chemicals can cause different types of immune reactions to determine sensitization to acrylic, we selected a set of indicators: to assess IgE-dependent allergy - IgE specific antibodies, IgG-dependent - IgG specific antibodies, cell-mediated delayed-type allergy - RTMA. The data obtained did not allow us to identify relationships ($p>0.05$) between the above markers, determined before prosthetics, and the subsequent development of denture stomatitis. On the one hand, this may be due to the fact that patients' allergies may develop already upon contact with the prosthesis components, i.e. after its installation. But methods of specific allergy diagnostics are effective only if the patient already has an allergy to acrylates by the time of prosthetics. It should be borne in mind that the patient may not have an allergy to acrylic before prosthetics. On the other hand, in some cases, the possibility of obtaining false negative results in specific tests cannot be ruled out. This may be due, at least, to the fact that low-molecular acrylic molecules can be haptens, and it is not always possible to diagnose their allergenic role using laboratory methods. Both judgments are consistent with the results of specific allergological diagnostics performed on people with allergies, indicating that allergy to acrylics is detected only in 2.4-10.9% of cases.

PRACTICAL RECOMMENDATIONS. It is advisable to take the obtained results into account when predicting the development of stomatitis after the installation of acrylic dentures and to use them to develop individual treatment and preventive measures to prevent complications after prosthetics.

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