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## CLINICAL STUDIES OF PHYTOGEL "KVERTULIDON" STOMATOPROTECTIVE ACTION IN PATIENTS WITH HELICOBACTER GASTRITIS

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### Abstract

**Background.** To determine the therapeutic and prophylactic effect of oral applications of the Kvertulidon phytoegel on the condition of the oral cavity in patients with Helicobacter gastritis.

**Methods.** A total of 28 patients with a diagnosis of gastritis of Helicobacter pylori and 18 healthy individuals were surveyed. Phytoegel was used as oral applications for 15 days. Hygiene and dental indices were determined, and the level of biochemical markers of inflammation, dystrophy and defenses in the oral fluid: elastase, catalase, urease, lysozyme activity, MDA content, API index and degree of dysbiosis.

**Results.** A significant increase in all hygienic and dental indices was found in patients with gastritis with a decrease in the level of catalase and lysozyme. Applications of phytoegel

reduce the activity of elastase, urease, the content of MDA, the degree of dysbiosis and increase the activity of catalase, lysozyme, and the API index.

Conclusion. Phytogel "Kvertulidon" has stomatoprotective effect in patients with helicobacter gastritis.

**Key words:** gastritis, *H. pylori*, oral cavity, saliva, phytogel, anti-helicobacter therapy.

## **INTRODUCTION**

It has been established that in patients with *Helicobacter pyloric* infection not only gastritis develops, but inflammatory and dystrophic processes occur in the tissues of the oral cavity (stomatitis, gingivitis) [1–4]. The experiment showed that the multifunctional antidisbiosis agent Kvertulidon, which includes quercetin, inulin, imudon and calcium citrate [5], has a therapeutic and prophylactic effect not only on the gastric mucosa, but also on the oral mucosa (oral mucosa) [6, 7].

We have shown that antihelicobacter therapy plays a significant role in the development of dental complications in gastritis [8].

The purpose of this exploration was to determine the therapeutic efficacy of the phytogel "Kvertulidon" in the case of dental complications of gastritis and its anti-helicobacter therapy.

## **MATERIAL AND RESEARCH METHODS**

In the work was used mucozo-adhesive phytogel "Kvertulidon" produced by the SPA "Odessa Biotechnology" [5].

Twenty eight patients with a diagnosis of chronic gastritis were surveyed, 93% of whom had a positive urease test, indicating the presence of *H. pylori* [6, 7].

18 people (men and women aged 19–42 y.o.) without somatic and serious dental pathology served as controls.

The diagnosis of gastritis was established by the doctors of the surgical department. All patients with gastritis received standard anti-helicobacter therapy (AHBT), which included omeprazol, amoksil, claritromycin [9].

Phytogel "Kvertulidon" was used in the form of daily oral applications in a dose of 0.5 ml twice a day (morning and evening, after meals) for 15 days.

The condition of the oral cavity was assessed by determining the hygienic and dental indices [10]. The following indicators were determined: Silness-Loe, Stalland, Schiller-Pisarev indices, PMA index.

All patients were collected oral fluid on an empty stomach [11] at admission and after 2 weeks. The level of biochemical markers of inflammation [12] was determined in saliva: elastase activity [13], malondialdehyde (MDA) content [14], catalase antioxidant enzyme activity [15], microbial semination index urease activity [16], biochemical marker activity of nonspecific lysozyme immunity [17].

The antioxidant-prooxidant index API was calculated by the ratio of catalase activity and MDA content [12], and the degree of dysbiosis by A. P. Levitsky [18] was calculated by the ratio of relative activities of urease and lysozyme.

The research results were subjected to standard statistical processing [19].

## RESULTS AND DISCUSSION

Table 1 presents the results of determining the condition of the oral cavity of patients with gastritis who received oral applications of the Kvertulidon phytogel.

Table 1. Clinical and laboratory indicators of the oral cavity in patients with gastritis who received oral applications of the Kvertulidon phytogel

Indicators	Control n=18	Gastritis, n=28	
		before treatment	after treatment
Salivation, ml / min	0,68±0,13	0,89±0,14 p>0,05	0,73±0,12 p>0,3; p <sub>1</sub> >0,05
Index Silness-Loe	0,3±0,1	2,3±0,3 p<0,01	0,9±0,3 p<0,05; p <sub>1</sub> <0,05
Index Stallard	0,4±0,2	1,9±0,5 p<0,05	0,5±0,2 p>0,5; p <sub>1</sub> <0,05
Schiller-Pisarev Index	0,8±0,3	2,5±0,4 p<0,05	1,1±0,3 p>0,3; p <sub>1</sub> <0,05
PMA, %	10±0,2	39±4 p<0,01	19±4 p<0,05; p <sub>1</sub> <0,01

Notes: p – in comparison with the control; p<sub>1</sub> - in comparison with the group "Before treatment".

It is seen that in all patients the level of all indices increases significantly, indicating the development of pathological processes in the tissues of the oral cavity. Oral phyto-gel applications reliably reduce the level of all indices, and the Stalland and Schiller-Pisarev indices practically returned to the control group.

Table 2 presents the results of determining the biochemical parameters of the oral fluid of patients. From these data it can be seen that the level of inflammatory markers (elastase and MDA) increases 3-4 times in patients with gastritis.

Table 2. Biochemical parameters of oral fluid in patients with gastritis, treated with phyto-gel "Kvertulidon"

Indicators	Control n=18	Gastritis, n=28	
		before treatment	after treatment
Elastase, mk-kat/l	0,27±0,02	0,87±0,05 p<0,01	0,33±0,04 p>0,05; p <sub>1</sub> <0,01
MDA, mmol/l	0,44±0,05	1,94±0,09 p<0,01	1,03±0,06 p<0,05; p <sub>1</sub> <0,05
Katalase, mkat/l	0,61±0,02	0,48±0,03 p<0,05	0,57±0,03 p>0,3; p <sub>1</sub> <0,05
API	13,9±0,97	2,5±0,33 p<0,01	5,5±0,6 p<0,01; p <sub>1</sub> <0,05
Urease, mk-kat/l	0,08±0,03	0,89±0,09 p<0,01	0,28±0,08 p<0,05; p <sub>1</sub> <0,05
Lysozyme, un./l	85±10	43±8 p<0,05	71±7 p>0,1; p <sub>1</sub> <0,05
Degree of dysbiosis	1,00±0,14	22,19±3,11 p<0,01	4,17±0,53 p<0,05; p <sub>1</sub> <0,01

Notes: see tab. 1.

Urease activity increases even more (11 times), indicating the growth of microbial semination of the oral cavity. At the same time, lysozyme activity decreases by 2 times, which indicates a decrease in the level of nonspecific immunity. As a result, in patients with gastritis

who received AHBT (anti-helicobacter therapy), the degree of oral dysbiosis increases by 22 times. Oral phytogel applications reliably reduce elastase, MDA, urease, and the degree of dysbiosis, but do not return them to normal values.

On the contrary, the application of phytogel normalized the activity of catalase and lysozyme, significantly increased the API index.

Thus, our researches have shown that patients with Helicobacter gastritis in the oral cavity develop pathological processes characteristic of stomatitis and gingivitis, by reducing the level of antioxidant and antimicrobial protection.

Inclusion in the complex of therapeutic measures for gastritis (AHBT) oral applications of the phytogel "Kvertulidon" allows to significantly reduce the level of pathological changes in the tissues of the oral cavity.

### **CONCLUSIONS**

1. In patients with the helicobacter etiology gastritis, inflammatory and dystrophic processes are observed in the oral cavity.

2. The use of phytogel "Kvertulidon" has a stomatoprotective effect during gastritis and their treatment.

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