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EFFECTIVENESS OF PHYTOCOMPLEX "ADRIUS" IN THE RESTORATION OF CLINICAL AND LABORATORY PARAMETERS IN PATIENTS WITH CHRONIC NONBACTERIAL PROSTATITIS AND ERECTILE DYSFUNCTION

Introduction. Chronic prostatitis (CP) is one of the first in terms of prevalence among male diseases [1-3]. It is associated with sexual dysfunction in 7-36% of patients [4].

The problem of CP and erectile dysfunction (ED) lies not only in the wide prevalence, but also in the low efficiency and high cost of treatment methods. One of the main reasons for the chronization of the prostate gland inflammatory process (PG) is hemodynamic impairment, and CP develops regardless of the presence or absence of infection [5, 6]. For the same reason, secretory, incremental and motor functions, and the prostate gland metabolic processes are sharply reduced, [7, 8]. Disturbance of blood supply and drainage of prostatic acini causes the increased volume of the prostate gland and aggravates stasis in the microcirculatory bed causing oedema, exudation and migration of form elements through the vascular wall [9]. Impaired microcirculation in chronic prostatitis is accompanied by venous congestion, haemorrhagic shifts, contributing to the growth of hypoxia and ischemia of the genital organ tissues. Tissue hypoxia, in turn, activates the processes of free radical oxidation of proteins and lipids with the formation of highly toxic membrane-damaging products in the prostate gland [10]. An important link in the pathogenesis of arteriogenic ED is endothelial dysfunction, developing in the vessels, including the cavernous arteries [11]. Central mechanisms of vascular regulation also play a significant role in the pathogenesis of CP and ED [12, 13].

In this regard, when treating patients with CP and ED, there is a need to use pathogenetic agents, which improve blood flow in the genital organs, and have antihypoxic, antioxidant and neuroprotective effects.

Considering the above, the phytocomplex “ADRIUS” deserves special consideration. Adrius is intended for the normalization of male sexual function and is used to eliminate dysfunctional disorders of the reproductive sphere.

The active ingredients of Adrius are represented by the following extracts: of Withania somnifera root and leaf extract - 100 mg; Mucuna pruriens fruit extract - 90 mg; Asparagus adscendens root extract - 80 mg; Tribulus terrestris fruit extract - 250 mg; Yohimbine HCl USP - 2.5 mg; Apilac (Royal jelly) - 10 mg. *Excipients:* talc, sodium benzoate.

Adrius is produced in gelatine capsules. The action of Adrius is due to its unique chemical composition.

Withania somnifera root and leaf extract. Withania is known as one of the most active aphrodisiacs. Withania enhances the synthesis of testosterone and improves spermatogenesis, namely increases the number of spermatozoa and their motility. It exhibits pronounced anti-stress properties by eliminating the psychogenic causes of sexual dysfunction. In addition, the plant has anti-inflammatory, antioxidant, immunostimulating and chondroprotective properties. Due to its antiproliferative action, Withania prevents the development of hyperplastic processes in the prostate gland.

Mucuna pruriens fruit extract enhances libido, decreases spermatorrhea, improves sperm production and quality, and acts as a general tonic and tonic for erectile dysfunction. In addition, the plant has a positive effect on other organs and systems of the body due to antioxidant, antidiabetic, anticholestepinemic, antidepressant and anti-inflammatory properties.

Asparagus adscendens root extract is used as an aphrodisiac and for various erectile problems, such as weak erection, premature ejaculation and loss of libido. In addition, asparagus has pronounced adaptogenic and restorative properties.

Tribulus terrestris fruit extract has a general tonic effect; increases sex drive and testosterone levels; improves the functioning of the urinary system. The extract has a stimulating effect on erectile function and spermatogenesis. In addition, the extract exhibits antibacterial, anti-inflammatory, anticholesterinemic, antihypertensive and diuretic effects.

Yohimbine hydrochloride is an alkaloid derived from the bark of Corynanthe Yohimbe tree, which grows in West Africa. It is effective for erectile dysfunction. There has been established that yohimbine normalizes sexual function and the ability to intercourse, weakened as a result of stress.

Apilac, or the so-called royal jelly, is a secret produced by working bees and is intended for feeding queen bees. Royal jelly has a rich chemical composition: proteins, amino acids, polyunsaturated fatty acids, enzymes, vitamins, carbohydrates and minerals. The effect of royal jelly on sexual function is characterized by an increase in libido, an increase in testosterone levels and the activity of spermatozoa. In addition, royal jelly has a general tonic effect; increases the body's resistance to stress; stimulates metabolism. An important effect is the decreased blood cholesterol

levels and the improved cardiovascular system condition in atherosclerosis.

Adrius is used for erectile dysfunction (impotence); prostate adenoma (adjunctive treatment); prostate (adjunctive treatment); male infertility (adjuvant treatment).

The purpose of study was an assessment of the effectiveness of using Adrius in the complex treatment of patients with chronic nonbacterial prostatitis associated with ED.

Materials and methods.

The study involved 30 men with chronic nonbacterial prostatitis associated with ED, aged 23 to 61 years (on average 32.6 + 1.2 years). The duration of chronic prostatitis ranged from 6 months up to 9 years (on average 4.5 + 1.1 years), ED - from 6 months up to 7 years (on average 4.1 ± 0.7 years).

All patients signed an informed consent for diagnostic manipulations and medical procedures. CP and ED have been diagnosed on the basis of generally accepted criteria.

The study did not include patients with uncompensated forms of endocrine, cardiovascular and mental diseases, malignant tumours, and benign prostatic hypertrophy with indications for surgical and instrumental treatment.

The patients were randomized into 2 groups of 15 people each. The patients of the comparison group underwent basic therapy: a1-adrenergic blockers - for 1 month, nonspecific anti-inflammatory drugs - 14 days, finger prostate and vacuum phallus stimulation - 10 sessions each. Based on the possible efficacy for pelvic pain in patients with chronic nonbacterial prostatitis, antibiotics have been used for 10 days [18].

In addition to the above treatment the patients of the main group were treated with Adrius at the following dosage: 1 capsule twice a day for 30 days.

Clinical laboratory and instrumental monitoring of the effectiveness of the therapy was carried out before the treatment and monitoring on subjective and objective criteria using a questionnaire on the system of summarized assessment of symptoms in chronic prostatitis (SOS-CP) (O.B. Loran, A.S. Segal; 2001), survey on male copulative function scale (MCF) (O. B. Lauren, A. S. Segal; 1998); microscopy of the prostate gland secretion, transsectal ultrasound (TRUS), and vacuum phalotest (A. P. Guskov, 2003) were carried out on the 30th day of the study.

Concentrations of prolactin, luteinizing (LH), follicle-stimulating (FSH) hormones, estradiol, testosterone, dehydroepiandrosterone (DHEA-S), sex hormone-binding globulin (SHBG), were determined in blood plasma by the enzyme immunoassay.

The obtained data have been subjected to statistical processing.

Results.

Patients of both groups have shown a positive dynamics. However, in terms of the severity of pain and dysuria (Fig. 3), and the quality of life of patients of the main group, the positive dynamics was more significant (Fig. 1).

Table 1.

Laboratory and instrumental parameters of patients with chronic nonbacterial prostatitis associated with ED, before and after treatment

Parameters	Main group (n=15)		Comparison group (n=15)	
	Before treatment	After treatment	Before treatment	After treatment
More than 10 leukocytes in field of view in the prostate gland secretion	10 (66.7)	2 (13.3)	9 (60.0)	3 (20.0)
The presence of inflammatory infiltration according to ultrasound data	9 (63)	5 (33.3)	10 (66.7)	6 (43.3)
The emergence of a rigid phase of erection, which lasts for 2-3 minutes with vacuum-phallostimulation	2 (13.3)	11 (73.3)*	3 (16.7)	5 (33.3)
Note. Percentage is indicated in brackets; * *p<0,05.*				

Thus, the average score on SOS-CP scale for these criteria after treatment in the group of patients treated with Adrius was lower than in the comparison group, 1.6; 1.5 and 1.4 times, respectively ($p < 0.05$; Fig. 1).

The average score on MCF scale on the 30th day of the study in the main group was 2.1 times higher than in the comparison group (Fig. 2).

The dynamics of objective criteria of the inflammatory process in the prostate gland was also more pronounced when using Adrius (see Table 1.).

After the treatment, the rigid phase of erection during the vacuum phalotest occurred within 2-3 minutes from the start in 11 (73.3%) patients of the main group and in 5 (33%) patients where basic therapy was only used (see Table 1).

Table 2

Effect of Adrius on the duration of erection phases in CP patients with ED

Parameters	Before treatment	After treatment	Healthy ones
Time of tumescence onset, min	15.4±0.7	7.5±0.4*	7.2±0.6
Duration of tumescence, min	5.4+0.5	4.3+0.3*	3.8+0.4
Time of erection rigidity onset, min	15.1±0.8	8.7+0.4*	8.3+0.7
Duration of erection, min	8.4±1.1	63.3±6.8	92.6±10.3
Duration of detumescence, min	43.6±2.8	84.7±7.4	98.5±7.4

The parameters of erection phases have shown that in the group treated with Adrius the time of onset and duration of tumescence, and the time of onset of erection rigidity decreased by 51.3, 20.4 and 42.4%, respectively, compared to the parameters before treatment with reaching the norm. The duration of erection and detumescence increased by 753.6 and 48.5%, respectively, compared to the initial values, without reaching the norm (Table 2), however, the normalization of the parameters of the ejection phases occurred in 10 (62.5%) patients with CP.

Due to Adrius effect, the score for the damage to the clinical and functional state of the neurohumoral component decreased by 2.2 times, the psychological - by 2.5, the erection - by 2.6, and the ejaculatory - by 2.6 times compared to the parameters before treatment (Table 3) with reaching the normal values in 9 (60%) patients

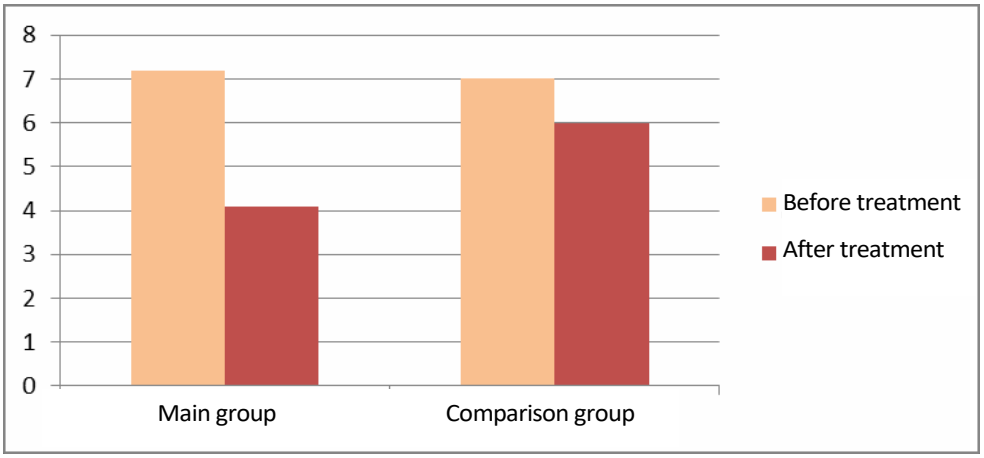

Fig. 3. Dynamics of the algodizuric syndrome in the main group and the comparison group before and after treatment

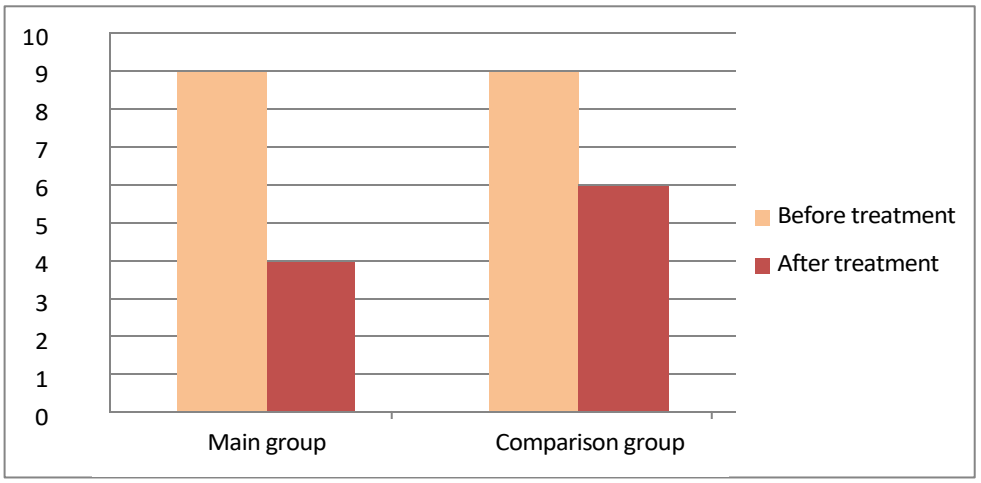

Fig. 1 Dynamics of the quality of life parameter in the studied groups according to SOS-HP scale (in points).

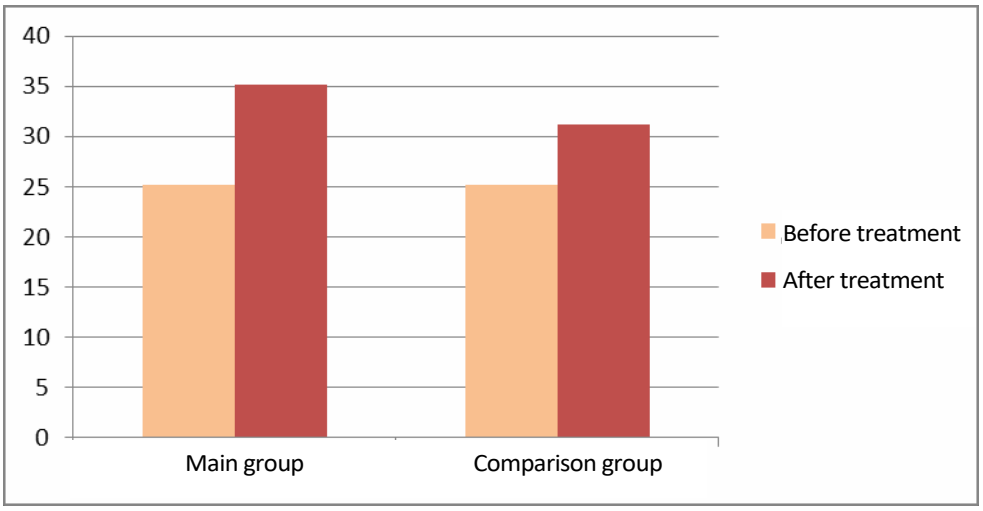

Fig. 2. Dynamics of the general parameter of total of points on MCF scale in the studied groups.

Table 3

Clinical and functional assessment (in points) of the components of the copulatory cycle in CP patients with ED without and with Adrius therapy

Component	Before treatment	After treatment	Health
Neurohumoral	13.6±1.2	6.2±1.3*	4.3 ±0.4
Physic	14.2±1.3	5.7±1.4*	2.9±0.5
Erectile	16.3±1.1	6.2±1.1*	3.6±0.4
Ejaculatory	16.5±1.2	6.4±1.2*	5.6±0.3

Ejaculation is a natural contraction of the prostate gland, which mechanically empties and sanitizes the system of its flows. This suggestion is confirmed by numerous publications concerning the efficacy of CP treatment using frequent ejaculation [8].

After the course of Adrius, the concentration of FSH in blood decreased by 6.6%, LH - by 1.0, prolactin - by 12.2, estradiol - by 6.0, DHEA-S - by 15.6%, SHBG - by 21.4, progesterone - by 22.3%, the testosterone level increased by 16.7% compared to the parameters before treatment (Table 4). In addition, the functional activity of the pituitary-adrenal-testicular system was normalized in 9 (60%) patients.

It is known that impaired circulation in the prostate gland significantly affects the duration of the course and the results of CP treatment [18, 19, 20]. By slowing down the blood flow, the aggregation of blood form elements increases and the prostate gland tissues swell. As a result the intraginal microcirculation aggravates [19].

The significant positive effect, obtained as a result of treatment, is apparently due to the fact that Adrius, having a prostatropic effect, helps to reduce oedema, leukocyte infiltration and thrombosis of venules of the glands. Also it has antiaggregatory activity, and vasodilatory and immunomodulatory effects as well.

Table 4.

Content of peptide and steroid blood hormones in CP patients with ED

Parameters	Before treatment	After treatment	Healthy ones
FSH, IU/ml	5.31 ± 1.24	4.96±0.23*	4.73±0.25
LH, IU/ml	5.26±0.76	5.21±0.37*	5.16±0.41
Prolactin, mM U/ml	209.13±29.53	183.52±16.24	164.47±13.54
Estradiol, pmol/l	73.56±4.19	69.39±3.42	62.83±3.46
Testosterone, nmol/l	11.29±1.42	13.17±1.17*	13.58±1.29
DHEA-S, nmol/l	21.12±1.76	17.82±1.24	16.9±0.78
SHBG, nmol/l	47.42±5.14	37.26±3.35*	34.72±4.86
Progesterone, pmol/l	1.48±0.12	1.21±0.08*	1.16±0.07

14 patients of the main group were examined 45 days after treatment. A questionnaire SOS-CP survey, MCF, digital rectal examination, microscopic examination of the prostate gland secretion and TRUS were performed. In 11 (75%) patients of this group, persistent remission was found. The obtained results indicate that the use of Adrius in the complex treatment of patients with chronic nonbacterial prostatitis associated with ED provides a high duration of a relapse-free period.

Discussion.

Biologically active substances of Adrius have antihypoxic and antioxidant effects, exhibit a positive effect on the processes of energy production in the cell by reducing the production of free radicals and restoring the activity of enzymes of antioxidant defense.

It is well known that patients with chronic nonbacterial prostatitis are characterized by psychovegetative disorders with a high level of reactive and personal anxiety, moderate indicators of depressed disorders with often accompanying sexual problems [14,15].

In addition, the cause of ED in 80% of patients is endothelial dysfunction, a condition associated with a decrease in synthesis and release of nitric oxide by the endothelium [16, 17].

Vacuum phallus stimulation, which has a mechanical effect on the penis, promotes the release of nitric oxide in the penile vessels by the endothelium, and Adrius enhances the vasodilating erectogenic effect.

Conclusion. Thus, the inclusion of Adrius in the scheme of complex treatment of patients with chronic nonbacterial prostatitis associated with ED is pathogenetically justified and increases the effectiveness of such therapy.

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