

Possibilities of hormonal imbalance correction by naturopathic medicines

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Summary: The article presents the results of application the phytocomposition Femicycle for menstrual disorders in patients with functional ovarian cysts. Femicycle could be recommended both in schemes of hormonal imbalance treatment in presence of functional ovarian cysts and for the prevention of cysts recurrence.

Keywords: menstrual disorders, functional ovarian cysts, Femicycle.

Based on numerous scientific advances, the modern gynaecological practice has a wide range of drugs for the treatment of menstrual disorders (MD). Today, the main trend in the treatment of such conditions is as follows:

- to prescribe as few drugs as possible with the optimal results achievement;
- to ensure a long-term effect;
- to avoid the disease recurrence.

According to medical statistics, about 80% of women suffer from various hormonal disorders [1-3].

The most common causes of hormonal imbalance in women are chronic stress, long-term use of combined oral contraceptives, uncontrolled use of emergency contraception, diseases of the endocrine system (e.g. thyroid pathology, diabetes mellitus), the consequences of abortion and other. Sex hormone imbalance is a leading link in the pathogenesis of diseases such as menstrual disorders, fibrocystic mastopathy, endometriosis, endometrial hyperplasia, functional ovarian cysts, polycystic ovary syndrome, and many others [1, 3, 7, 14].

Functional ovarian cysts are benign retention tumours formed from the natural structures of the ovary – follicle or corpus luteum. Ovarian follicular cyst is formed from a persistent mature or immature follicle due to inadequate gonadotropic stimulation of the ovaries or compaction of the ovarian membrane and the ovulation process difficulty against the background of the inflammatory process [1]. Continued functioning of granulosa cells causes further growth of the follicle due to estrogen-active fluid accumulation and its transformation into a follicular cyst.

Clinical manifestations of follicular cysts include menstrual irregularities, polymenorrhea, and pain in the lower abdomen when the formation size increases – increased pain with anus pressure feeling [1-3].

Cysts of the corpus luteum occur in biphasic menstrual circle in women aged 16 to 40 years. It is a thick-walled formation, 5-7 cm in size, lined with lutein and luteinized theca cells with an inner folded surface of yellow colour and dark yellow transparent or haemorrhagic content. Lutein cyst is a hormone-producing one and it synthesizes all types of steroid hormones, mainly progesterone. The reason for the formation of corpus luteum cysts may be inadequate production of gonadotropic hormones in the second phase of menstrual circle, in particular luteinizing hormone (LH). Prolonged exposure to LH on the corpus luteum leads to prolongation of its functioning, enlargement and cyst formation. Clinical manifestations of corpus luteum cysts may be a menstrual circle prolongation, polymenorrhea, abnormal uterine bleeding due to uneven rejection of the endometrium [1-3]. In the presence of functional cysts, the following changes in the concentration of hormones can be observed:

- in follicular cysts, the levels of follicle-stimulating hormone (FSH), estradiol and antimullerian hormone are usually increased, but LH and testosterone levels are normal;
- in luteal cysts, the levels of LH and testosterone are increased, but FSH and estradiol are usually normal [1, 14].

The functional ovarian cysts are accompanied by menstrual disorders, chronic pain, neurosomatic disorders (depressive syndrome, chronic fatigue syndrome, weight change, dyspareunia, low libido). In treatment regimens, it is therefore advisable to use remedies that have a comprehensive effect on the normalization of all the above pathological conditions [1, 4].

The use of phytoextracts (phytocompositions) in gynecological practice is of particular interest. The phytoextracts are the embodiment of many years of experience in effective treatment in complex therapy schemes. The use of phytocompositions should be longer compared to traditional therapy, but it is characterized by a milder effect and minimal risk of adverse effects [4]. As part of the complex therapy of functional ovarian cysts on the background of hormonal imbalance, you can consider the use of the phytocomposition Femicycle (manufactured by Ananta Medicare).

One capsule of Femicycle contains: *Symplocos racemosa* extract - 125 mg, *Asparagus racemosus* extract - 100 mg, *Saraca indica* extract - 100 mg, *Glycyrrhiza glabra* extract - 50 mg, *Curcuma longa* extract - 40 mg.

Symplocos racemosa extract contains a large amount of phenolic glycosides and flavonoids. The studies by M. Jung et al. (2015) [9] have been found that isoflavone glycoside pesidobatigenin-7-O-[β -D-apiofuranosyl], namely simpracemoside, restores the normal functioning of the axis “pituitary – hypothalamus – ovaries”, i.e. it has the ability to normalize the levels of FSH and LH, and to maintain the ratio of estrogen and progesterone in the serum. The pronounced antiandrogenic effect of simplocos extract is evidenced by the results of the study by P. M. Sandeep et al. [14]. Thus, the analysis of modern pharmacognostic and pharmacological studies confirms the normalizing effect of simplocos on the hypothalamic-pituitary-ovarian system, and its hemostatic, pronounced anti-inflammatory, antibacterial, antitumor, antioxidant and hepatoprotective activity as well [5, 9, 14].

Asparagus racemosus extract. As determined in the study by P. L. Srivastava et al. (2018) [15], the main active substances of *Asparagus racemosus* extract are Shatavarin I, IV, and V (steroidal saponins), quercetin-3-O-rutinoside, quercetin-3-O-galactoside, quercetin-3-glucuronide, and 13 monoterpenoids. These substances normalize hormonal imbalance primarily by restoring the ratio of FSH-LH, and have effect on the progesterone synthesis in the ovaries. Also, they are involved in the biotransformation process of estrogens, stimulating the conversion of estradiol to low-activity estrone [12].

Asparagus extract exhibits spasmolytic, immunomodulatory, and antitumor effects, and possesses detoxifying, anti-stress, antioxidant, anti-inflammatory, and antibacterial properties by inhibiting pro-inflammatory cytokines (Plangsombat N. et al., 2016) [13].

Glycyrrhiza glabra extract is the most studied part of the phyto-composition, specifically the extract of licorice root (*Glycyrrhiza glabra*). It has been established that licorice roots contain triterpenoid saponins (8-24%), flavonoids (3-4%), pectin substances, and others. Triterpenoid saponins include glycyrrhizinic, glycyrrhetic, and uralenic acids, as well as their methyl ethers and glucuronides. Due to the significant hypolipidemic action of licorice triterpenoids, its extract is effective in the therapy of metabolic syndrome and obesity [6, 14]. The biologically active substances glycestrin and isoliquiritigenin increase the level of estrogens, which is important in cases of menstrual cycle disorders. Isoflavones and isoliquiritigenin have different degrees of agonism towards estrogen receptors in tissues, which manifests in high antagonism to estradiol and a pronounced anti-proliferative, anti-tumor effect [6, 11]. The study also shows the antispasmodic and calming effects of licorice components [8, 11].

Saraca indica extract contains tannin, catechol, phytosterols, and organic calcium compounds. The biologically active substances of *Saraca indica* stimulate estrogen secretion, promote endometrial regeneration, and possess pronounced anti-inflammatory and antispasmodic properties. As a result, the disturbed menstrual cycle is restored, and the pain syndrome in dysmenorrhea is reduced. *Saraca indica* is characterized by a wide range of antibacterial activity against several pathogenic bacteria [7]. Procyanidin, which is part of *Saraca indica*, has a pronounced antioxidant effect that, according to some data, exceeds that of ascorbic acid and vitamin E [7, 14].

Curcuma longa extract has a pronounced anti-inflammatory effect, which can be compared to the effect of hydrocortisone, associated with its ability to suppress prostaglandin biosynthesis with arachidonic acid and activate neutrophil function in inflammatory processes [4, 7]. *Curcuma longa* extract has an antitumor effect. Curcumin, which is part of it, suppresses carcinogenesis at all stages - tumor formation, angiogenesis, and growth. It is believed that this effect of curcumin is due to its direct antioxidant action, which is achieved by reducing the formation of reactive oxygen species. In addition, curcuma has antimicrobial and antifungal effects, as well as hepatoprotective action, comparable in strength to the action of silymarin. The use of curcuma has been registered to significantly improve the lipid profile of blood, as well as to lower the level of low-density lipoprotein cholesterol and increase the level of high-density lipoprotein cholesterol, leading to the normalization of their ratio [2, 6, 16].

Considering the multifaceted action of the phyto-composition on various links of the pathogenesis of menstrual cycle disorders in patients with functional ovarian cysts, Femicycle can be recommended for the comprehensive therapy of these pathological conditions.

The goal of the study is to improve the effectiveness of treating menstrual cycle disorders in women with functional ovarian cysts and prevent the recurrence of hormonal imbalances by incorporating the phytocomposition Femicycle into the treatment regimens.

Materials and research methods:

The study included 34 female patients aged 18-45 years (mean age: 34 ± 2.1 years) with functional ovarian cysts and menstrual cycle disorders.

Inclusion criteria: presence of functional ovarian cysts and menstrual dysfunction.

Exclusion criteria: presence of endometrioid or dermoid ovarian cysts.

The accompanying gynecological pathology diagnosed in the patients of the study group included adenomyosis in 18 women (52.9%), uterine fibroids in 11 women (32.4%), cervical pathology in 19 women (55.8%), gynecological surgeries in the medical history in 9 women (26.5%), mastopathy in 10 women (32.4%), and polycystic ovary syndrome in 3 women (8.8%). Somatic diseases included thyroid pathology in 5 women (14.7%).

All patients in the study group underwent a comprehensive gynecological examination, including transvaginal ultrasound to verify ovarian cysts and cytological examination with colposcopy. Follow-up ultrasound examinations were performed at 3 and 6 months after the start of treatment. Hormonal assessment of patients included measuring levels of FSH, LH, testosterone, and prolactin at the beginning of the study and at 3 and 6 months after the start of treatment. Table 1 presents the complaints of patients in the study group.

Table 1. List of symptoms in women with functional ovarian cysts

Symptoms	Quantity (abs.%)
Menstrual circle disorder	34 (100)
Pain sensations of varying intensity	20 (58.8)
Dyspareunia	11 (32.4)
Mastalgia	14 (41.2)
Pathological discharge from the genital tract	8 (23.5)
Mood swings (depression)	10 (29.5)
Weight fluctuations	10 (29.5)

The menstrual cycle disorder manifested as an elongation of their duration to 35-58 days in 24 women (70.5%), and intermenstrual bloody discharge occurred in 10 women (29.5%). Unilateral ovarian cysts ranging in size from 32 to 50 mm were detected during the ultrasound examination.

All patients with functional cysts received symptomatic treatment based on their complaints and clinical manifestations, which included spasmolytic agents, nonsteroidal anti-inflammatory drugs, and vaginal suppositories with a complex antibacterial and anti-inflammatory effect. This treatment was administered for a period of 10-14 days. Additionally, the therapy regimen included the intake of the phyto-composition Femicycle, one tablet twice daily for six menstrual cycles.

Research results and discussion

During control examinations in patients using the treatment regimen with the phyto-composition Femicycle, a significant subjective improvement in the condition was observed (Table 2).

Table 2. Dynamics of symptoms in patients of the study group during treatment

Symptoms	Quantity (abs.%)	
	3 months after treatment	6 months after treatment
Menstrual circle disorder	10 (29.5)	0
Pain sensations	7 (35)	2 (10)*
Dyspareunia	6 (54.5)	2 (18)*
Mastalgia	9 (64.2)	1 (7.1)**

Notes:

* Residual pain and dyspareunia, which persisted after 6 months of treatment, are associated with concomitant adenomyosis and adhesions resulting from gynecological surgeries in the medical history.

** Mastalgia, associated with fibrocystic mastopathy against the background of thyroid gland pathology after 6 months of treatment.

After 3 months of comprehensive treatment using the phyto-composition Femicycle, the absence of ovarian cysts was diagnosed in 28 patients (82.3%); existing but regressing cysts were found in 4 patients (11.8%).

In 2 women (5.9%), the cyst sizes were found to be preserved, and hormonal treatment was prescribed for them. After 6 months of therapy, no functional cysts were detected in the patients of the study group based on the results of follow-up ultrasound examinations.

Hormonal examination before the start of treatment indicated an increase in the level of FSH in 24 patients (70.5%), estradiol in 28 patients (82.4%), LH in 10 patients (29.4%), prolactin in 17 patients (50%), and testosterone in 5 patients (14.7%).

The data on hormonal status in the patients of the study group after 3 and 6 months of therapy for menstrual cycle disorders using the phyto-composition Femicycle are presented in Table 3.

Table 3. Parameters of hormonal status in the examined patients during treatment

Parameter	Quantity (abs.%)			
	3 months after treatment		6 months after treatment	
	Increased	Normal	Increased	Normal
FSH	11 (32.3)	23 (67.7)	2 (5.9)	32 (94.1)
LH	2 (5.9)	32 (94.1)	0	34 (100)
Estradiol	9 (26.5)	25(73.5)	2 (5.9)	32 (94.1)
Prolactin	5 (14.7)*	29 (85.3)	1 (2.9)*	33 (97)
Testosterone	4 (11.8)**	30 (88.2)	3 (8.8)**	31 (91.2)

Notes:

* Increased prolactin levels associated with fibrocystic mastopathy against the background of thyroid pathology;

** Increased testosterone levels associated with concomitant polycystic ovary syndrome.

During the therapy process, which involved administering the phyto-composition Femicycle, significant reductions in subjective manifestations of hormonal imbalance were observed in relation to functional ovarian cysts. These reductions included normalized menstrual cycles, disappearance of pain syndrome, and normalization of hormonal indicators in the “hypothalamus – pituitary gland – ovaries” system. Additionally, regression or elimination of ovarian cysts occurred, and there was no disease recurrence during the observation period.

Conclusions:

The use of the phyto-composition Femicycle as part of hormonal imbalance therapy in patients with functional ovarian cysts contributes to the regression or elimination of cysts and also allows for the normalization of menstrual cycle and levels of sex hormones.

Due to its multifaceted impact on all aspects of hormonal balance regulation, Femicycle can be recommended for long-term use to prevent the recurrence of functional cysts, particularly in patients who have contraindications to hormonal therapy.

References

1. Герасимова Т. В. Оптимізація діагностики та лікування функціональних кіст яєчників // Ре-продуктивна ендокринологія, № 5 (25), с. 14-20. doi: 10.18370/2309-4117.2015.25.14-20.
2. Подзолкова Н. Н., Глазкова О. Л. Исследование гормонального статуса женщины в практике гинеколога. – М.: МЕДпресс-Информ. – 2004. – 80 с.
3. Серов В. Н., Прилепская В. Н., Овсянникова Т.В. Гинекологическая эндокринология. – М.: МЕДпресс-Информ. – 2008. – 528 с.
4. Фітотерапія в Україні [Текст] // Наук.-практ. журн. Мед. ін-т Укр. асоц. нар. медицини. – 2011. – № 2.
5. Acharya N., Acharya S., Shah U., Shah R., Hingorani L. A comprehensive analysis on *Symplocos racemosa* Roxb.: Traditional uses, botany, phytochemistry and pharmacological activities // J Ethnopharmacol. 2016 Apr 2;181:236-51. doi: 10.1016/j.jep.2016.01.043.

6. Birari R. B., Gupta S., Mohan C. G., Bhutani K. K. Antiobesity and lipid lowering effects of Glycyrrhiza chalcones: Experimental and computational studies. *Phytomedicine*. 2011 Jun 15;18(8-9):795-801. doi: 10.1016/j.phymed.2011.01.002.
7. Hollander F. M., de Roos N. M., Heijerman H. G. The optimal approach to nutrition and cystic fibrosis: latest evidence and recommendations // *Curr Opin Pulm Med*. 2017 Nov;23(6):556-561. doi: 10.1097/MCP.0000000000000430.
8. Jiang Y. X., Dai Y. Y., Pan Y. F. et al. Total Flavonoids from Radix Glycyrrhiza Exert Anti-Inflammatory and Antitumorigenic Effects by Inactivating iNOS Signaling Pathways // *Evid Based Complement Alternat Med*. 2018 May 22;2018:6714282. doi: 10.1155/2018/6714282.
9. Jung M., Choi J., Chae H. S. et al. Flavonoids from *Symplocos racemosa*. *Molecules*.2015;20(1):358-365. doi: 10.3390/molecules20010358.
10. Karuna D. S., Dey P., Das S., Kundu A., Bhakta T. In vitro antioxidant activities of root extract of *Asparagus racemosus* Linn // *J Tradit Complement Med*. 2017 Mar 9;8(1):60-65. doi:10.1016/j.jtcme.2017.02.004.
11. Li X., Chen W., Chen D. Protective effect against hydroxyl-induced DNA damage and antioxidant activity of radix *Glycyrrhizae* (liquorice root) // *Adv Pharm Bull*. 2013;3(1):167-73. doi: 10.5681/apb.2013.028.
12. Pandey A. K., Gupta A., Tiwari M. et al. Impact of stress on female reproductive health disorders: Possible beneficial effects of shatavari (*Asparagus racemosus*). *Biomed Pharmacother*. 2018 Jul;103:46-49. doi: 10.1016/j.biopha.2018.04.003.
13. Plangsombat N, Rungsardthong K, Kongkaneramt L, Waranuch N, Sarisuta N. Anti-inflammatory activity of liposomes of *Asparagus racemosus* root extracts prepared by various methods. // *Exp Ther Med*. 2016 Oct;12(4):2790-2796. doi: 10.3892/etm.2016.3661.
14. Sandeep P. M., Bovee T. F., Sreejith K. Anti-androgenic Activity of *Nardostachys jatamansi* DC and *Tribulus terrestris* L. and Their Beneficial Effects on Polycystic Ovary Syndrome-Induced Rat Models. // *Metab Syndr Relat Disord*. 2015 Aug;13(6):248-54. doi: 10.1089/met.2014.0136.
15. Srivastava P. L., Shukla A., Kalunke R. M. Comprehensive metabolic and transcriptomic profiling of various tissues provide insights for saponin biosynthesis in the medicinally important *Asparagus racemosus*.// *Sci Rep*. 2018 Jun 14;8(1):9098. doi: 10.1038/s41598-018-27440-y.
16. Tranchida F., Shintu L., Rakotoniaina Z. et al. Metabolomic and Lipidomic Analysis of Serum Samples following *Curcuma longa* Extract Supplementation in High-Fructose and Saturated Fat Fed Rats // *PLoS One*. 2015 Aug 19;10(8): e0135948. doi: 10.1371/journal.pone.0135948.

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1. Sukhanova A.A. "FEMICYCLE - AN EFFECTIVE AND SAFE SOLUTION TO MENURAL DISORDERS", 2018. 2. Leaflet for the food supplement Femicycle.

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