

# Combination of general and local action drugs in treatment of patients with generalized periodontitis on the basis of the pathology of the hepatobiliary system

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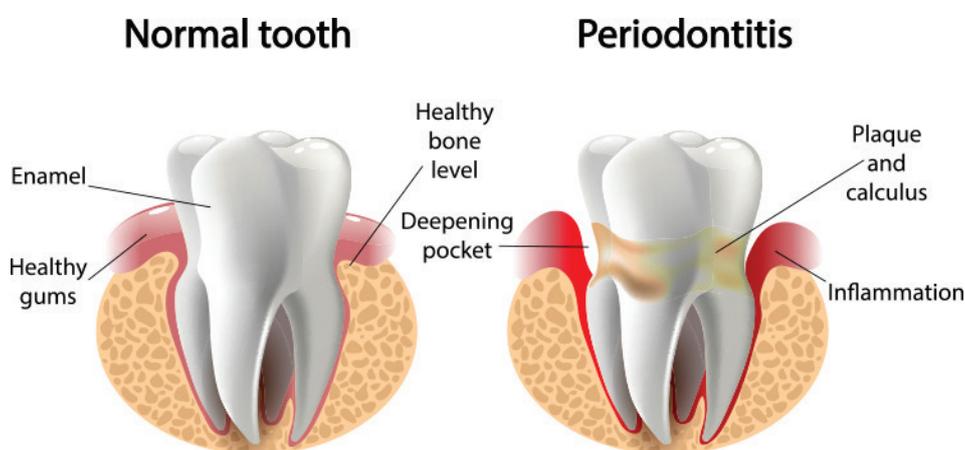
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## Abstract

The pathology of the hepatobiliary system significantly affects the state of the organs of the oral cavity. A clinical and index study of the state of periodontal tissues in 122 patients was conducted, which showed the prevalence of periodontal disease in patients with chronic acalculous cholecystitis. The examined patients were divided into groups depending on the treatment method, and the result was evaluated before treatment, directly after treatment and 6 months following treatment. Antidysbiotic hepatoprotector and 2% thiotriazolol ointment were included in the combination therapy. Studies have shown that patients with hepatobiliary pathology have increased likelihood of periodontal diseases, and after treatment, periodontal indicators and the hygiene index are significantly reduced, especially in the group where the proposed scheme was used, and the long-term results were stable for 6 months.



## Keywords

hepatobiliary pathology, hepatoprotector, prebiotic, periodontitis, thiotriazolin

## Introduction

An important place in scientific research is held by the study of the development of periodontal diseases and their relationship to diseases of the hepatobiliary system (Shay 2002). Disturbances of the barrier function of the liver plays a decisive role in the pathogenesis of hepatooral syndrome, because opportunistic and pathogenic microorganisms invade the circulatory system with subsequent damage to various organs and systems of the body, including tissues of the oral cavity (Xiaojing et al. 2000; Levitskiy and Demyanenko 2008). Patients with hepatobiliary pathology could have such dental diseases as catarrhal and atrophic gingivitis, periodontitis, xerostomia, glossitis, hyperplasia of enamel and dentin (Levitskiy 2012).

It has been proven that the functional activity of the hepatobiliary system is negatively affected by intestinal dysbacteriosis (Furdychko et al. 2018), which affects most of the population of Ukraine. Therefore, the use of anti-dysbiotic agents that eliminate dysbiosis and have hepatoprotective effect are appropriate.

The aim of the present study was to include in the integrated therapy antidysbiotic hepatoprotector "Lekvin" (Levitskiy et al. 2016), and 2% thiotriazolin ointment (Sulym 2010, Sulym et al. 2014; Buchkovska et al. 2011; Mashchenko 2003) as well as to analyze the data of clinical and instrumental studies of the state of periodontal tissues, which included the hygiene index, the index assessment of periodontal tissue pathology and the index of bleeding gums, patients with chronic acalculous cholecystitis.

## Experimental part

### Materials and methods

A total of 122 patients were screened – 20 apparently healthy persons without periodontal pathologies (12 female and 8 male) that constituted the control group and 102 patients with initial to stage I generalized periodontitis (initial-stage I GP). Patients with periodontal pathology were divided into several groups: 28 patients without somatic diseases (comparison group) and 74 patients with chronic acalculous cholecystitis (CAC). Of these, 38 patients (Group I) received treatment provided by the Protocol on medical care in the field of therapeutic dentistry, and 36 patients, in addition to basic therapy, took "Lekvin" as an antidysbiotic agent and 2% thiotriazolin ointment (group II). 1–2 tablets 2–3 times daily after a meal of antidysbiotic "Lekvin" were prescribed in this group. After antiseptic treatment, 2% thiotriazolin ointment was applied to the gums.

Groups are peer in number; the age of the patients was 25–46 years, of which 64.9% (48/74) were females, and 35.1% (26/47) – males.

Criteria for inclusion were patients with chronic initial-stage I GP with concomitant chronic diseases of the hepatobiliary system, in particular CAC, who had no contraindications to treatment with the proposed methods and drugs that clearly followed the recommendations of the physician and provided informed consent for the study and treatment. Criteria for exclusion were patients with: dentoalveolar deformations and anomalies of dentition, pathological abrasion, orthodontic devices, patients with chronic viral hepatitis, HIV-infection, active tuberculosis, the presence of concomitant diseases of other organs and systems, tumors of any localization, the patient's refusal of examination and treatment.

Patient examination included history taking, objective examination of the oral cavity: the Green-Vermillion hygiene index (GVI), PMA index (Parma 1960), and papilla bleeding index (PBI) [8] were determined. The state of the hepatobiliary system in patients was assessed by the doctors of the gastroenterology department of the Zolochiv district hospital in the Lviv region. Patients with hepatobiliary pathology received treatment by specialists in this area in accordance with the protocol of treatment. The examination was performed prior to treatment, immediately after treatment and 6 months following treatment.

The mathematical processing of the results of the study was carried out using the "EXCEL" and "STATISTICA" software.

## Results and discussion

Table 1 presents the results of an index assessment of the state of periodontal tissues in the patients before treatment. The PMA index was determined to be the highest in the group of patients with initial-stage I GP and CAC ( $59.39 \pm 0.29$ ). It significantly ( $p < 0.001$ ) exceeded the same index both in the group of patients without pathology of the biliary tract ( $55.85 \pm 0.61$ ) and in the control group. The Green-Vermillion index was the highest in the group of patients with initial-stage I GP and CAC ( $1.73 \pm 0.01$ ); it significantly ( $p < 0.001$ ) exceeded the indicator in the group of patients with initial-stage I GP and CAC ( $0.44 \pm 0.07$ ) and in the one with initial-stage I GP ( $1.63 \pm 0.03$ ). We see the same data by analyzing the indicators of the papilla bleeding index – the highest value was  $1.68 \pm 0.03$  in the group of patients with initial-stage I GP and CAC, and the lowest ( $1.44 \pm 0.43$ ) – in patients without somatic pathology.

**Table 1.** Index characteristics of the state of periodontal tissues in patients with initial-stage I GP with and without pathology of the hepatobiliary system ( $M \pm m$ ).

	Healthy (control group), n=20	Patients with the initial-stage I GP, without somatic pathology (comparison group) n=28	Patients with the initial-stage I GP and CAC (groups I and II) n=74
PMA, %	0	55.85 $\pm$ 0.61*	59.39 $\pm$ 0.29
GVI, units	0.44 $\pm$ 0.07	1.63 $\pm$ 0.03*	1.73 $\pm$ 0.01*#
PBI, points	0	1.44 $\pm$ 0.43*	1.68 $\pm$ 0.03*#

Note:

\* – the probability indicator ( $p < 0.05$ ) in comparison with the control group;

# – probability indicator ( $p < 0.05$ ) in comparison with the comparison group.

**Table 2.** Changes of clinical indices over time in patients with initial-stage I GP under the influence of combination treatment ( $M \pm m$ ).

Groups	PMA, %	GVI, units	PBI, points
Control group (n=20)	0	0.44 $\pm$ 0.07	0
I group (n=38)	Before the treatment	59.40 $\pm$ 0.41*	1.73 $\pm$ 0.12*
	After the treatment	6.68 $\pm$ 0.36*#x	0.41 $\pm$ 0.03*#x
	6 months after the treatment	7.74 $\pm$ 0.35*#°	0.43 $\pm$ 0.02*#°
II group (n=36)	Before the treatment	59.37 $\pm$ 0.41*	1.72 $\pm$ 0.12*
	After the treatment	5.17 $\pm$ 0.09*#x	0.22 $\pm$ 0.06*#x
	6 months after the treatment	5.26 $\pm$ 0.17*#°	0.36 $\pm$ 0.02*#°

Note: there is no significant difference between the groups of patients with the initial-stage I GP and CAC before the treatment.

\* – probability indicator ( $p < 0.05$ ) in comparison with the control group;

# – probability indicator ( $p < 0.05$ ) in comparison with the group before the treatment;

° – probability indicator ( $p < 0.05$ ) in comparison with the group after the treatment;

x – probability indicator ( $p < 0.05$ ) compared to the group 6 months following the treatment.

Thus, the periodontal status of patients with hepatobiliary pathology is much worse.

Table 2 presents the results of an index assessment of the state of periodontal tissues in the patients before treatment, after treatment and 6 months following treatment.

The state of gums of all patients with GP after the completion of combination treatment normalized, discomfort in the oral cavity disappeared, which was manifested by the absence of complaints and edema, gums attach more tightly to the neck of the teeth and their consistency and contour improved. Achieved results remained six months later.

## Conclusions

Analyzing the data of clinical and instrumental studies of the state of periodontal tissues, which included

the hygiene index, the index assessment of periodontal tissue pathology and the papilla bleeding index, of patients with chronic acalculous cholecystitis, it was found that the clinical course of initial-stage I generalized periodontitis depends on the lesion of hepatobiliary tract. Thus, the severity of the inflammatory periodontal diseases depends on the activity of the pathology of the hepatobiliary system.

Moreover, analyzing the indicators after treatment, we can see that inclusion of the antidyshbiotic “Lekvin” and 2% thiotriazolol ointment in the combination treatment significantly improves the Green-Vermillion index, PMA index (papillary-marginal-alveolar index (P)), the gingival margin (M), and the attached gingiva (A), and reduces and papilla bleeding index (PBI). Therefore, the proposed remedies are advisable to use in combination therapy to improve the efficacy of treatment.

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