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BIOCENOSIS OF THE VAGINA IN WOMEN WITH THYROID PATHOLOGY USING VARIOUS METHODS OF CONTRACEPTION

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Abstract:

Abstract. The target of the research is to study dynamically the state of microbiocenosis of the genital tract in healthy and thyroid women using various contraceptives. Healthy women enable a normal vaginal microbiocenosis than women with thyroid disease. There is a necessity to take into account of negative influence of the different types of contraception on microbiota of genital system of women with thyroid disease in reproductive age.
Material and Methods. The dynamics of urogenital tract microbiocenosis were investigated using the PCR technique.
Results. A substantially higher frequency of thyroid illness in healthy women than in women diagnosed with it characterizes the normal condition of vaginal microbiocenosis.
Conclusion. In addition to the use of various contraceptives by women of reproductive age, the diagnosis of thyroid disease should take into account the negative impact on the microflora of the genital tract.

Keywords: Contraceptives, urogenital system, vaginal microbiocenosis, dysbiosis, 16 packages of femoflor, Polymerase chain reaction (PCR) test

1 INTRODUCTION

The presence of bifidobacteria ensures the stability of the normal microflora. Since the normal microflora in the vagina is in the form of lactobacilli, which should not be less than 10^6-10^8 cloning unit/ ml, the presence of bifidobacteria maintains the stability of the normal microflora [1, 3, 6]. Lactobacilli normally release H_2O_2 when the vaginal pH is 3,8-4,5. The number of lactobacilli diminishes, the pH of the vaginal environment increases to 5-6 (alkaline environment), the facultative microflora grows, pathogenic strains develop, resulting in dysbiosis [2, 4, 5]. A rise in the facultative microflora (gardnerellas, candidiasis, anobium, etc.) from 10^3 cloning unit is one of the indicators of dysbiosis developing. A biofuel is created when Gardrenella and atopobiums multiply. A biomarker is a colony of bacteria that share genetic information with one another, resulting in antibiotic resistance [1, 3, 8].

In this day and age, a unique technology for assessing the microflora of the female urogenital tract has been proposed, which is based on the polymerase chain reaction (PCR) in real-time mode. This method simplifies and accelerates the process of determining the urogenital tract biocenosis compared to traditional methods [5, 7, 10]. This diagnostic method is the most sensitive and specialized method of today. To implement these methods, Femaflor test kits have been recommended for practice and have been successfully used abroad. Diagnostic criteria for bacterial vaginosis have been developed by analyzing vaginal mucus using the Femoflor-16 test kit [5, 7, 9]. The authors discovered a 10% drop in lactobacilli and a 10% rise in facultative flora representatives. Pursuant to their findings, the Femoflor-16 test has set criteria for 99 % sensitivity and 93 % specificity in confirming the diagnosis of bacterial vaginosis. Less than 10% lactobacilli, more than 1% G / vaginalis / P.bivia / Porphyromonas spp., and/or more than 2% Enbacterium spp., Sheathia / Leptospira / Fusobacterium as well as more than 1% and/or 0.2 percent of A. vagina were included in the proposed criteria by the researchers.

The objective of the research is to dynamically scrutinize the state of microbiocenosis of

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the genital tract in healthy and thyroid women using various contraceptives.

2 MATERIAL AND METHODS

Women of reproductive age who lived in the Khorezm area on a permanent basis were included in our study. They were divided into 2 groups of women with healthy and thyroid diseases, and urogenital tract microbiocenosis 16 against the background of the use of three types of contraceptives (intrauterine device (IUD), combined oral contraceptives (COC), injectable contraception and pure progestin contraception (IC, PPC)) by the PCR method, the dynamics were checked at baseline and after 12 months. In evaluating the results obtained, the following classification of biocenosis species were used [Dmitrieva T.T. and Khammual., 2016]:

- absolute normocenosis-normoflora 80-100% (relatively to the overall number of patients), Ureaplasma spp, Mycoplasma spp-less than 104 hectares/ml, Candida spp-103 hectares/ml;
- conditional normocenosis - 80-100% (relatively to the overall number of patients), normoflora, Ureaplasma spp, Mycoplasma spp- more than 104 hectoliters/ml, Candida spp- more than 103 hectoliters/ml;
- relative normocenosis - normoflora 80-100% (relatively to the overall number of patients), Ureaplasma spp, Mycoplasma spp, Candida spp occur at different levels relative to each other;
- moderate imbalance (aerobic, anaerobic or mixed dysbiosis) - normoflora 20-80% (relatively to the overall number of patients), increased number of anaerobes and/or aerobes relative to normal;
- apparent imbalance (aerobic, anaerobic or mixed dysbiosis) - normoflora up to 20%, the number of opportunistic microorganisms up to 80-100% (relatively to the overall number of patients).

3 RESULTS AND DISCUSSION

The results showed that the incidence of vaginal microbiocenosis in healthy women depended on the type of contraception (Table 1)

Table 1. Indicators of vaginal microbiocenosis in healthy women using various contraceptives, %

Levels of microbiocenosis state	1a group, n=11	1b group, n=14	1c group, n=9
Absolute normocoenosis	0	21,4±11,0	22,2±13,8
Conditional normocoenosis	9,1±8,7	21,4±11,0	22,2±13,8
Relative normocoenosis	45,4±15,0	14,3±9,3*	44,4±16,6
Moderate imbalance (conditional and relative anaerobic dysbiosis)	9,1±8,7	14,3±9,3	0
Apparent anaerobic dysbiosis	18,2±11,6	14,3±9,3	11,1±10,5
Mixed dysbiosis	18,2±11,6	14,3±9,3	0

Note: * - Conclusive difference relative to group 1a.

According to the research, no absolute normocenosis was detected in women who were using IUD (group 1a), while among patients using COC (group 1b), PPC and IC (group 1c), these values were close to each other (P>0.05) - 21.4 ± 11 versus 22.2 ± 13.8%, respectively.

In practice, similar results were observed for the percentage of conditional normocenosis (P = 0.05).

The occurrence rate of the relative level of normocenosis differed insignificantly from the previously reported parameters. While this rate was 45.4 ± 15.0% in group 1a, a significant difference was detected in group 1b (14.3 ± 9.3%, P < 0.05) and group 1c (33.4 ± 15.7%, P> 0.05). The analysis showed that the presence of contraceptives in the genital tract in women using IUD prevents the occurance of absolute and conditional normocenosis,

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as evidenced by the fact that in women using COC and PPC, IC these indicators occur in one out of four women.

We recognize that conditional, relative and apparent anaerobic dysbiosis as well as mixed dysbiosis yielded almost identical results. All indicators occurred in small percentages and did not differ significantly from each other. This means that contraceptives in healthy women, regardless of the type, had no negative effect on the state of the genital microflora. This was explained by the low percentage of dysbiotic symptoms in the vaginal microflora. Similar studies have been conducted in women diagnosed with thyroid disease. The results obtained are presented in Table 2.

Table 2. Status of vaginal microbiocenosis in women with thyroid disease using various contraceptives

Levels of microbiocenosis state	2a group, n=8	2b group, n=8	2c group, n=10
Absolute normocenosis	0	0	0
Conditional normocenosis	12,5±11,7	12,5±11,7	10,0±9,5
Relative normocenosis	12,5±11,7	0	30,0±14,5
Moderate imbalance (conditional and relative anaerobic dysbiosis)	0	37,5±17,1	30,0±14,5
Apparent anaerobic dysbiosis	25,0±15,3	37,5±17,1	20,0±12,6
Mixed dysbiosis	50,0±17,7	12,5±11,7	10,0±9,5

The results showed that no absolute normocenosis was found, regardless of the type of contraception used. The frequencies apparent anaerobic and mixed dysbiosis rates were substantially higher in 2a group from the remaining groups. However, when the indicators of all groups were compared with each other, there were no known patterns associated with the microbiocenosis status of different contraceptives.

4 CONCLUSIONS

1. The normative status of vaginal microbiocenosis is significantly higher in healthy women than in women diagnosed with thyroid disease. In healthy women using IUD, this parameter was 54.5%, while in sick women it was 25.0%.
2. The normative status of vaginal microbiocenosis in women using COC and PPC, IC is 57.1% and 50.0%; 88.8% and 40.0%, respectively;
3. In addition to the use of various contraceptives by women of reproductive age, the diagnosis of thyroid disease should take into account the negative impact on the microflora of the genital tract. Determination of vaginal microbiocenosis using Femaflor-16 was recommended as a criterion for determining the prospects of contraceptive effectiveness.

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