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Реферати

ДИНАМІЧНІ ЗМІНИ КЛІТИННОГО СКЛАДУ ОСАДУ СЕЧІ АРТИФІЦІЙНОГО СЕЧОВОГО МІХУРА

Савчук Р.В., Костев Ф.І., Віт В.В.

Метою роботи було оцінити динамічні зміни клітинного складу осаду артіфіційного сечового міхура. Виявлена динаміка структурних змін осаду сечі після оперативного втручання свідчить про те, що, при наявності позитивних клінічних результатів операції, завершуються процеси перебудови епітеліального вистилання пересаженного замість сечового міхура фрагмента кишечника, спрямовані на виконання інших функцій. На підставі отриманих даних можна припустити можливість використання в клініці цитологічного дослідження для встановлення динаміки процесу після оперативного лікування, виявлення ступеня ексфоціації епітелію пересаженного кишечника, а також корекції окремих ланок процесу адаптації в нових умовах функціонування пересаженного фрагмента кишечника, які принципово відрізняються.

Ключові слова: артіфіційний сечовий міхур, клітинний склад, адаптація.

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ДИНАМИЧЕСКИЕ ИЗМЕНЕНИЯ КЛЕТЧНОГО СОСТАВА ОСАДКА МОЧИ АРТИФИЦИАЛЬНОГО МОЧЕВОГО ПУЗЫРЯ

Савчук Р.В., Костев Ф. И., Вит В.В.

Целью работы было оценить динамические изменения клеточного состава осадка артіфіціального мочевого пузыря. Выведенная динамика структурных изменений осадка мочи после оперативного вмешательства свидетельствует о том, что, при наличии положительных клинических результатов операции, завершаются процессы перестройки эпителиальной выстилки пересаженного вместо мочевого пузыря фрагмента кишечника, направленные на выполнение других функций. На основании полученных данных можно предположить возможность использования в клинике цитологического исследования для установления динамики процесса после оперативного лечения, выявления степени эксфолиации эпителия пересаженного кишечника, а также коррекции отдельных звеньев процесса адаптации в новых условиях функционирования пересаженного фрагмента кишечника, которые принципиально отличаются.

Ключевые слова: артіфіціальный мочевой пузырь, клеточный состав, адаптация.

Рецензент Старченко І.І.

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T.V. Serha, O.H. Kuryk¹, V.O. Yakovenko², R.P. Tkachenko¹
Bogomolets National Medical University,

¹SI "Research and Practical Centre of Preventive and Clinical Medicine" State Administrative Department, ²Medical Centre "Oberih" Clinic, Kyiv

RISK OF ADENOCARCINOMA IN BARRETT'S ESOPHAGUS

e-mail: O_Kurik@ukr.net

The total of 7396 videoesophagogastroscope cases were analyzed. The presence of metaplastic columnar epithelium of esophagus was found in 2910 patients (39.4%) at pathohistological examination. The gastric metaplasia was evaluated in 876 cases (11.9%), the specialized intestinal metaplasia without dysplasia - in 1970 (26.6%), the low-grade dysplasia - in 48 (0.65%), the high-grade dysplasia - in 16 (0.22%). Esophageal adenocarcinoma was evaluated in four patients (0.05%, CI 0.01 - 0.12%). Low probability of esophageal adenocarcinoma formation in all types of metaplasia was demonstrated. Only the presence of dysplasia of metaplastic epithelium should cause increased alertness for the occurrence of esophageal adenocarcinoma. Exaggerated value of Barrett's esophagus may result in additional traumatization of mucosa, increase the risk of bleeding and stenosis.

Key words: Barrett's esophagus, metaplasia, dysplasia, esophageal adenocarcinoma.

The work is a fragment of the research project "Differential – diagnostic criteria for tumors and pre – tumor changes and their value in a prognosis", state registration No. 0120U1006.

Barrett's esophagus (BE) is the condition in which metaplastic columnar epithelium replaces the stratified squamous epithelium that normally lines the distal esophagus. BE predisposes to cancer development. In addition to Barrett's mucosa, a source of esophageal adenocarcinoma (EAC) may be cardiac or submucosal glands. Estimates of the prevalence of BE in the general population have varied widely from 0.4 to more than 20 percent, although the large majority of cases go unrecognized [12, 13].

EAC is a type of cancer that has been increasing in incidence in many Western societies over recent decades [14]. There is some evidence to suggest that EAC arise from BE, however the details of pathogenesis of it remain unknown. In surveillance programs of BE only a minority of patients develop EAC raising the question of what factors are implicated in the development of EAC from BE [2, 15].

In the National Cancer Registry № 20 "Cancer in Ukraine 2017-2018" incidences of esophageal adenocarcinoma are not separated from other forms of malignant neoplasms of the esophagus and its level is unknown.

It is estimated that the risk of cancer progression for patients with nondysplastic BE is ~ 0.2-0.5% per year, for patients with low-grade dysplasia the annual risk of BE progression to cancer is ~ 0.7% per year, for patients with high-grade dysplasia the annual risk of neoplastic progression is ~ 7% per year [8, 10].

In spite of this at Clinical Guideline of American College of Gastroenterology (ACG) is reported that the majority (>90%) of patients diagnosed with BE die of causes other than EAC [14].

The purpose of the study was to estimate the number of patients who developed EAC among patients with the different types of BE in unselected cohort of subjects.

Materials and methods. We analyzed 7396 cases of videoesophagogastrosopies for the period from January 2010 to December 2018 in the Medical Centre "Oberih" clinic, Kyiv, Ukraine. Among them 2910 patients had histologically proven BE and were 10 to 79 years old. Patients' endoscopic findings (endoscopically suspected esophageal metaplasia), and pathological findings (the type of metaplasia, degree of dysplasia) were collected for further analysis.

Esophagogastrosopies were made by gastroscopes Olympus Q160-Z, Olympus EVIS EXERA II, with using NBI and 115 magnification according to the sampling protocol. Target biopsies were performed from all areas of suspected metaplasia, as well as from 4 quadrants of esophageal wall and every 2 cm along the metaplastic segment.

Diagnosis of BE was set endoscopically by visualization of a columnar lined epithelium at least 1 cm above the gastroesophageal junction. BE was divided into short- and long-segment BE. Short-segment BE had a maximal length less than 3 cm, whereas long-segment had a length more than 3 cm. In previous studies it was shown that long-segment BE had a higher risk for development of EAC. The length of the BE segment is known to be associated with risk of progression to neoplasia.

Statistical analysis was performed with using MedStat programme. To estimate the prevalence of changes in the esophagus a 95% confidence interval was calculated with using the Fisher angular transformation method. The data was analyzed with using the Student's *t*-test for continuous variables, and Chi-square test for categorical variables. The difference between the mean values was considered significant at $p < 0.05$.

Results of the study and their discussion. In order to detect the BE we used endoscopic studies with biopsy and morphological verification. We analyzed 7396 cases of videoesophagogastrosopies in the period from 2010 to 2018. The study was conducted at the Medical Centre "Oberih" clinic in Kyiv, Ukraine.

There was an equal number of male and female patients included in the study (3684 men and 3708 women).

The age of the patients was from 10 to 79. In the statistical evaluation of the results revealed low peaks of gastric metaplasia at the age of 20 - 29 and high frequency of intestinal metaplasia at the age of 60 - 69. For gastric metaplasia, the rate was 2 times lower in this age category. For intestinal metaplasia - 1.25 times higher in the category of 60 - 69 years old.

The presence of columnar lined metaplasia with forming the columnar-lined esophagus was demonstrated in 2910 patients (39.4% of 7396, CI 38.3 - 40.5%). Long-segment BE was present in 54 patients (1.8%, CI 1.4 - 2.3%) in other 2856 cases the short-segment BE was present (98.2%, CI 97.7 - 98.6%).

Among all the cases (7396) the gastric metaplasia was evaluated in 876 cases (11.9%, CI 11.1 - 12.6%), in 1970 cases the specialized intestinal metaplasia without dysplasia was found (26.6%, CI 25.6 - 27.6%). From all the cases (7396) in 48 cases the low-grade dysplasia of the specialized intestinal metaplasia (Fig. 1) was detected (0.65%, CI 0.48 - 0.85%), in 16 cases the high-grade dysplasia of the specialized intestinal metaplasia (0.22%, CI 0.12 - 0.34%) was found. Esophageal adenocarcinoma was evaluated in four patients (0.05%, CI 0.01 - 0.12%) (fig. 1).

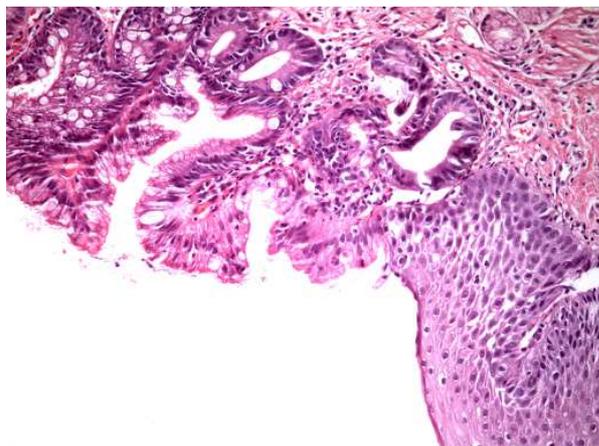


Fig. 1. BE with low-grade dysplasia. Stained with hematoxylin and eosin. $\times 100$ magnification.

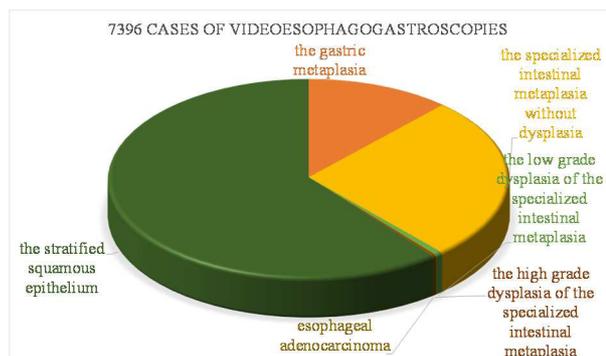


Fig. 2. The results of videoesophagogastrosopies of esophageal mucosa.

In the study the frequency of EAC detection was 0.05%. All those four cases of EAC were primarily diagnosed (fig. 3). There was no data of the previous changes in esophageal epithelium for the further analysis. It can be expected that there might be a couple of possible sources for EAC. Among them there are cells from the area of epithelium metaplasia, esophageal cardiac glands and their ducts, esophageal stem cells.

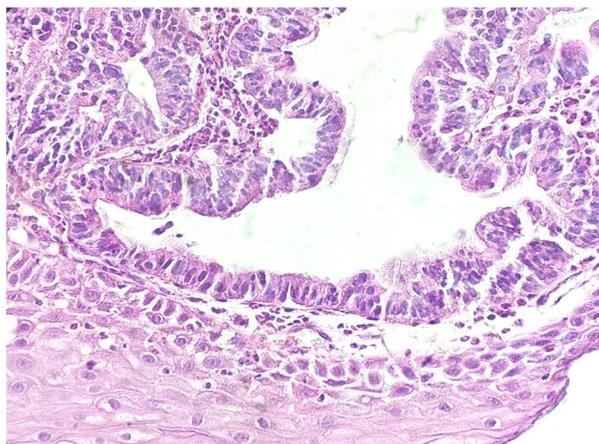


Fig. 3. EAC in the setting of BE. Stained with hematoxylin-eosin. $\times 200$ magnification.

The probability of cancer progression for patients with nondysplastic BE with gastric type of metaplasia is 0.5% per year, for patients with nondysplastic BE with intestinal type of metaplasia is 0.2% per year. For patients with low-grade dysplasia the probability of progression of BE to cancer is 8.33% per year, for patients with high-grade dysplasia the probability of neoplastic progression is 25% per year and for patients without metaplasia – 0.09% per year. Noteworthy is the high probability of transformation of metaplastic epithelium with dysplasia into adenocarcinoma.

BE is the condition in which a metaplastic columnar epithelium replaces the stratified squamous epithelium that normally lines the distal

esophagus. The metaplastic epithelium is acquired as a consequence of chronic gastroesophageal reflux disease, and is a predisposing factor for the development of EAC.

Frequency of detection of Barrett's esophagus depends on the frequency of biopsy taking and the level of informative videoesophagogastrosocopy. Incidence rates of esophageal adenocarcinoma among patients with the different types of BE are variable.

Recent studies have indicated a lower incidence rate of EAC in individuals with BE than earlier studies.

Holmberg D. et al. found that among 7932 participants with BE and 18,415 person-years of follow-up, the overall incidence of EAC was 1.47 (95% CI 0.91–2.02) per 1000 person-years [5].

Liu S. et al. presented large-scale longitudinal clinical and histological data on 5401 esophageal cancers patients diagnosed during the 10-year period. All 217 EAC patients from these 5401 esophageal cancers patients were examined for better understanding of the relationship between BE and EAC. They found that EAC was relatively rare and accounted for approximately 5% of all esophageal cancers each year during 2002–2011. Only 10 out of 217 (4.6%) EAC cases had any evidence of BE [9].

In western countries BE is generally considered to be the premalignant condition for EAC. The risk of malignant progression has been examined in over 8,500 patients with BE with using the Northern Ireland BE Register and followed-up for a mean of 7 years [1]. Patients with specialized intestinal metaplasia had the combined incidence 0.38% per year.

In a nationwide population-based cohort study that included all patients with BE collected in Denmark in the period from 1992 to 2009 the relative risk of EAC among patients with BE, compared with the risk in the general population, was 11.3 and the annual risk of esophageal EAC was 0.125 [6]. Some large population-based studies indicated that BE remained a strong risk factor for EAC, but the absolute

випадках – дисплазія високого ступеня (0,22%). Аденокарциному стравоходу встановлено у 4 пацієнтів (0,05%, ДІ 0,01-0,12%). Продемонстровано низьку ймовірність виникнення аденокарциноми при всіх типах метapлазії епітелію стравоходу. Лише наявність дисплазії метapлазованого епітелію повинна викликати підвищену настороженість щодо виникнення аденокарциноми. Стравохід Барретта без дисплазії не повинен розцінюватися як передраковий стан. Перебільшення його значення призводить до додаткової травматизації слизової, підвищення ризику кровотеч та стенозів.

Ключові слова: стравохід Барретта, метapлазія, дисплазія, аденокарцинома стравоходу.

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случаях - дисплазія високої ступеня (0,22%). Аденокарциному пищевода діагностовано у 4 пацієнтів (0,05%, ДІ 0,01-0,12%). Была продемонстрована низька вероятность возникновения аденокарциномы при всех типах метapлазии. Только наличие дисплазии метapлазированного эпителия должно вызывать повышенную настороженность в отношении возникновения аденокарциномы. Пищевод Барретта без дисплазии не должен оцениваться как предраковое состояние. Преувеличение его значения приводит к дополнительной травматизации слизистой, повышению риска кровотечений и стенозов.

Ключевые слова: пищевод Барретта, метapлазия, дисплазия, аденокарцинома пищевода.

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P.N. Skrypnykov, T.P. Skrypnikova, G.A. Loban, O.V. Gancho, L.M. Khavalkina, S.V. Zezekalo
Ukrainian Medical Stomatological Academy, Poltava

EFFECT OF NATURAL MINERAL BISCHOFITE CONTAINING PREPARATION ON THE ORAL MICROFLORA

e-mail: ludmila_khavalkina@dentaero.com

The oral cavity can be considered as an ecological system complex in which external factors (biological, individual, social) interact with internal ones (periodontium, bacterial community, local immune system, oral epithelium). If the favorable conditions arise, one or another disease of the oral mucosa may be developed and must be adequately treated. The arsenal of drugs is large and requires the doctor's knowledge, skills in using of the most optimal means and providing the appropriate recommendations to the patient. We studied the efficacy of the oral care product Antiqua Mare MAX, containing natural mineral Poltava's Bischofite, on the representatives of the oral microflora. To achieve this goal, museum strains of *E. coli* ATCC 25922, *S. aureus* ATCC 25923, *S. epidermidis* ATCC 14990, *E. faecalis* ATCC 29212, *M. lysodeicticus* ATCC 4698 and *C. albicans* ATCC1023 were used. As a control, a well-known antimicrobial agent 0.02% aqueous solution of chlorhexidine bigluconate was used. The ability of the Antiqua Mare MAX drug to inhibit the growth of museum cultures of the yeast-like fungi, colon bacilli, enterococci, micrococci, epidermal and golden staphylococci in the liquid medium was shown to coincide completely in three repeated determinations during the study of the effect of Bischofite containing oral care product. The fungistatic activity of the studied preparation Antiqua Mare MAX exceeded the effect of 0.02% solution of chlorhexidine bigluconate by 4 times ($p < 0,001$), but the fungicidal effect did not differ.

Keywords: OCMM microflora, chlorhexidine bigluconate, Antiqua Mare MAX.

The work is a fragment of the research project "Dental health restoration in patients with underlying diseases and their rehabilitation", state registration No. 0116U004191.

Oral mucosa diseases are common lesions of the human body among dental diseases. They reflect changes in organs and tissues of the body. Notwithstanding the diversity of causes, mechanisms of development and clinical course of the disease, the majority of these diseases are characterized by some common features that can be combined into separate related groups.

The oral microflora is represented by numerous types of aerobic and anaerobic bacteria, among which anaerobes dominate (in dental plaque the anaerobic/aerobic ratio is 1000/1) [7]. The permanent oral microflora is composed of representatives of several groups of microorganisms: bacteria, fungi, spirochetes, protozoa, viruses. The role of microorganisms in the development of periodontitis, candidiasis, ulcerative necrotic gingivitis, etc., is undoubtful [5]. The development of oral inflammatory diseases alters composition of the microflora of different biotopes that are part of the oral cavity [10].

The oral cavity can be considered as a complex ecological system in which the external factors (biological, individual, social) interact with internal ones (periodontal, bacterial community, local immune system, oral epithelium) [9]. Similar to the outer environment, all components of the system are in dynamic equilibrium.

In case of favorable conditions, any of the oral diseases, which required treatment, may develop [9]. The drug arsenal is large and requires the dental professional to be expert in their usage and giving recommendations.

Jardin Cosmetics LLC (Ukraine) has developed the oral care product Antiqua Mare MAX that is composed from natural products only: Poltava's Bischofite mineral complex, propolis, decoctions of stevia leaves, liquorice, oak bark (Sanitary-Hygienic Official Letter No. 602-123-20-1/781 as of 21.01.2019).