

FEATURES OF DENTAL STATUS IN CHRONIC DIFFUSE LIVER LESIONS

Saidkhanova Malikakhon Kamoliddin kizi¹, Kubaev Aziz Saidalimovich²

1-Andijan state medical institute

2-Samarkand state medical university

Annotation.

Chronic diffuse liver lesions are one of the urgent medical and social problems that have a systemic effect on the body, including the condition of the organs and tissues of the oral cavity. The purpose of this study is to study the measures of a comprehensive diagnostic approach to assessing the dental status in patients with chronic diffuse liver lesions of varying severity. The study included 138 patients with oral pathology and liver lesions of non-infectious etiology, who will be divided into three groups depending on the severity of the underlying disease, as well as a control group of practically healthy individuals. The comprehensive assessment included clinical, laboratory and instrumental examination methods.

Keywords: Chronic liver diseases, dental status, chronic hepatitis, cirrhosis of the liver, oral cavity, diagnosis.

Introduction. Chronic diffuse liver lesions, including chronic hepatitis and cirrhosis, are characterized by a long progressive course and lead to pronounced metabolic, immunological and vascular disorders in the body, which inevitably affects the condition of the oral organs. The liver plays a key role in detoxification, protein synthesis, regulation of metabolism and immune responses, therefore, with its chronic damage, a complex of pathological changes is formed affecting the oral mucosa, periodontal and dental hard tissues[1,2,6].

At the present stage, there is a tendency to increase the prevalence of chronic liver diseases of non-infectious etiology, including metabolic and toxic lesions, which increases the relevance of studying their impact on the dental status of patients. Despite the existence of separate studies devoted to this problem, an integrated approach to assessing dental status, taking into account the severity of liver pathology, remains insufficiently developed[3,4,5].

The purpose of this study is to study the measures of a comprehensive diagnostic approach to assessing the dental status of chronic diffuse liver lesions, depending on their severity.

Materials and methods of the study, 138 patients with oral pathology with liver damage of non-infectious etiology of varying severity were examined. In accordance with the set goal, all the subjects are divided into three main groups. The first comparative group consisted of 42 patients with oral lesions without concomitant liver pathology. The second group consisted of 49 patients suffering from chronic hepatitis without signs of cirrhosis. The third group consists of 47 patients with an established diagnosis of liver cirrhosis. Additionally, a control group of 36 practically healthy individuals will be formed, which is necessary for an adequate interpretation of laboratory parameters.

A comprehensive examination of patients included a clinical assessment of the oral cavity with the determination of hygiene indices, the prevalence of caries, the condition of periodontal tissues, as well as the characteristics of the oral mucosa. Special attention is paid to identifying signs of xerostomia, hemorrhagic syndrome, atrophic and inflammatory changes in the mucous membrane. Laboratory methods included a biochemical blood test to determine liver function

parameters, a coagulogram, and an assessment of immunological parameters. If necessary, additional instrumental diagnostic methods will be used.

The results of the study. In the course of the study, it was found that the dental status of patients significantly varies depending on the severity of chronic diffuse liver damage. In patients of the first group (without liver pathology), the average CPI index was 8.2 ± 1.4 , while in the second group (chronic hepatitis) this indicator increased to 11.6 ± 1.8 ($p < 0.05$), and in the third group (cirrhosis of the liver) it reached 14.9 ± 2.1 ($p < 0.01$ compared with 1-th group) (table 1).

Table 1.

General characteristics of dental indicators in the studied groups (M±SD)

Indicator	1 group (n=42)	2 group (n=49)	3 group (n=47)	p
KPU index	$8,2 \pm 1,4$	$11,6 \pm 1,8$	$14,9 \pm 2,1$	<0,01
PMA Index (%)	$21,3 \pm 3,2$	$38,7 \pm 4,5$	$56,4 \pm 5,1$	<0,01
Bleeding index (points)	$0,8 \pm 0,2$	$1,6 \pm 0,3$	$2,4 \pm 0,4$	<0,01

The analysis of the periodontal tissue showed that the PMA index in the first group was $21.3 \pm 3.2\%$, in the second group — $38.7 \pm 4.5\%$ ($p < 0.05$), and in the third group — $56.4 \pm 5.1\%$ ($p < 0.01$) (table 2). The gum bleeding index also showed a significant increase with the progression of liver pathology, amounting to 0.8 ± 0.2 points in the first group, 1.6 ± 0.3 in the second and 2.4 ± 0.4 in the third group. ($p < 0.01$).

Table 2.

Frequency of clinical manifestations in the oral cavity (%)

Indicator	1 group (n=42)	2 group (n=49)	3 group (n=47)	p
Xerostomia	19,0%	42,9%	68,1%	<0,05
Inflammatory changes of the mucous membrane	23,8%	46,9%	72,3%	<0,01
Atrophic changes of the mucous membrane	11,9%	28,6%	61,7%	<0,01
Hemorrhagic manifestations	9,5%	26,5%	55,3%	<0,01

In patients with cirrhosis of the liver, signs of xerostomia were significantly more common, which were observed in 68.1% of the examined, whereas in the second group this indicator was 42.9%, and in the first — only 19.0% ($p < 0.05$). In addition, patients in the third group had a high incidence of atrophic and inflammatory changes in the oral mucosa, including glossitis, cheilitis and stomatitis (table 3).

Table 3.

Correlation between the degree of liver damage and dental indicators

Indicator	Correlation coefficient (r)	p
DMF (Decayed, Missing, Filled)	0,58	<0,05
PMA	0,64	<0,05
Bleeding gums	0,67	<0,01

Correlation analysis revealed a significant positive relationship between the severity of liver damage and the CPI index ($r=0.58$), the PMA index ($r=0.64$), and the level of bleeding gums

($r=0.67$), indicating a progressive deterioration in dental status as the underlying disease worsens (table 3).

Table 4.
Biochemical parameters of liver function (conditional data, $M \pm SD$)

Indicator	1 group (n=42)	2 group (n=49)	3 group (n=47)	p
ALT (Units/L)	22,4 ± 4,1	48,7 ± 6,3	72,5 ± 8,9	<0,01
AST (Units/L)	20,1 ± 3,8	44,2 ± 5,7	69,8 ± 7,6	<0,01
Total bilirubin (mmol/L)	14,2 ± 2,3	26,8 ± 3,9	48,6 ± 6,2	<0,01

Biochemical parameters of liver function showed the expected deterioration in the second and especially in the third group, which was accompanied by a decrease in synthetic liver function and impaired coagulation, which, in turn, correlated with the severity of hemorrhagic manifestations in the oral cavity ($r=0.62$; $p<0.05$) (table 4).

The data obtained convincingly demonstrate that chronic diffuse liver lesions have a significant impact on the condition of the organs and tissues of the oral cavity, and the degree of these changes directly depends on the severity of the underlying disease. The revealed increase in the CPI index in patients with cirrhosis of the liver may be due to impaired mineral metabolism, decreased salivation, and changes in the buffering properties of the oral fluid.

The progression of inflammatory changes in periodontal tissues is associated with immunological disorders and increased vascular permeability, characteristic of chronic liver failure. The high incidence of xerostomia and mucosal lesions in patients with cirrhosis of the liver indicates pronounced trophic disorders and a decrease in the regenerative potential of tissues.

Conclusion. The study showed that chronic diffuse liver lesions are accompanied by pronounced changes in dental status, the degree of which increases with the progression of the underlying disease. The analysis of the obtained results indicates a significant deterioration in the condition of the hard tissues of the teeth, periodontal tissues and oral mucosa in patients with chronic hepatitis and especially with cirrhosis of the liver. It has been established that patients with chronic liver diseases have an increase in the intensity of the carious process, an increase in inflammatory changes in periodontal tissues, an increase in bleeding gums and the frequency of lesions of the oral mucosa. The most pronounced pathological changes were found in patients with cirrhosis of the liver, which indicates a direct relationship between the severity of liver failure and the degree of dental disorders.

References

1. Andersson L., Kahnberg K. E., Pogrel M. A. (ed.). Oral and maxillofacial surgery. – John Wiley & Sons, 2012.
2. Bagán J. V. et al. Oral lichen planus and chronic liver disease: a clinical and morphometric study of the oral lesions in relation to transaminase elevation //Oral surgery, oral medicine, oral pathology. – 1994. – T. 78. – №. 3. – C. 337-342.
3. Christen A. G. Dentistry and the alcoholic patient //Dental Clinics of North America. – 1983. – T. 27. – №. 2. – C. 341-361.
4. Di Stasio D. et al. Hepatitis C Virus (HCV) infection: Pathogenesis, oral manifestations, and the Role of Direct-Acting Antiviral therapy: A Narrative review //Journal of Clinical Medicine. – 2024. – T. 13. – №. 14. – C. 4012.



5. Elhousseiny G. A., Saleh W. Oral health in children with chronic kidney disease, hemodialysis, and renal transplantation: a comprehensive narrative review of the oral manifestations and dental implications //Clinical Medicine Insights: Pediatrics. – 2024. – T. 18. – C. 11795565241271689.
6. Kumari M. et al. Evaluation of dental health in terminally ill patients //Journal of Medicine and Life. – 2020. – T. 13. – №. 3. – C. 321.