

Melnychenko D. I., Romanenko I. G., Levitsky A. P., Selivanskaya I. O., Romanova Y. G. The influence of antidysbiotic medicines on the oral cavity state of patients with chronic pancreatitis. Journal of Health Sciences. 2014;04(02):097-104. ISSN 1429-9623 / 2300-665X.

The journal has had 5 points in Ministry of Science and Higher Education of Poland parametric evaluation. Part B item 1107. (17.12.2013).

© The Author (s) 2014;

This article is published with open access at Licensee Open Journal Systems of Radom University in Radom, Poland
Open Access. This article is distributed under the terms of the Creative Commons Attribution Noncommercial License which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author(s) and source are credited. This is an open access article licensed under the terms of the Creative Commons Attribution Non Commercial License (<http://creativecommons.org/licenses/by-nc/3.0/>) which permits unrestricted, non commercial use, distribution and reproduction in any medium, provided the work is properly cited.

This is an open access article licensed under the terms of the Creative Commons Attribution Non Commercial License (<http://creativecommons.org/licenses/by-nc/3.0/>) which permits unrestricted, non commercial use, distribution and reproduction in any medium, provided the work is properly cited.

Conflict of interest: None declared. Received: 29.11.2013. Revised 21.12.2013. Accepted: 15.02.2014.

УДК 616.316+616.37+577.152+612.31

UDC 616.316+616.37+577.152+612.31

THE INFLUENCE OF ANTIDYSBIOTIC MEDICINES ON THE ORAL CAVITY STATE OF PATIENTS WITH CHRONIC PANCREATITIS

**D. I. Melnychenko¹, I. G. Romanenko¹, A. P. Levitsky², I. O. Selivanskaya²,
Y. G. Romanova³**

¹State institution «Crimean State Medical University named after S.I.Georgievsky»

²SE «The Institute of Stomatology of the National academie of medical science of Ukraine» (Odessa, Ukraine) e-mail: flavan@mail.ru

³Odessa National Medical University, Odessa

Key words: pancreatitis, oral cavity, saliva, dysbiosis, inflammation, antidysbiotic medicines.

Introduction

There are severe disturbances in the digestive system in case of chronic pancreatitis, which are represented not only in indigestion, but, first of all, in development of severe intestinal dysbiosis [1-3].

Pathological processes appear in different organs and in oral cavity also in case of intestinal dysbiosis [4-6].

The aim of this work is to determine the inflammation and dysbiosis level in oral cavity of patients with chronic pancreatitis and study of removing this disturbances by using of antidysbiotic medicines.

Materials and methods

The research was pursued on 20 healthy persons and 60 patients with chronic pancreatitis, which were given their non-stimulated saliva in morning on an empty stomach. The diagnosis of pancreatitis was determined by gastroenterologist, which used clinical and laboratory researches data. It was 2 groups of patients with chronic pancreatitis: main one and comparison one. The patients from second group got the traditional therapy due to standarts of such patient treatment: the therapy of chronic pancreatitis included diet, pain elimination, using of ferments and antisecretory drugs; the treatment of chronic generalised periodontitis was based on removing of dental deposits, professional dental cleaning, oral cavity sanitation, selection and prescription special remedies and devices for individual oral hygiene, topical medicine's treatment of periodontal tissueses. The patients in the main group got in addition to traditional therapy *inulin* (from roots of chicory) fabricated in НПА «Одесская биотехнология» (TU U 15.8-13903778-93-2003) by 1 tablet 3 times a day and *quercetin* in granules fabricated in Borshchagovskiy KhFZ by 1 gram 2 times a day with preliminary holding in oral cavity during 10 minutes; and also they rinsed their mouth with dental elixir «Chicory» (TU 569A-013903778.001-92) 3 times a day after meal in dilution 1:10 (1 tea spoon on $\frac{1}{4}$ glass of water) and got instillation that elixir into periodontal pockets.

The treatment took 2 months. The patients were given their non-stimulated saliva after it once more.

It was determined the level of biochemical inflammation markers in saliva [7]: elastase activity and malondialdehyde (MDA) concentration, urease activity (biochemical marker of microbial contamination) [8] and lysocim activity (non-specific immunity index) [8]. The level of dysbiosis was calculated according to relative activities of urease and lysocim by Levickiy [8]. Besides, it was determined the activity of antioxidant ferment catalase in saliva [7] and according to catalase activity and MDA concentration it was calculated antioxidant-prooxidant index API [7].

The results of research were processing in statistics using Excel [9].

Results

In table 1 are represented the results of biochemical inflammation markers determining in oral liquid of patients with chronic pancreatitis before and 2 month after treatment. So, both inflammation markers increase their level in patients with chronic pancreatitis reliably, and after treatment the elastase activity reduces in comparison group - on 14 % ($p_1 > 0,1$), in main one – on 26 % ($p_1 > 0,05$).

This results testify that inflammatory-dystrophic process develops in oral cavity of patients with chronic pancreatitis.

Table 1

The level of inflammatory markers in oral liquid of patients with chronic pancreatitis, which take in antidysbiotic medicines

| №№ | Groups | n | Elastase, mc-kat/l | MDA, mmol/l |
|-----|------------------|----|---|---|
| 1 | Normal | 20 | 0,191±0,015 | 0,223±0,015 |
| 2 | Comparison group | | | |
| 2.1 | Before treatment | 30 | 0,437±0,040 $p < 0,001$ | 0,311±0,028 $p < 0,05$ |
| 2.2 | After treatment | 20 | 0,374±0,051 $p < 0,01$ $p_1 > 0,1$ | 0,284±0,022 $p < 0,05$ $p_1 > 0,3$ |
| 3 | Main group | | | |
| 3.1 | Before treatment | 30 | 0,529±0,058 $p < 0,001$ | 0,337±0,037 $p < 0,05$ |
| 3.2 | After treatment | 30 | 0,393±0,040 $p < 0,01$ $p_1 < 0,05$ | 0,272±0,028 $p > 0,05$ $p_1 > 0,05$ |

Footnote: p – in comparison with group № 1; p_1 – in comparison with group «before treatment».

In table 2 are represented the results of urease and lysocim activities in oral liquid of patients with pancreatitis. They show that such patients have the increased level of urease activity almost in 4 times. This fact testifies that the microbial contamination is increased in oral cavity. After 2 month basic treatment the urease activity is decreased on 74 %, but after treatment including antidysbiotic medicines – on 78 %.

Unlike the urease activity, the lysocim activity of patients with pancreatitis is decreased in 3,6 times. After basic treatment it is increased on 25 %, but after treatment including antidysbiotic medicines – on 68 %.

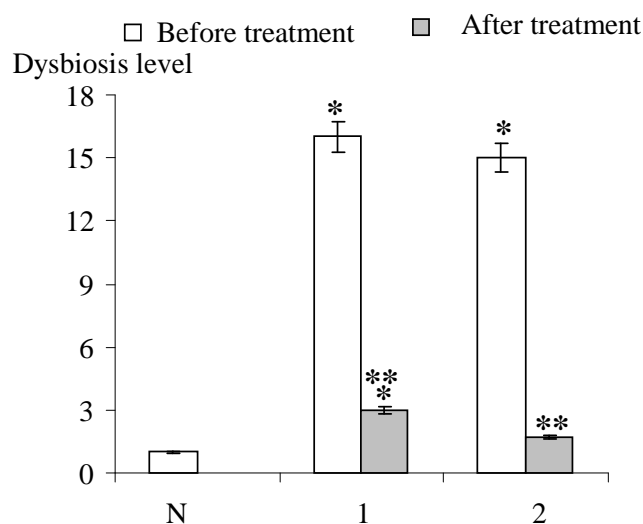
The level of oral dysbiosis of patients with pancreatitis is represented on picture: it is increased in 15 times, after basic treatment it is decreased in 5 times (but doesn't return to normal balance), and after treatment including antidysbiotic medicines it is decreased in 9 times (almost to normal).

Table 2

Urease and lysocim activities in oral liquid of patients with chronic pancreatitis, which take in antidysbiotic medicines

| №№ | Groups | n | Urease, mc-kat/l | lysocim, unit/l |
|-----|------------------|----|---|---|
| 1 | Normal | 20 | 0,076±0,005 | 142±12 |
| 2 | Comparison group | | | |
| 2.1 | Before treatment | 30 | 0,329±0,015 p<0,001 | 39±5 p<0,001 |
| 2.2 | After treatment | 20 | 0,084±0,010 p<0,001 p ₁ <0,001 | 49±8 p<0,001 p ₁ >0,2 |
| 3 | Main group | | | |
| 3.1 | Before treatment | 30 | 0,302±0,027 p<0,001 | 37±6 p<0,001 |
| 3.2 | After treatment | 30 | 0,068±0,009 p<0,01 p ₁ <0,001 | 62±12 p<0,05 p ₁ <0,05 |

Footnote: look through table 1.



Picture. The influence of antidysbiotic medicines on the oral cavity dysbiosis level of patients with chronic pancreatitis (1 – comparison group, 2 – main group)

In table 3 are represented the results of definition of catalase activity and index API in oral liquid of patients with pancreatitis. It shows, that catalase activity of patients is decreased in 2 times, after basic treatment the last one is increased only on 10%, while after treatment including antidysbiotic medicines it is increased on 59%.

Index API undergoes the clearer changes: it is decreased in 3 times in patients, after basic treatment it is increased on 21%, while after treatment including antidysbiotic medicines - on 97 %.

Table 3

Catalase activity and index API in oral liquid of patients with chronic pancreatitis, which take in antidysbiotic medicines

| №№ | Groups | n | Catalase, mkat/l | API |
|-----|------------------|----|---|---|
| 1 | Normal | 20 | 0,210±0,020 | 9,42±0,93 |
| 2 | Comparison group | | | |
| 2.1 | Before treatment | 30 | 0,115±0,020 p<0,05 | 3,69±0,34 p<0,01 |
| 2.2 | After treatment | 20 | 0,127±0,012 p<0,05 p ₁ >0,3 | 4,47±0,53 p<0,01 p ₁ >0,05 |
| 3 | Main group | | | |
| 3.1 | Before treatment | 30 | 0,100±0,009 p<0,05 | 2,97±0,33 p<0,01 |
| 3.2 | After treatment | 30 | 0,159±0,017 p>0,05 p ₁ <0,05 | 5,85±0,61 p<0,05 p ₁ <0,05 |

Footnote: look through table 1.

This data testify the high effect of using antidysbiotic medicines in prevention of pathological processes in oral cavity of patients with chronic pancreatitis. The results of our researches confirm point of view about important role of dysbiosis in development of oral cavity pathology.

Conclusion.

1. The inflammatory-dystrophic processes develop in oral cavity of patients with chronic pancreatitis. The foundation of this process is, most probably, oral dysbiosis.

2. Using of medicines (prebiotics, adaptogens) allows to remove dysbiosis appearance and to decrease essentially the inflammation reaction of oral cavity tissues.

Literatures

1. Оценка микроэкологии содержимого толстой кишки у больных хроническим панкреатитом / К.И. Савицкая, Е.Ф. Мельникова, А.А. Воробьев [и др.] // Вестник РАМН. – 2002. – № 4. – С. 20-23.

2. Комплексная оценка состояния микробиоценоза кишечника у больных хроническим панкреатитом / Э.С. Горовиц, Е.В. Токарева, О.В. Хлынова [и др.] // ЖМЭИ. – 2013. – № 4. – С. 73-76.

3. Осипенко М.Ф. Характеристика относительной внешнесекреторной недостаточности поджелудочной железы / М.Ф. Осипенко, Ю.Ю. Венжина, Е.А. Жук // Бюл. СО РАМН. – 2009. – № 3. – С. 81-85.

4. Нейко Є.М. Функціональні та запальні захворювання товстого кишечника: сучасний стан проблеми та аспекти патогенезу / Є.М. Нейко, В.Я. Камінський // Галиц. лікар. вісник. – 2005. – т. 12, № 4. – С. 5-11.

5. Скрыпник И.Н. Рольнарушений микробиоценоза кишечника в патогенезе заболеваний внутренних органов / И.Н. Скрыпник, А.С. Маслова // Ліки України. – 2009. – № 6 (132). – С. 65-71.

6. Романенко И.Г. Изучение уровня маркеров воспаления в ротовой жидкости у больных хроническим панкреатитом / И.Г. Романенко, А.П. Левицкий, Я.А. Лавровская // Вісник стоматології. – 2013. – № 4 (85). – С. 76-79.

7. Биохимические маркеры воспаления тканей ротовой полости: метод. рекомендации / А.П. Левицкий, О.В. Деньга, О.А. Макаренко [и др.] – Одесса, 2010. – 16 с.

8. Ферментативный метод определения дисбиоза полости рта для скрининга про- и пребиотиков (метод. рекомендации) / А. П. Левицкий, О. А. Макаренко, И. А. Селиванская [и др.] – К.: ГФЦ, 2007. – 23 с.

9. Лапач О.Н. Статистические методы в медико-биологических исследованиях с использованием Excel / О.Н. Лапач, А.В. Чубенко, П.Н. Бабич. – К.: Морион, 2000. – 320 с.

References

1. Savitskaya K. I., Melnikova E. F., Vorobyov A. A. [et al.]. The evaluation of intestine microecology of patients with chronic pancreatitis. Vestnik RAMN. 2002; 4: 20-23.

2. Gorovits Ye. S., Tokareva Ye. V., Khlynova O. V. [et al.]. Complex evaluation of intestine microbiocenosis of patients with chronic pancreatitis. JMEI. 2013; 4: 73-76.

3. Osipenko M. F., Venzhyna Yu. Yu., Zhuk Ye. A. The character of relative outward secretory deficiency of pancreas. Byul. SO RAMN. 2009; 3: 81-85.

4. Neyko Ye. M., Kaminskiy V. Ya. Functional and inflammatory intestine diseases: contemporary problem condition and aspects of pathogenesis. Galytskyi likarskiy visnyk. 2005; 12(4); 5-11.

5. Skrypnik I. N., Maslova A. S. The role of intestine microbiocenosis disturbances in pathogenesis of internal organs diseases. Liky Ukrainy. 2009; 6(132): 65-71.

6. Romanenko I. G., Levitsky A. P., Lavrovskaya Ya. A. The study of inflammatory markers level in oral liquid of patients with chronic pancreatitis. Visnyk stomatologii. 2013; 4(85): 76-79.

7. Levitskiy A. P., Denga O. V., Makarenko O. A. [et al.]. Biokhimicheskie markery vospaleniya tkaney rotovoy polosti: metodicheskie rekomendatsii [Biochemical markers of inflammation of oral cavity tissue: method guidelines]. Odessa, KP OGT, 2010:16.

8. Levitskiy A. P., Makarenko O. A., Selivanskaya I. A. [et al.]. Fermentativnyy metod opredeleniya disbioza polosti rta dlya skringa pro- i prebiotikov:

metodicheskie rekomendatsii [Enzymatic methods for determination of oral dysbiosis for screening pro- and prebiotics: method guidelines]. Kiev, GFC, 2007: 23.

9. Lapach S.N., Chubenko A.V., Babich P.N. Statisticheskiye metody v medicobiologicheskikh issledovaniyakh s ispolzovaniem Excel [Statistical methods in medical and biological research by using Excel]. Kiyev, Morion, 2000: 320.

Summary

It was determined that 60 patients with chronic pancreatitis have the increased level of inflammation markers in oral liquid: the activity of elastasa and contents of MDA on the background of the increased ureasa's activity and decreased lysocim activity, which caused increasing level of oral dysbiosis in 15 times. Treatment complex, which includes antidysbiotic medicines (inulin, kvercetin, chicory), allows to remove the occurrence of oral dysbiosis and inflammation.

Key words: pancreatitis, oral cavity, saliva, dysbiosis, inflammation, antidysbiotic medicines.