

# INNOVATIVE METHODS OF DIAGNOSIS AND TREATMENT IN WOMEN WITH INFERTILITY ASSOCIATED WITH UTERINE FIBROIDS

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## Abstract

The article presents innovative methods of diagnosis and treatment in women with infertility on the background of uterine fibroids.

**Target:** To assess the role of uterine fibroids immunocorrection factors in the formation of clinical variants of uterine fibroids to develop innovative methods of diagnosis and treatment in women with infertility against the background of reasonable differentiated corrective therapy.

**Materials and Methods:** Survey 2018-2022 was conducted. in the Bukhara region, 175 questionnaires of women with infectious and inflammatory diseases of the pelvic organs were analyzed. Of these, 140 (52.6%) had uterine fibroids of various shapes and locations. Of these, single uterine fibroids occurred in 32% of cases, and 68% - multiple uterine fibroids. We examined 85 women with clinical manifestations of uterine fibroids. 47 women with symptomatic uterine fibroids and infertility and 38 with asymptomatic uterine fibroids and infertility.

**Results:** The results of the study showed that the complex treatment of women with symptomatic uterine fibroids and uterine fibroids with the immunocorrective drug T-life after hormone therapy showed high efficiency, reproductive function was restored in 64.3% of women, which without immunocorrection uterine myoma was 48.1%. in women with asymptomatic uterine fibroids after hormone therapy, the inclusion of the drug Likopid had a positive clinical and immunocorrection effect on uterine myoma, reproductive function was restored in 60.0% of women, which was 44.4% without uterine myoma correction.

**Keywords:** uterine fibroids, hormone, cytokine.

## Introduction

Uterine fibroids are benign neoplasms that develop on the surface or inside muscle tissue [1-10]. The role of uterine fibroids in the development of infertility is still the subject of lively debate. Infertility, both primary and secondary, is not a rare occurrence in this pathology. At the same time, primary infertility in patients with uterine myoma is noted much more often than in the population - 18-24% of cases.

### The main symptoms of uterine fibroids include:

- failures in menstruation - abundant, prolonged (over 8 days),

- painful bleeding, with large blood clots;
- pain in the abdomen, radiating to the lower back;
- infertility, miscarriage due to hormonal abnormalities and deformation of the uterus;
- violations of the bladder and intestines with a strong growth of the tumor and squeezing neighboring organs.

Uterine fibroids affect 25–30% of women over 35 years of age, and in recent years the disease has been increasingly detected at a younger age [11-20]. The causes of uterine fibroids have not been definitively established. Uterine fibroids are the most common cause of abnormal uterine bleeding, infertility, recurrent pregnancy loss, and dysfunction of the pelvic organs [21-30]. These symptoms significantly impair a woman's quality of life [31-41].

The mechanisms of development and growth of this benign tumor have not been fully established and remain debatable [42-50]. Currently, the role of fibroids and disorders in the pathogenesis is being discussed steroids [51-67].

## The purpose of the study

To evaluate the role of uterine fibroids and immunological factors in the formation of clinical variants of uterine fibroids in order to develop innovative methods of diagnosis and treatment in women with infertility against the background of reasonable differentiated corrective therapy.

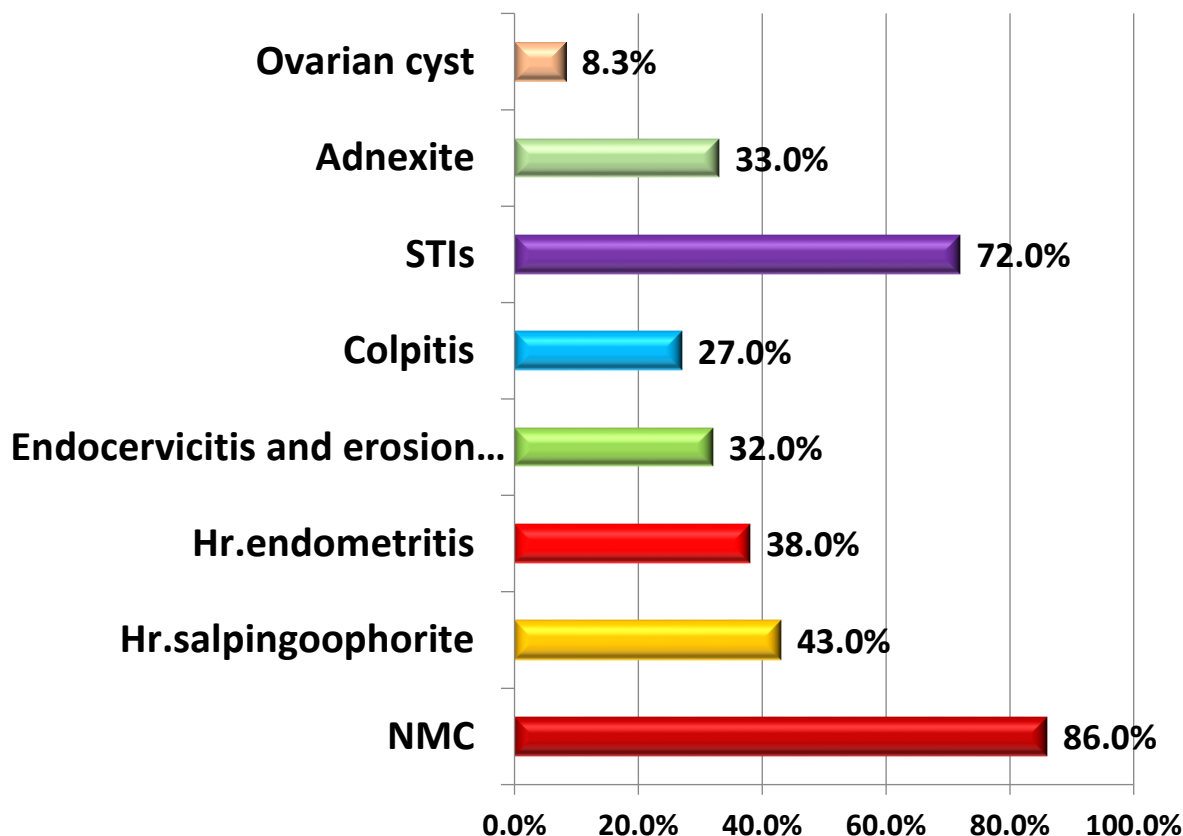
## Materials and research methods

To characterize the features of the clinical course of common forms of uterine fibroids in the Bukhara region To identify the features of the content of lymphocytes with an activation marker (CD25, CD71 and CD95) and to determine the level of serum production of pro- (IL-6, IL-8, IL-18, TNF $\alpha$ ) and anti-inflammatory cytokines (IL-10) in patients with uterine myoma and infertility. To study the effectiveness and immunocorrection of uterine myoma in the complex treatment of patients with uterine myoma and infertility. Clinical and anamnestic, Instrumental (ultrasound with Doppler). Laboratory - KLA, hormones - FSH, LH, prolactin, progesterone, estradiol, cortisol. Uterine fibroids immunological: Serum cytokines by ELISA (IL-2, IL-6, IL-18, MCP-1 and IL-4) Level of CD25, CD71, CD95 with monoclonal antibodies of the LT series.

## Research results

for the period 2018-2022. in the Bukhara region, 175 questionnaires of women with infectious and inflammatory diseases of the pelvic organs were analyzed. of these, 140 (52.6%) had uterine fibroids of various shapes and locations. Of these, single uterine fibroids occurred in 32% of cases, and 68% - multiple uterine fibroids. We examined 85 women with clinical manifestations of uterine fibroids. 47 women with symptomatic uterine fibroids and infertility and 38 with asymptomatic uterine fibroids and infertility. Clinical manifestations of symptomatic uterine fibroids were pain, bleeding and infertility. We divided women with asymptomatic uterine fibroids into 3 subgroups: uterine fibroids with stable small sizes and with large sizes and infertility.

## Gynecological history of examined women with uterine fibroids and infertility



An analysis of the gynecological history revealed a number of diseases: MC disorders, STIs \* sexually transmitted infections), chronic diseases of the pelvic organs.

Hormone levels in women with symptomatic uterine fibroids, (M±m)

Hormones	Control group	Symptomatic uterine fibroids		
		Menorrhagia	Pain	Infertility
FSH, uterine fibroids U/l	6,4 ± 0,8	10,8 ± 1,7*	8,5 ± 1,1	4,9 ± 1,2*
LH, uterine fibroids U/l	4,6 ± 0,8	3,7 ± 0,7	3,21 ± 2,0	9,7 ± 2,1*
Prolactin, uterine fibroids U/l	322,4 ± 9,4	407 ± 10,2	317 ± 10,3	785 ± 19,5*
Progesterone, nmol/l	2,85 ± 1,2	2,45 ± 1,1	4,6 ± 1,5	6,8±1,02*
Estradiol, pg/ml	23 ± 2,6	48,7 ± 2,1*	45,7 ± 2,0*	24,3 ± 2,4*
Cortisol, nmol/l	138 ± 8,1	241 ± 9,8*	201 ± 9,2	139 ± 8,5

Note: \*Values are significant in relation to the control group

(P<0.05 - 0.001)

analysis of the hormonal background of the examined women showed that in uterine myoma there are violations in the content of various hormones. FSH, prolactin, estradiol levels are elevated. Attention is drawn to a sharp increase in women with uterine fibroids with a symptom of infertility in the level of prolactin and progesterone. cortisol levels are elevated with bleeding.

hormone levels in women with asymptomatic uterine fibroids, (m±m)

Hormones	Control group	asymptomatic uterine fibroids	
		small forms of uterine fibroids	large forms of uterine fibroids
FSH, uterine fibroids U/l	6,4 ± 0,8	10,9 ± 0,9	13,7 ± 1,0*
LH, uterine fibroids U/l	4,6 ± 0,8	3,7 ± 0,7	2,1 ± 0,3*
Prolactin, uterine fibroids U/l	322,4 ± 9,4	319,9 ± 10,1	345,3 ± 13,0
Progesterone, nmol/l	2,85 ± 1,2	2,36 ± 1,1	2,25 ± 1,0
Estradiol, pg/ml	23 ± 2,6	43,6 ± 3,1*	48,3 ± 3,2*
Cortisol, nmol/l	138 ± 8,1	111,5 ± 7,4	141,5 ± 8,7

Note: \*Values are significant in relation to the control group

( $P < 0.05 - 0.001$ )

The next stage of our research was to study the level of lymphocytes with activation markers. As can be seen from the above data, the level of early activation (CD25) is increased in all women. However, the maximum increase was observed in women with infertility. The level of lymphocytes with the middle stage of activation (CD71) was the highest in pain syndromes and the lowest in bleeding. The study of the level of expression of CD95 molecules (the readiness of cells for apoptosis) showed that their decrease is observed in uterine myoma.

The study of the level of cytokines showed that with uterine myoma there is an increase in all pro-inflammatory cytokines. But the level of increase depended on the clinical condition of the examined women. The maximum level of IL-6 and tumor necrosis factor (TNF) was observed in women with infertility. During bleeding, the maximum value was observed for such cytokines as IL-8 and IL-18. At the same time, the level of the anti-inflammatory cytokine IL-10 was elevated in all women with uterine myoma.

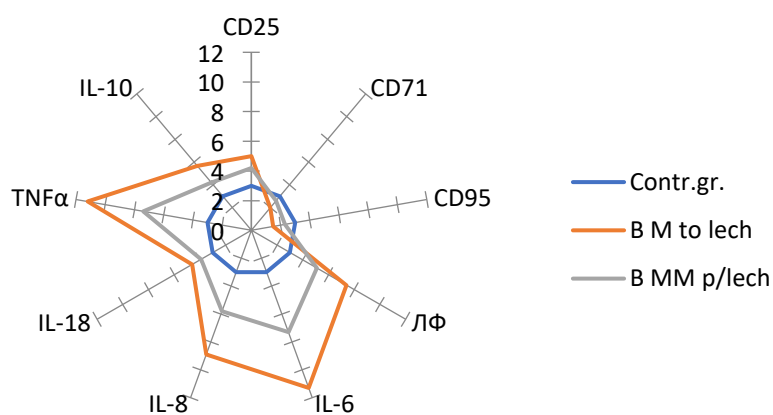
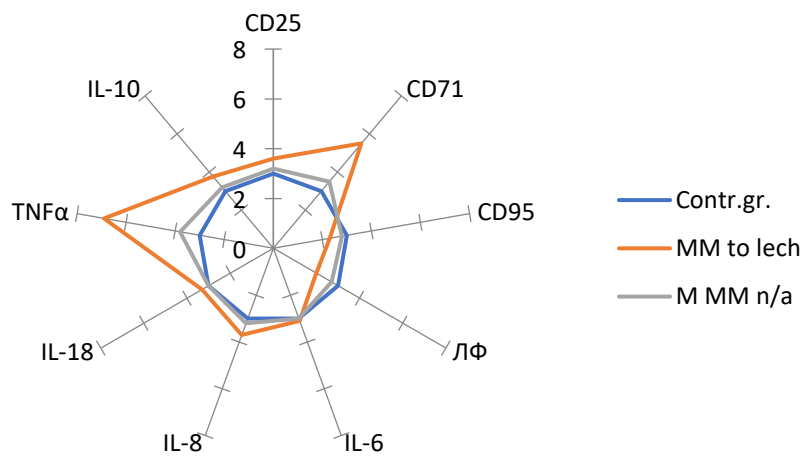
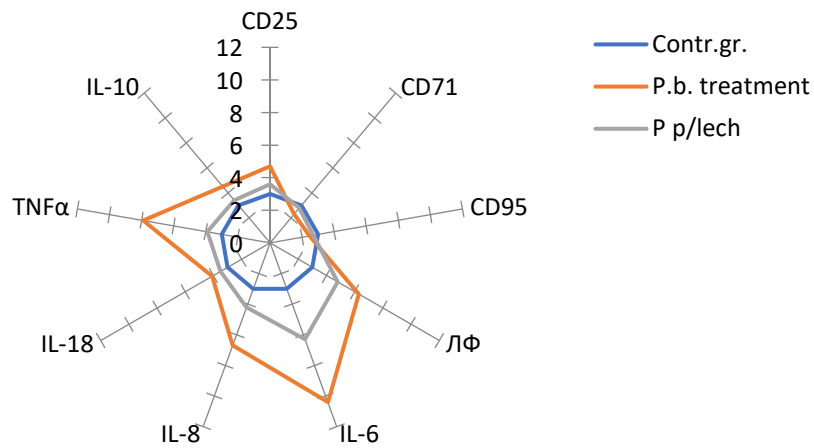
When studying the level of cytokines in women with asymptomatic uterine myoma, an increase in pro-inflammatory cytokines (IL8, IL-18, TNF) and anti-inflammatory cytokine IL-10 was revealed. But at large nodes, all increases were more significant. Attention is drawn to the increased level of IL-6 in women with large nodes, while with small nodes IL-6 at the level of control values. As you know, IL-6 has a receptor for progesterone. It is possible that the increase in IL-6 levels is associated with an increased level of progesterone.

### The scheme of treatment of uterine fibroids

- 13 women with meno-and/or metrorrhagia and anemia were treated as monotherapy for 3 months with a selective progesterone receptor modulator - ulipristal acetate 5 mg.
- 15 women with pain symptoms were prescribed LNG-IUD during antianemic (what) therapy
- 19 women with infertility were prescribed AGN-RH (gonadotropin releasing hormone agonists) to reduce the size of fibroids and followed by oral progestogens in a cyclic regimen.
- 28 women with asymptomatic small uterine fibroids were prescribed Novinet in a cyclic regimen for contraception and treatment

10 women with large nodules were prescribed Ulipristal acetate 5mg for 3 months

**Dynamics and uterine fibroids of immunological parameters in women with symptomatic uterine myoma and infertility**



**Conclusions:**

Complex treatment of women with symptomatic uterine fibroids with the inclusion of uterine fibroids and the immunocorrective drug T-life after hormone therapy showed high efficiency, reproductive function was restored

in 64.3% of women, which without uterine myoma immunocorrection was 48.1%. In women with asymptomatic uterine fibroids after hormonal therapy, the inclusion of the Likopid drug had a positive clinical and immunological effect on uterine myoma, reproductive function was restored in 60.0% of women, which without uterine fibroids and immunocorrection was 44.4%.

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