



Formation of leukemia in the oral cavity

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ABSTRACT: Despite the studies conducted on the manifestation of hemoblastosis on the MMOC (the mucous membrane of the oral cavity) the diagnosis of these diseases still meets certain difficulties. This is due, first of all, to the fact that there is no complex of rational methods for the study of MMOC to identify pathological processes in acute leukemias and non-Hodgkin's lymphomas, and, secondly, diagnostic criteria for recognizing hemoblastoses by changes in MMOC have not yet been developed.

KEYWORDS: leukemia and lymphoma, local immunity, oral mucosa

INTRODUCTION

Pathological processes in the body with hemoblastosis cause significant changes in the immunological status of the patient.

Data on the differentiated study of microbial composition in various forms of acute leukemia and lymphoma in the available literature we have not met. There is also no information about the study of colonization of buccal epithelium in patients with hemoblastosis.

Therefore, in addition to studying the clinical manifestations of acute leukemia's and lymphomas on the oral mucosa, the study of changes in local immunity and oral micro biogenesis is of great interest to researchers.

Thus, the increase in the incidence of acute leukemia's and lymphomas, the frequency of occurrence of pathological changes in MMOC in these categories of patients and the lack of diagnostic criteria for recognizing these changes, dictate the need for further comprehensive study of pathological processes in MMOC in order to improve the early diagnosis of these diseases.

To develop scientifically based criteria for the early diagnosis of acute leukemia and malignant non-Hodgkin's lymphomas, based on the study of the characteristic clinical features of the oral mucosa.

Objectives of the study:

1. To develop and test a set of modern methods for studying MMOC in patients with hemoblastosis.
2. To study the clinical manifestations of acute leukemia's and non-Hodgkin's lymphomas on the oral mucosa.
3. On the basis of the obtained data of clinical studies of MMOC to identify symptoms characteristic of patients with acute non-lymphoblastic leukemia, acute lymphoblastic leukemia and malignant non-Hodgkin's lymphomas.
4. To develop an automated method for the diagnosis of acute leukemia and malignant non-Hodgkin's lymphomas by changes in MMOC.
5. To assess the state of local immunity of the oral cavity in patients with hemoblastosis.
6. Determine the nature of changes in the cytokine system in the oral fluid of patients.
7. To study the features of oral microbiocenosis in these categories of patients.

For the first time, a set of rational methods for studying MMOC for the early diagnosis of acute leukemia and non-Hodgkin's lymphomas based on changes in MMOC was determined.

A mathematical model of the study of signs of the oral mucosa in patients with these diseases was created, which allows to objectively assessing the state of the MMOC, taking into account its individual characteristics.

A computer program has been developed for the diagnosis of acute leukemia and non-Hodgkin's lymphomas by changes in the oral mucosa.

For the first time, the state of local protection of the oral cavity was studied by the integrative index of local immunity factors, the cytokine system, and the state of natural colonization of the buccal epithelium in various forms of acute leukemia and non-Hodgkin's lymphomas.

A comprehensive study of the state of the oral mucosa in acute leukemia and malignant lymphomas is a way of early detection of these diseases, since it reflects it from the initial period of the disease.

The created mathematical model for the study of the oral mucosa allows you to objectively assess its condition, taking into account the developed hemoblastosis.

Diagnostic rules for the recognition of acute leukemia and malignant non-Hodgkin's lymphomas by changes in SOPR have been developed, which can be used in the rapid diagnosis of these diseases.

The automated system "Diagnose" can be used for early diagnosis of acute leukemia's and non-Hodgkin's lymphomas by changes in the MMOC.

The results of the study of the state of local immunity and micro biocenosis of the oral cavity in patients with acute leukemia and lymphoma allow us to comprehensively assess the changes in MMOC in these diseases.

1. For the diagnosis of acute leukemia and malignant non-Hodgkin's lymphomas by changes in MMOC, it is rational to use the proposed set of modern research methods.
2. Various forms of acute leukemia and malignant non-Hodgkin's lymphomas have characteristic clinical manifestations on the MMOC.
3. The system of local immunity and microbiocenosis of the oral cavity in hemoblastosis undergo significant changes.

4. Automated diagnosis of hemoblastosis by changes in the MMOC is advisable to carry out with the help of the developed system "Diagnostics".

The dentist should have hematological "alertness", i.e. pay attention to the first signs of pathological disorders on the oral mucosa, which can develop in acute leukemia and malignant non-Hodgkin's lymphomas.

The proposed complex of studies of the oral mucosa can be used in practice for the purpose of early diagnosis of acute leukemia and malignant non-Hodgkin's lymphomas. Taking into account the availability of the study, it is possible to implement it in the work of dental clinics and multidisciplinary hospitals.

1. A set of modern methods for studying the oral mucosa in patients with acute leukemia and malignant non-Hodgkin's lymphoma can improve the effectiveness of early diagnosis of these diseases.

2. The mathematical model of the study of the mucous membrane of the cavity reveals for each nosological form of hemoblastosis the degree of severity and localization of pathological processes on the MMOC, characteristic quantitative and qualitative changes in topographic and anatomical structures.

3. Step-by-step methods of discriminant analysis allowed us to identify the most informative parameters of the oral mucosa that affect the division of individuals into the nosological groups under study. These parameters are the basis of the automated program "Diagnostics".

4. In the study of local oral immunity in patients with hemoblastosis, a decrease in the level of lysozyme activity was found (from $50.5 \pm 1.48\%$ in the control group to $33.95 \pm 2.71\%$; $p < 0.001$) and an increase in the coefficient of balance of local oral immunity factors (in patients with ONLL by 13.6 times, with ALL - by 10.65 times and with ZNL - by 7.74 times compared to the control group). In addition, patients have a sharp decrease in the natural colonization of the buccal epithelium.

5. Acute leukemia and malignant non - Hodgkin's lymphomas are characterized by a significant increase in the production of cytokines IL - 1 (249.7 ± 22.96 pg/ml, in the control group - 35.78 ± 2.75 pg/ml; $p < 0.001$) and TNF - α (67.21 ± 7.08 pg/ml, control- 17.31 ± 1.53 pg/ml; $p < 0.001$) in the oral fluid, involved in inflammatory reactions, communication of the immune response and playing an important role in the antitumor growth.

When studying the microbiocenosis of the oral cavity in patients with hemoblastosis, a violation of the composition of the microflora, which has the character of dysbiosis of the oral cavity, was established.

Given the development of patients with a decrease in local immunity and, against this background, an increase in the pathogenicity of the oral microflora, it is necessary to conduct local treatment aimed at preventing severe infectious complications.

For rapid diagnosis of hemoblastosis according to the state of the MMOC, the computer program "Diagnostics" should be used, which allows to determine with a high degree of reliability the presence of oncohematological disease in the patient (for ONLL with an accuracy of 90.2 %, ALL - 71.4% and for ZNL - 84.4 %).

For an objective assessment of the state of local immunity of the oral cavity, it is necessary to determine the level of saliva lysozyme activity, IgA, sIgA, IgG and the integrative criterion-the balance coefficient of local immunity factors undergoing significant changes in hemoblastosis.

When conducting diagnostic and therapeutic manipulations in the oral cavity in patients with acute leukemia and malignant non-Hodgkin's lymphomas, it is necessary to take into account the decrease in local immunity and dysbiosis of the oral cavity that develops in these diseases.

Thus, rearrangements in the natural microbiocenosis of the bands! oral cavity in acute leukemia and malignant lymphoma can be used as a criterion for judging obvious and hidden violations of homeostasis, i.e. quantitative and qualitative indicators of flora serve as an integrative reflection of health and its disorders associated with changes in the microecology of the mucous membrane in hemoblastosis.

The results of the study convincingly prove that changes in the oral mucosa in hemoblastosis are an alarming signal that allows the patient to suspect the presence of oncohematological disease. In addition, analyzing the data obtained by us, we can conclude that there is a certain symptom complex characteristic of a separate nosological form.

Knowing about the possibility of clinical manifestations of hemoblastosis and oral mucosa, in the presence of appropriate changes, the doctor can direct the recognition of the disease in the right way from the very beginning. Therefore, it is obvious that the role of the dentist in the diagnosis of systemic disorders is indisputable.

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