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Research Article

BIOCHEMICAL CHANGES OF CHRONIC GENERALIZED PERIODONTITIS IN CHRONIC VIRAL HEPATITIS B, C AND MIXED INFECTIONS

Submission Date: August 20, 2023, Accepted Date: August 25, 2023,

Published Date: August 30, 2023 |

Crossref doi: <https://doi.org/10.37547/TAJMSPR/Volume05Issue08-16>

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ABSTRACT

Viral hepatitis (VH) belongs to the category of infectious diseases of the human body that develop under the influence of viruses, which are diverse in nature, in the ways of their spread and transmission from a patient to a healthy person and have one identical attribute - liver damage. VG is an atropoous infection, which means that their pathogens in natural conditions can only be present in the human body.

In hepatitis of viral origin, pathogens have a selective similarity (tropism) to liver cells. For this reason, the early location of viruses and their replication (reproduction) are manifested mainly in the liver tissue, primarily in liver cells (hepatocytes).

According to the nature and duration of development, hepatitis of viral origin is divided into acute and chronic. The threshold among these two types of disease is relatively taken into account 6 months from the onset of the disease or in certain patients from the onset of infection (if the disease does not develop) and up to 6 months - acute hepatitis B or acute virus carrier, after 6 months - chronic hepatitis or chronic virus carrier. [4; 8].

According to WHO, in different countries of the world more than 2 billion people are infected with viral hepatitis (VH), while about 350 million are carriers of hepatitis B and 500 million of hepatitis C [3; 5].

All known hepatitis viruses are present in the CIS countries. In relation to parenteral infections of viral hepatitis, the CIS countries belong to the region with a moderate incidence rate (35.2 cases per 100,000 people). In Tatarstan, the

share of viral hepatitis "B" and "C" in the total number of viral hepatitis is 80%. According to some authors [1], the number of so-called "virus carriers" of infection is growing in our republic, more than 10,000-12,000 primary carriers of hepatitis B and C viruses are registered annually. However, the registered incidence is only a part of the true incidence and only the visible part of the "iceberg". This is due to the fact that most cases of hepatitis B occur outside the scope of medical diagnosis, without jaundice and with minor clinical symptoms. However, the anicteric form of parenteral hepatitis is less dangerous than the icteric form in terms of infection and consequences [10].

Viral hepatitis B and C belong to the group of viral hepatitis with a parenteral transmission mechanism. These pathogenic viruses are taxonomically distinct. Common features are the parenteral transmission mechanism and the obligatory circulation of the virus in the blood [7].

Viral hepatitis B is a strictly parenteral infection caused by the IIBV virus, including CMV; IIBV is highly resistant to cold, heat, chemical and physical attack. It persists for 3 months at room temperature and 25 years in dried plasma; a direct correlation has been demonstrated between IIBV duration and blood levels. [6].

The source of transmission of the virus (HBV) can be all forms of acute and chronic HBV, as well as virus carriers. More important as the main source of infection for the epidemic potential are chronic forms of HBV infection than acute ones. An important role is played by chronic carriers of HbsAg and patients with clinically icteric form of IIBV; the ability of IIBV to persist for a long time, often for life, in the human body is considered as an ecological form of its existence [3; 5].

The most fully studied artificial (artificial) ways of HBV infection as a result of various parenteral therapeutic, diagnostic, therapeutic and non-medical manipulations, leading to a violation of the integrity of the mucous membranes and skin. The source of infection can be contaminated blood products, medical equipment and instruments, transplanted organs and tissues; transfusion of blood or blood products containing HBV can also cause infection (post-transfusion hepatitis) [8; 11].

In addition to medical procedures, non-medical parenteral injections are of paramount importance in the transmission of IIBV infections. This is especially true of intravenous administration of drugs, which has become widespread in recent years. According to a number of authors [2], it has been shown that in recent years there has been a rapid increase in the number of patients with acute viral hepatitis "B", which is associated with the use of intravenous drugs, and a quantitative increase in the incidence is observed among young men aged 15 to 30 years. . Below is a list of the most common causes of acute viral hepatitis B.

The purpose of this study is to substantiate the functional features of periodontal tissues in chronic hepatitis B, C and mixed infection B + C.

KEYWORDS

Chronic viral hepatitis B, C and mixed infections B+C, periodontal disease, chronic generalized periodontitis, chronic catarrhal gingivitis.

INTRODUCTION

To study functional changes in periodontal tissues, an in-depth periodontal examination of persons with periodontal diseases against the background of chronic hepatitis B and C was carried out in the amount of 110 people - the main group, as well as 25 patients with chronic generalized periodontitis who did not have chronic viral liver damage. They were the comparison group.

RESULTS AND DISCUSSION

Diagnosis of periodontal diseases was carried out in accordance with the terminology and classification of periodontal diseases approved at the XVI Plenum of the All-Union Society of Dentists (1983). Patients underwent a comprehensive clinical and radiological examination of periodontal tissues. Changes in the color of the gingival mucosa, the degree of gum bleeding [Muhlemann, 1971], the depth of periodontal pockets (WHO, 1989), and pathological tooth mobility were assessed [Fleszar T J et al, 1980] An index assessment of the condition of periodontal tissues was also carried out using a simplified Green-Vermilion hygiene index (1965), papillary-marginal-alveolar index (PMA) [Parma G, 1960], periodontal index (PI), [Rüssel A, 1967]. X-ray examination of the dentoalveolar system included intraoral contact images of individual groups of teeth and orthopantomography. Assessment of bone density of the skeleton (densitometry) was carried out by the method of dichromatic x-ray absorptiometry on a Prology densitometer (USA).

To fulfill the goals and objectives of the study, in the period from 2020 to 2023, a clinical and instrumental study of the state of periodontal tissues was conducted in 110 patients aged 20-60 years with chronic diffuse liver diseases of viral origin in the

Samarkand Regional Dental Clinic. Of the surveyed 53 (48.3%) men and 57 (51.6%) women had inflammatory periodontal disease for 3 to 5 years.

To achieve our goals, we used a comprehensive research methodology. All patients underwent a clinical examination, which included a study of the patient's life and illness history, complaints, genetic status and disease, diet and diet. To assess the severity of the disease, criteria such as clinical and biochemical parameters, immunological changes and apoptosis were used.

Immunological indicators of peripheral blood were studied to assess the general condition of the body. Monoclonal antibodies against human lymphocyte surface receptors (CD1, CD4, CD20, CD95, CD25, CD71) were used to measure the quantitative and functional properties of lymphocytes in blood serum. The isolation of pure suspensions of lymphocytes from peripheral blood was carried out by differential centrifugation with a density gradient of 1.077.

Before the start of treatment, all patients underwent a procedure of washing with water and rinsing under pressure of infected periodontal pockets to mechanically remove microbial contents. This was done because it is desirable to rinse the periodontal pockets with water and rinse under pressure immediately before any manipulation of periodontal tissues, since microorganisms are mechanically removed when using saline or herbal preparations.

In the presence of indications, closed curettage and functional selective grinding were performed. Then, treatment with one or another composition was just begun in the form of applying a hastily prepared paste (ex tempore).

Treatment outcomes were evaluated 20 days, 3 months and 6 months after treatment by comparing clinical and experimental parameters.

Treatment varied depending on the severity of periodontal disease. At I degree of severity, the topical treatment described above was used. In cases of severity II-III, in addition to local treatment, temporary fixation of removable teeth and surgical intervention (curettage, gingivectomy and flap surgery) were used. The immunomodulatory drug Desoxinate and ultraphonophoresis on the area of the alveolar process with peach oil were used as therapeutic agents.

Desoxinate was used in 55 patients and was prescribed as a rinse 4-6 times a day (1 bottle - 1-2 rinses). The duration of the course of treatment is 5-10 days, as well as ultraphonophoresis with peach oil in the area of the mucous membrane of the alveolar process in the form of a mobile technique in the form of sliding spiral movements along the gum in a pulsed mode; exposure time - 5 minutes for each jaw; course of treatment - 10-12 procedures, which were carried out every other day.

Depending on the degree of periodontal damage, the classification of periodontal diseases approved by the 16th Congress of the All-Union Dental Association (1983) was used. The study of the clinical state of oral periodontal tissues in all patients was carried out after establishing a somatic diagnosis of viral hepatitis B or C, as well as mixed infection (B + C).

In the saliva of patients, the content of gammaglutamyl transpeptidase (GGTP) and ornithine decarboxylase (ODC) was comprehensively assessed. Samples of total saliva for biochemical studies were always taken simultaneously, in the morning, on an empty stomach, before brushing teeth (in order to avoid damage to the gums and getting into the blood

sample), after mandatory rinsing of the oral cavity with water.

The activity of ornithine decarboxylase was measured photometrically according to the enzymatic method based on the loss of substrate (ornithine) by V. A. Khramov (1997) [6]. The essence of this method is as follows: 0.1 ml of saliva is added to 3 test tubes. 0.1 ml of water was added and this sample was used as a blank for photometry; 0.1 ml of saliva was added to the second tube and boiled for 20-30 seconds.

0.1 ml of a 0.002 mol/l solution of L-ornithine hydrochloride was added, corresponding to 200 nmol of substrate. In the third test tube, the same amount of ornithine was added to natural, unboiled saliva. All three samples were incubated at 40°C for 30-60 min. To each sample was added 0.8 ml of glacial acetic acid and 0.1 ml of Chinard's reagent [12].

The most widespread and intensive development of caries was observed in patients with B+C mixed infection - 96.4 ± 2.44 and 10.15, while in patients with CHB and CHC these figures were higher by 84.5 ± 1.96 and less by 83.5 ± 1.95 , respectively.

The average number of teeth requiring treatment due to caries "K" and its complications among all patients with CHB was 3.05, while with CHC the value of "K" and its complications decreased and reached a value of 2.84, in patients with mixed infection B +C.

The average number of teeth for caries and its complications increased and reached 3.20. The average number of filled teeth "P" per one examined was 2.42 for CHB, and 3.21 for CHC.

Although the average number of fillings per patient was 2.42, this number was lower in patients with CCG (2.12). Moreover, the mean number of filled teeth

increased rapidly in patients with B+C mixed infection, reaching a maximum of 3.58.

The mean number of extracted teeth was 3.17 in CKD patients and 2.72 in CHC patients. The value of this element gradually increased in patients with B+C mixed infection, reaching a maximum value of 3.37. Thus, the KPU index was more common in patients with mixed infection with B+C and CHB; teeth requiring extraction, filling and treatment for reason "K" (caries and its complications) averaged 10.17 and 8.66, respectively. In patients with CHB, the KPU index also fluctuated within 7.68, but CHB is also less common than CHB.

Among identified patients, women outnumbered men by 3.4%. The largest proportion of patients with periodontal disease was detected in 14 women aged 30-39 years, 15 women aged 40-49 years and 13 women aged 50-60 years, and 15 patients were aged 20-29 years. Thus, no direct correlation was found between the increase in age and the incidence of the disease.

Among men, 53 periodontal patients were observed, with the largest proportion of periodontal patients in the age group of 30-39 years: 13; 15 40-49 years; 13 50-60 years; 15 20-29 years old. There was also no clear correlation between age and incidence.

The frequency of periodontal tissue diseases in women was 19 in women aged 3-5 years, 18 in women aged 2-3 years, and 20 in women with the first episode of the disease and up to 2 years.

In men, periodontal tissue damage was the first time, i.e. from 1 to 2 years - detected in 20 patients, in 20 patients with a disease duration of up to 3 years, in 13 patients with a disease duration of 3-5 years.

In chronic hepatitis B, particular changes were observed in 15 (30%) patients aged 30-39 years, in 13 (26%) patients 40-49 years old, in 11 (22%) patients aged

20-29 and 50-60 years; in chronic hepatitis C, significant changes were observed in 11 (29%) patients aged 30-39 years, in 10 (26%) patients aged 20-29, in 9 (24%) 40-49% and in 8 (21%) patients aged 50-60 years.

According to the duration of the course of the disease, all patients with CHB and CHC were divided into the following groups (Table 3.1.4, Fig. 2). In the first years, chronic viral hepatitis B was diagnosed in 15 patients (30%), from 2 to 3 years in 19 patients (38%), in 16 (32%) up to five years.

Chronic viral hepatitis C in the period up to 2 years was found in 14 patients (37%), 2-3 years in 13 (34%), from 3 to 5 years in 11 patients (29%).

Severe manifestations in patients with chronic viral hepatitis revealed complaints of hyperemia, edema, bleeding gums and tooth mobility. Most patients with hepatitis B complained of hyperemia and bleeding (87.1%) of the mucous membrane of the gums of the oral cavity, edema (81.7%), loose teeth (76.2%), dry mouth (39.1%), thirst at night (37.9%), decayed teeth (34.4%) and burning and itching on the gums (19.9%).

At the same time, patients who had chronic viral hepatitis C complained of dry mouth and thirst at night (54.1%), decayed teeth (51.3%), bleeding gums (36.9%), looseness of teeth and bitterness in the mouth (34.1%). There were hyperemia and burning sensation in the oral cavity (25.6%) and edema (19.9%) of the oral mucosa.

In order to study the degree of individual hygienic condition of the teeth and organs of the oral cavity of patients, we identified the hygienic picture of the oral cavity.

Satisfactory hygienic condition of patients with CHB was detected in 11 (22.0%) patients, satisfactory - in 9

(18.0%), unsatisfactory and poor were the same - in 8 (16.0%) and very poor - in 14 (28.0%).

In the examined patients with chronic hepatitis B, a good hygienic condition was found in 11 (22%), satisfactory - in 9 (18%), unsatisfactory and poor - in 8 (16%), and very poor - in 14 (28%). In patients with CHC, the hygienic index (GI) was 2.62%, and in CHC 2.77, compared to the control group, it was 1.97, which proved the poor hygienic state of the oral cavity. The gingival inflammation index (RMA) was elevated in CHB and equaled 35.8%, and in CHC - 28.25%.

According to the study, it was found that all patients needed treatment for periodontal diseases. Hard dental deposits were detected in 28 (55.2%) patients with CHB and 19 (51.5%) patients with CHC, gum bleeding was observed in 11 patients (22.8%) with CHB and 9 (24.2%) patients with CHC. Pathological periodontal pockets 4–5 mm or more were detected in 7 (16.2%) patients with CHB and in 6 (19.2%) with CHC. None of the patients had healthy periodontal tissues in both chronic hepatitis B and chronic hepatitis C. These parameters indicated an increased level of the spread of periodontal diseases. With viral hepatitis B, bleeding was detected - 1.08 and tartar - 2.52 sextants. The most severe types of periodontal pathology (periodontal pocket 4-5 mm or more) were common in 2.37 sextants. These parameters indicated a high degree of intensity of periodontal tissue lesions. In hepatitis C, bleeding was observed in 1.03 sextants, dental plaque in 2.44 and periodontal pockets of 4-5 mm and more than 5 mm were common in 2.3 sextants.

CONCLUSIONS

The level of caries in the studied patients with chronic disseminated viral liver disease with CHB, CHC and B + C mixed infection, the prevalence of caries was 84.7%, 83.5%, 96.6%, and the intensity of caries - 7.69% and 10

17%, respectively, which indicates a high prevalence of carious lesions.

The most widespread and intensive development of caries was observed in patients with B+C mixed infection - 96.4 ± 2.44 and 10.15, while in patients with CHB and CHC these figures were higher by 84.5 ± 1.96 and less by 83.5 ± 1.95 , respectively.

Among the examined, the prevalence and severity of periodontal diseases were investigated, and all patients required periodontal treatment. Most patients with hepatitis B complained of hyperemia and bleeding (87.1%) of the mucous membrane of the gums of the mouth, swelling (81.7%), loose teeth (76.2%), dry mouth (39.1%), thirst at night (37.9%), decayed teeth (34.4%) and burning and itching on the gums (19.9%). At the same time, patients who had chronic viral hepatitis C complained of dry mouth and thirst at night (54.1%), decayed teeth (51.3%), bleeding gums (36.9%), looseness of teeth and bitterness in the mouth (34.1%). Hyperemia and burning in the oral cavity along (25.6%) and edema (19.9%) of the oral mucosa were observed.

The condition of the oral cavity and periodontium in patients with B+C viral mixed infection is characterized by very poor hygiene (GI) (3,19) and a high severity of periodontal disease. Very poor oral hygiene was observed in 50.0% of patients, poor oral hygiene in 20.0% and insufficient oral hygiene in 13.3%. Tartar was observed in 7 patients (23.3%). Pathological pockets were 4-5 mm in 12 patients (40.0%) and more than 5 mm in 9 patients (30.0%). All patients with B+C mixed infection had periodontal bone tissue disorders.

Inflammatory processes in periodontal tissues were often observed in patients with B+C mixed infection. In patients with B+C mixed infection, dental deposits were observed in 12 (54.5%) patients, and bleeding - in 6 (27.3%) patients. Pathological pockets were 4-5 mm

and more than 5 mm in 4 (18.2%) patients. The study revealed that all patients needed periodontal treatment.

Thus, the combined treatment with immunomodulators and anti-inflammatory drugs showed a good clinical response in patients of the main group, with the cessation of bleeding on the second day of treatment and the disappearance of edema on the third day. Similar changes occurred much later (5-6 days) in patients of the comparison group. A good level of hygiene according to Fedorov-Volodkina was observed 20 days and 6 months after the treatment of mild, moderate and severe chronic generalized periodontitis.

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