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Research Paper

Prospects for improving the microflora in diseases of the urinary tract encountered in gynecological practice

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ABSTRACT

Background: Vaginal dysbiosis is a clinically important complication for women who have chronic infectious and non-infectious conditions. When the usual vaginal microbiocenosis gets disturbed, it can intensify the existing disease mechanisms and sort of reduce the real effectiveness of therapy, even if everything else is ok.
Objective: The aim was to look at the quantitative and qualitative set of vaginal microflora in patients with chronic diseases, even when an infectious cause is present, and then to understand how vaginal dysbiosis may relate to disease progression.
Methods: We evaluated the vaginal microbiocenosis using both quantitative and qualitative microbiological testing of the vaginal flora. The female patients were diagnosed with chronic pathological conditions, including chronic infectious diseases. We noted compositional changes in the indigenous microbiota plus the load of opportunistic pathogens and then compared them to the well-known normative parameters.
Results: Vaginal dysbiosis was found in basically all participants. There was a steady decrease in indigenous Lactobacillus-dominant microflora, and it fell under normative thresholds, after which opportunistic pathogenic microorganisms showed a proportional increase in quantity. This microbial imbalance was tied to worse inflammatory activity in the genital structures that were involved. Also, the dysbiotic shifts seemed to play a role in prolonging the time of treatment and in promoting secondary inflammatory complications alongside the ongoing chronic disease, which is not a small thing.
Conclusions: Women who have chronic infectious disorders show a noticeable disturbance of the vaginal microbiocenosis, it's not just "minor". Because of that dysbiotic situation, opportunistic pathogens can start to multiply more easily, they also strengthen local inflammatory reactions, and this then makes standard therapy less effective, often through secondary complications that show up later. So correction of vaginal dysbiosis should be seen as an essential part of a full, integrated treatment plan for these patients.

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1. INTRODUCTION

It is known that, as in the case of pathologies of varying severity caused by almost all infections, their complications or the changes they cause in reason are also one of the pressing problems in healthcare practice. Until now, much attention has been paid to the study of the microbiocenosis of the gastrointestinal tract and research has shown that its role and composition are becoming more and more terms, concepts such as microflora, microbiota and microbiome are divided. But in recent years, cases that cause a lot of discomfort and complaints in women are burdened by the need to study the microflora of the genitals, as well as in the gastrointestinal tract. Violation of the normal microflora of the vagina – dysbiosis occurs very often and at one time during life almost every woman encounters it at least once, and in some it acquires a chronic character of the course and periodically reminds of itself with exacerbations. This condition may be asymptomatic or accompanied by certain clinical manifestations, but in some cases leads to the development of a number of serious complications [1], [2], [3], [4], [5], [6]. Signs of vaginal dysbiosis are familiar to more than 90% of women of different ages. The normal microflora is the so–called ecosystem of the vagina - microorganisms are in constant equilibrium with each other and with the environment, preventing the appearance of another infection. We know that, normally, the microflora of a woman's vagina is mainly represented by lactobacilli, or Doderlein sticks (90%), bifidobacteria (slightly less than 10%) and "key cells of the vagina" (less than 1%), which include Gardnerella, bacteria of the genus mobiluncus, fungi of the genus candida, leptotrix and some other microorganisms [7], [8], [9], [10]. In case of violation of the normal microflora of the vagina, pathogenic microorganisms begin to develop actively. This leads to the appearance of diseases such as vulgovaginal candidiasis, bacterial vaginosis, aerobic vaginitis and others.

With dysbiosis, patients are usually prescribed periodic antibacterial, universal, immunity-reducing therapy. It is known that consistent treatment with antibiotics in combination with a decrease in the functioning of the immune system of the body does not remain without impact even on the normal microflora in the biotopes of the macroorganism. There are also studies on the origin of dysbiotic conditions in the intestinal microflora in patients with brucellase, recommendations for taking pre- and probiotics in their treatment [11], [12]. In chronic cases, it has been proven that the reproductive system, like other organs and systems, is damaged. At the same time, these patients have gynecological and obstetric problems and the following clinical signs are manifested: violation of the menstrual cycle of the ovaries, amenorrhea, hypomenorrhea, oligomenorrhea, infertility, fetal gestosis, hydroamnion placentitis, fetal hypotrophy, miscarriage, pathological childbirth is caused. Immunological examinations conducted for women of reproductive age with chronic brucellosis reveal the occurrence of a secondary immunodeficiency condition, that is, a decrease in the content of T- and B-lymphocytes. In addition, an excess of antigen-binding lymphocytes in the blood of these patients against joint bags, endometrium, ovarian tissue antigen is a sign that these organs with connective tissue are targets for brucellase infection [13].

From the above, it can be concluded that dysbiosis affects most organs and systems of the body and causes immunodeficiency in patients.

That is why we set out to study the state of the vaginal microflora in patients with chronic infectious diseases.

2. METHODOLOGY

During the research, 30 patients of reproductive age with pathologies of a chronic infectious nature were selected.

To study the vaginal microflora in women with chronic infectious pathology, vaginal discharge was obtained from women and, using the method of sequential dilution, were divided into sectors into a food medium and planted. In the laboratory, dilute solutions lasting up to 10-10 seconds were prepared using a 0.1% buffer solution of agar at a dilution of 1:10 and a 0.1 ml food medium was sown into a Petri dish. Bifidobacteria were grown on bifidobacterium agar, Lactobacilli in Mrs medium, Gardnerella on chocolate agar, streptococci on bloody agar, staphylococci on egg-salt agar, Enterobacteria, Escherichia in Endo medium, fungi in Saburo medium, proteus in freshly prepared agar (according to Tshukevich), enterococci in herbaceous–esculin agar. Aerobic microorganisms were grown under normal conditions, that is, in a thermostat at a temperature of 370 for 18-24 hours. On the other hand, anaerobic bacteria were grown in anaerostats. The hi-Media food medium was used.

The number of colonies in food media was calculated, the number of microbes in 1 ml of the separated was determined and transferred to lg Koe\ml. The microorganisms were identified with the accuracy of the species.

3. RESULTS AND DISCUSSION

In the anamnesis of all examined patients, clinical signs of vaginal dysbiosis were revealed. The examination revealed that 90% of the patients had symptoms of vaginal detachment, pain, itching.

The results obtained during the bacteriological study were as follows: Lactobacillus spp., the main representatives of vaginal microbiocenosis in patients with brucellosis. and Bifidobacterium spp. a decrease in the number of S was recorded (from 6.12±0.36 and 5.20±0.48 to 1.44±0.24 and 2.24±0.18, respectively).

Quantitative reproduction of conditionally pathogenic bacteria occurred mainly due to an increase in facultative bacteria in the vagina, that is, due to aerobic bacteria in the vaginal microflora of women with brucellosis compared with the indicators of the control group St. aureus, LP E. It was noticed that the amount of Salt increased by 2 times. It was found that the number of Candida generation fungi increased 4-5 times, and the number of Gardnerella vaginalis increased 3 times. In these patients, vaginal microbiocenosis was re-examined during etiotropic treatment (after 10 days). This led to a further decrease in the content of lacto- and bifidobacteria (from 6.16±0.33 and 5.20±0.48 to 1.44±0.17 and 2.1±0.18, respectively). It was noticed that the number of Candida generation fungi increased by 5-5.5 times, and 90% of patients had increased symptoms of sluggish vaginal detachment, itching.

On the other hand, it was found that quantitative changes in facultative bacteria occur due to a decrease in conditionally pathogenic microorganisms and decreased in comparison with preliminary treatment, i.e. compared with the indicators of the control group, these patients are exposed to the vaginal microflora of St. aureus, lactose-positive E. Only 1.2 times the number of conditionally pathogenic microorganisms. Salt has increased. It was found that the level of Gardnerella vaginalis is 1.6 times higher than normal.

4. CONCLUSION

From the results obtained, it can be concluded that during treatment in these patients, a decrease in the number of indigenous microorganisms in the vagina, an extreme decrease in the number of lactobacilli, represented mainly by the main microbiocenosis, compared with the norm indicates that pro- or prebiotics should be recommended from the first day of treatment. Although the number of facultative

microorganisms decreased during treatment compared to the number before treatment, it remains at a high level compared to the normative indicators, which indicates the need for bacteriological examination of vaginal discharge and tests for antibiotic sensitivity in women with chronic brucellosis.

Thus, women with chronic infectious pathologies have a state of dysbiosis in the vaginal microbiocenosis, changes in this state lead to a decrease in their own microflora relative to the norm and, as a consequence, an increase in the percentage of opportunistic pathogens and a quantitative increase. This leads to a further exacerbation of inflammatory processes in the affected genitals of patients under the influence of other conditionally pathogenic microorganisms and negatively affects the effectiveness of therapeutic processes as secondary complications.

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Author Contributions Statement

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Aliev Shavkat Rozimatovich	✓	✓	✓	✓		✓		✓	✓	✓	✓			

C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

Conflict of Interest Statement

The authors declare that there are no conflicts of interest regarding the publication of this paper.

Informed Consent

All participants were informed about the purpose of the study, and their voluntary consent was obtained prior to data collection.

Ethical Approval

Not Applicable.

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

REFERENCES

[1] Купина А.Д., Петров Ю.А., Оздоева И.М. Кишечный и влагалищный микробиоценоз и его влияние на репродуктивное здоровье женщины. Доктор.Ру. 2021; 20(1): 73–77. DOI: 10.31550/1727-2378-2021-20-1-73-77

[2] Ляпина Е.П., Шульдяков А.А., Варшамов Л.А. Эпидемиологические особенности профессионального бруцеллеза в Саратовской области //Медицина труда и промышленная экология. – 2002. – №11. – 26-28 б.

[3] G. L. Hold, M. Smith, C. Grange, E. R. Watt, E. M. El-Omar, and I. Mukhopadhya, 'Role of the gut microbiota in inflammatory bowel disease pathogenesis: what have we learnt in the past 10 years?', World J. Gastroenterol., vol. 20, no. 5, pp. 1192-1210, Feb. 2014. doi.org/10.3748/wjg.v20.i5.1192

[4] M. A. Conlon and A. R. Bird, 'The impact of diet and lifestyle on gut microbiota and human health', Nutrients, vol. 7, no. 1, pp. 17-44, Dec. 2014. doi.org/10.3390/nu7010017

[5] A. Shiozaki et al., 'Intestinal microbiota is different in women with preterm birth: results from terminal restriction fragment length polymorphism analysis', PLoS One, vol. 9, no. 11, p. e111374, Nov. 2014. doi.org/10.1371/journal.pone.0111374

[6] Кунгурцева Е.А., Лещенко О.Я., Данусевич И.Н. и др. Микроэкология влагалища женщин с неспецифическими воспалительными заболеваниями гениталий и нарушениями репродуктивной функции. Бюллетень ВСНЦ СО РАМН. 2013; 2(2): 197-201.

[7] Игамбердиева С.Д., Ахмедова Х.Ю. Настоящие и возможные перспективы в диагностике бруцеллеза //Инфекция, иммунитет и фармакология. -2011. - №4-5. - 95-97 б.

[8] Попкова С.М., Ракова Е.Б., Храмова Е.Е. и др. Микроэкологические сочетания вагинального и кишечного биотопов у женщин с воспалительными заболеваниями нижнего этажа полового тракта и девочек-подростков с дисфункцией яичников. Бюллетень СО РАМН. 2013; 33(4): 77-83.

[9] Шаталов А.Е., Купина А.Д., Петров Ю.А. Стерильность женщин как следствие воспалительных заболеваний гениталий. Международный журнал прикладных и фундаментальных исследований. 2020; 2: 74-7.

[10] Ахмедова М.Д., Ахадова Г. Эффект Иммун-5 при хроническом бруцеллезе у женщин репродуктивного возраста //Умумий амалиёт доктори ахборотномаси. - 2006. - №1-2. - 43-44 б.

[11] Ахмедова М.Д., Магомедова С.А. Эндокардит у больного бруцеллезом //Клиническая медицина. - 2009. - №1. - 65-67 б.

[12] Валиев А.А., Касымов И.А., Азимов Ш.Р. Распространенность бруцеллезной инфекции у детей в республике Узбекистан //Педиатрия. - 2010. - №1-2. - 5-7 б.

[13] Игамбердиева С.Д., А.М-Т.Бектемиров, Ахмедова Х.Ю. Клинико-микробиологическая характеристика синдрома дисбактериоза кишечника у больных острым бруцеллезом //Ўзбекистон тиббиёт журнали. -2013. - №3. - 65-67 б.

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