

Prostate – Male Genital

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[Efficacy of low-intensity laser radiation and antibacterial therapy in the treatment of chronic prostatitis in the presence of sexually transmitted infections]

[Article in Russian]

[Neimark AI](#), [Khrianin AA](#), [Safina ON](#), [Neimark BA](#), [Kondrat'eva IuS](#).

We studied 94 patients with chronic prostatitis (CP) in combination with urogenital chlamydia. The patients were divided into three groups. Group 1 consisted of 32 patients with bacterial prostatitis and sexually transmitted infection (STI). They were treated with fromilid in a dose 500 mg twice a day. Group 2 (n = 27) received also low-intensity laser radiation (LILR) on the prostatic gland. Group 3 patients (n = 35) with abacterial prostatitis were given fromilid (500 mg twice a day). We studied prostatic hemodynamics with color doppler mapping. A specific feature of prostatic vascularisation in CP and STI versus healthy subjects is heterogeneous decline of vessels density in ischemic zones with parallel decrease in these vessels diameter. A peripheral prostatic zone in CP patients with STI was characterized by lower vascularisation than central one. This deteriorates the course of the disease. The results of the study show that adjuvant LILR in CP patients with STI raises efficacy of therapy by 11%. Investigation of prostate vascularisation and hemodynamics of its vessels in CP patients with STI using transrectal ultrasonography and dopplerography provide detailed information about prostatic structure allowing for lesion zones. This facilitates choice of an optimal complex treatment with application of LILR in peripheral inflammation of the prostate.

SEMICONDUCTOR LASER RAYS THERAPY FOR THE TREATMENT OF CHRONIC PROSTATITIS

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Introduction: Chronic prostatitis (ACP) hasn't a universally successful therapy yet. A lot of studies demonstrated that LASER therapy has an anti-inflammatory effect on tissues and can increase lymphatic and venous drainage reducing inflammatory swelling. For this reasons in the early 90s we proposed a new therapeutic system for ACP using semiconductor LASER rays consisting of a gallium-arsenide diode. At the beginning an endorectal probe was used; then we

invented a particular endourethral probe for laser therapy. This is a brief abstract of what we achieved during these years.

Histological preliminary studies: Many authors studied biological effects of LASER on animal tissues (1). Before clinical practice LASER therapy was tested on a cancer cell line (SW 626) in order to evaluate if laser stimulation could increase mitosis cell rate (2) and therefore have a carcinogenic-like effect. We didn't observe any change in mitosis cell rate. Another study (3) was made on rabbits to test in vivo any immediate histopathological damages and temperature rising in rectal ampulla using transrectal probe. Temperature rising was about 2/10th of a degree centigrade. No histopathological alterations of rectal wall and the prostate were observed with particular care of signs of swelling, flogosis or fibrosis.

Materials and methods: The gallium-arsenide diode in use has a wave length of 904 nm and a frequency of 3000 Hz. The Laser beam reaches the prostate with a special optic probe. This is divided in two sections: one contains the laser generator, the other has five optic fibers and it is screwed onto the first creating a single body of reduced dimensions. It can be sterilized and it is atoxic. We experimented 2 different approaches to the prostate: the first was an endorectal approach and the second was an endourethral approach. At the beginning we used a "Laser Super Sonic" machine with endorectal probe according to Strada. The treatment schedule was 1 treatment every two days (treatment's time of 12 minutes, wave length 3000 Hz) for a total of 12 applications. Transrectal laser therapy was not indicated in prostate larger than 4 cm because this is the maximum depth of the laser beam's efficacy. Then we experimented an urethral probe (Med 130 Lasotronic â Wave length 820 nm, power 30 mW) in order to reduce energy leakage and increase patient's tolerability. In this case patients underwent 1 treatment every 3 days for a total of 8 applications (treatment's time of 4 minutes). From 1990 to 1999 more than 200 patients underwent this kind of treatment. We published results in previous studies (4-5).

Clinical results: More than 65% of the patients obtained a symptoms' relief even at 6 months after treatment. We observed a decrease in IPSS score and an improvement in maximum and mean urinary flow rate. We analyzed spermatic fluid before and after treatment (6) and we found that there was an increase in total germinal cells count, improvement in motility and in morphology. Concentration of zinc, fructose and citric acid was higher after treatment (Zinc: 9.5 mg% vs 5.5 mg%; Fructose: 64.5 mg% vs 58 mg%; Citric acid: 360 mg% vs 305 mg%). Prostate ultrasounds allowed to appreciate a consistent reduction of prostate volume (21.9 cc vs 29.9 cc), probably due to resolution of oedema. Conclusion: In our experience laser therapy for chronic prostatitis can be an effective treatment in improving symptoms and modifying clinical and sonographic parameters.

COMPLEX LASER MEDICINE THERAPY OF BENIGN PROSTATIC HYPERPLASIA

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Benign prostatic hyperplasia (BPH) is a common problem of aging men, affecting the majority of individuals aged 60 years and above. The expressed violations of urination accompanying BPH are largely explained by accompanying prostatitis too. So medicine treatment directed only on restoring of urination, infringed enlarged of prostate, is insufficiently effective.

We have developed a technique of laser-medicine therapy of the patients with BPH, which successfully was tested in 23 patients. The essence of a technique consists in simultaneous assignment of selective alpha 1-blockers tamsulasin and of local low-level laser therapy. On a background of a daily reception of tocopherol influenced by infrared laser radiation with the density of 6 mW/cm² on a perineum within 10 days, exposition - 10 min. A repeated rate - through 2-2,5 months.

Tamsulasin was taken in the usual dose - 0,4 mg per day. Simultaneous application of laser therapy and alpha-1-blocker tamsulasin achieved a relaxation of smooth muscles of prostate, removal of spasm, facilitation of outflow of a prostate secret and an inflammatory exudate, cupping of dysuria. The clinical observations, being available by us, have confirmed higher efficiency of an offered technique, than for want of use of monotherapy of tamsulasin.

[Urologiia](#). 2005 Mar-Apr;(2):42-6.

[Validity of using physical therapy in combined treatment of chronic prostatitis]

[Article in Russian]

[Razumov SV](#), [Egorov AA](#).

To evaluate efficacy of combined physiotherapy in patients with chronic prostatitis (chronic bacterial, chronic abacterial prostatitis), an open comparative trial was made by specialists of the Research Institute of Urology in 2003-2004 of the unit Andro-Gin. Before the treatment, a standard examination was made including analysis of case history and complaints, rectal palpation, questionnaire filling-in, prostatic secretion tests, PCR diagnosis, transrectal ultrasonic scanning and uroflowmetry. In group 1 (chronic bacterial prostatitis) given monotherapy with an etiotropic drug (ED) or combination of ED with Andro-Gin treatment, a significant improvement was achieved by the scale NIH-CPSI, Sorensen scale ($p < 0.05$). In group 2 (chronic abacterial prostatitis with inflammation) subgroups C,D,E patients showed significant improvement by the scales NIH-CPSI and Sorensen ($p < 0.05$). The highest symptomatic effect was recorded in the subgroup D in combined treatment with ED and Andro-Gin physiotherapy. In group 3 low NIH-CPSI scale score occurred due to alleviation of pain in subgroup F ($p < 0.05$), In subgroup G symptoms by the above scales did not change. Uroflowmetry featured moderate dynamics of the increment in maximal voiding speed. Voiding improved significantly in subgroup F in patients with chronic abacterial prostatitis in the absence of inflammation.

[Urologiia](#). 2002 Jan-Feb;(1):14-7.

[Comparative analysis of long-term results of treating chronic prostatitis with the use of the Andro-Gin device]

[Article in Russian]

[Alekseev M Ia, Golubchikov VA.](#)

Follow-up examinations covered 91 patients aged from 20 to 60 years with chronic prostatitis (CP) history 1-18 years. The primary examination has found that 79.1% examinees has CP complicated with sexual dysfunction, disturbed spermatogenesis and psychoneurological disorders. In one group of CP patients etiopathogenetic treatment of CP was combined with magneto-laser-electrostimulation of the prostate provided by the unit Andro-Gin. This combined treatment proved more effective as it induced long-term remission (two years and longer) in 60.5% patients. Unsatisfactory results were minimal. Without use of the unit unsatisfactory

NEAR RESULTS OF TREATMENT THE PATIENTS WITH COMPLICATED GENITOURINAL PATHOLOGY WITH APPLICATION OF LOW INTENSIVE LASER IRRADIATION

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The problem of managing chronic inflammatory diseases of genitals is rather urgent. It is connected with increase of serious complications, tendency to recurrence, resistance to treatment. We studied 28 patients (11 males and 17 females). The age of patients was 19-48 (medium age was 31). On etiologically diagnosis the patients were distributed as follows: Chlamidia trachomatis was found in 21 cases, C.trachomatis and Ureaplasma urealiticum - in 5, ? trachomatis and Candida albicans - in 2. Chronic urethritis, prostatitis, cervicitis, cervical erosion, vulvovaginitis, endometritis, and pelvic inflammatory disease were prevailed. Antimicrobials, immunomodulators, vitamins, and symptomatic drugs were prescribed in combination with LILI. The laser therapy was conducted by He-Ne laser with the capacity of 25 mW. Males received intravenous or intraurethral LILI, 5-7 procedures. Females received LILI by the following techniques - intravenously, intraurethraly, intracervically and intrauterinely, 5-7 procedures, intravaginally - 10 procedures. Patients which received laser therapy were marked by pronounced clinical improvements - pain was soothed, acute urethral syndrome was arrested, discharge from the genitals was decreased. Blood and urine parameters normalized. On data from our institution the percentage of recurrence after treatment of patients with chronic complicated genitourinal pathology without use of laser therapy was 10-15%. In the case of application of LILI the near results had shown 100 % clinical and microbiological curability.

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[Prospects for preoperative low-intensity laser therapy in preventing postoperative thrombohemorrhagic complications in adenomectomy]

[Article in Russian]

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The authors analyse the results of preoperative preparation of 143 patients with benign prostatic hyperplasia (BPH). Conventional preoperative preparation (antibiotics, uroantiseptics and phytotherapy) was used in combination with intravascular laser irradiation of blood (group 1, 30 patients), local laser therapy (transurethral and transrectal) (group 2, 27 patients), variation of laser methods (group 3, 28 patients) and alone (61 patients, group 4). Such preoperative preparation was aimed at prophylaxis of thrombohemorrhagic complications after adenomectomy. The efficiency of the treatment was assessed by hemostasis parameters. It was found that conventional antiinflammatory therapy had a weak effect on hemostasis, the greatest positive effects being achieved with combined laser preoperative preparation. Hyperfibrinogenemia, thrombinemia and activation of XII + a-dependent fibrinolysis were stopped in patients of group 3. Because of less number of postoperative hemorrhages, hemotransfusions and transfusions of blood preparations were used less frequently, red cell parameters improved, exacerbations of chronic pyelonephritis occurred less often.

Proc. 2nd Congress World Association for Laser Therapy, Kansas City, USA, September 2-5 1998; p. 82-83.

Low level laser therapy of male genital tract chronic inflammations.

Gasparyan L et al.

Male genital tract chronic inflammations were treated by combinations of transdermal, transrectal (prostate gland) and intravenous HeNe laser irradiation. The energy of a 2 mW HeNe laser was applied via a light guide into a vein. The projections of the male genital organ and the inguinal areas were irradiated with a 890 nm 5W peak power cluster probe. For the transrectal prostate gland irradiation a 890 nm 15W peak power laser was used. 36 patients were given conventional medical therapy and another 36 were given LLLT in combination with medical therapy. Clinical and laboratory findings were statistically better in the LLLT group and relapse rate was lower. It is suggested that LLLT increases the local circulation and thus also improves the effect of antibiotics.

WALT 2-nd Congress (Kansas City, USA), 1998

LOW LEVEL LASER THERAPY OF MALE GENITAL TRACT CHRONIC INFLAMMATIONS

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INTRODUCTION

The authors summarized their experience of treating patients with male genital tract chro-

nic inflammations caused by sexually transmitted diseases (STD) (Chlamidial infection, Trichomoniasis, etc.) using low level laser therapy (LLLT). Evolution of antibiotic resistant strains, spreading of chronic latent infections complicated the treatment and required several courses of medicament therapy.

LLLT helps to overcome the problems. LLLT of such patients includes laser irradiation of blood, prostate gland and skin projections of male genitals. Laser irradiation activates immune system, increases the permeability of prostate gland tissues for antibiotics, has antiinflammatory, analgetic properties, activates spermatogenesis, activates local microcirculation, and sex function.

The obtained results proved that the combination of LLLT with medicament therapy provides better and faster treatment results.

REVIEW AND THEORY

The incidence of chronic and latent forms of STDs has risen recently despite advances in diagnosis and treatment. Changes in sexual behavior, imperfect and late diagnosis, lack of adequate laboratory facilities, poor cultural examinations, incomplete treatment as a result of usage of low quality and adulterated antibiotics, cases of non-professional and self-treatment, reinfection from infected, but not treated sex partners, evolution and spreading of antibiotic resistant strains complicated the treatment of STDs.

Several groups mentioned beneficial effects of LLLT in the treatment of male genital tract diseases. Sato et al. (1984) demonstrated that laser irradiation had potential to increase sperm motility in vitro. Therapeutic laser applied directly to testes at a dose of 1.3 J/cm² has been successfully used in treatment of infertility (Hasan et al. 1989). Using HeNe laser applied directly to the scrotum, Miroshnikov and Reznikov (1989) found an immediate reduction in the pain, swelling, pyrexia and other symptoms of acute epididimitis. LLLT also reduced the necessity for surgical interventions. This group also reported about positive effects of HeNe laser irradiation in treatment of chronic intractable urethritis. LLLT produced reduction in pain, improvement in microscopic investigations, especially as regards the number of leukocytes. Such studies reported no side effects or complications so dangers associated with laser irradiation of or near the gonads are minimal. Koulchavenia (1997) found higher concentration of antibiotics in kidneys and prostate gland after local laser irradiation. Some studies showed the increase of sensitivity of microorganisms towards antibiotics after laser irradiation (Gorochev 1991, Avdoshin 1992). Kartachov (1994) mentioned that when some patients with bacterial latent urethritis started LLLT, *Trichomonas vaginalis* was found out in cultural studies. So laser irradiation could act like provocative test and help to diagnose latent STDs more precisely.

Duplik (1993) introduced a parameter "Specific Power Density" (mW/cm³) connected with both power characteristics of laser and optical properties of irradiated blood. Ovsjannikov (1997) suggested that calculation of energy absorbed in joules per cubic cm (J/cm³) of target organ tissues was physically more correct, than calculation of energy density in J/cm² of irradiated skin.

The authors aimed to study the role and parameters of LLLT in the complex treatment of patients with male genital tract chronic intractable inflammations, caused by some STDs.

PROCEDURES

78 patients aged from 21 to 54 suffering from male genital tract chronic inflammations (urethritis, prostatitis, vesiculitis, epididymo-orchitis) were divided to a medication therapy group (group I, 36 patients) and medication plus laser therapy group (group II, 42 patients). Subjective and objective methods of investigation were used to diagnose diseases and evaluate the treatment. Laboratory studies included microscopic and cultural examinations of specimens of urethral discharge, urine, prostatic fluid, sperm, blood, as well as ultrasound and other examinations. Provocative tests are used to make latent STDs diagnosis more reliable. Posttreatment cultures were studied to establish that the treatment was adequate.

Each patient of group II received 10-12 procedures of laser irradiation, including 3-4 LBI and 7-8 procedures of laser irradiation of skin projections of male genitals and inguinal areas as well as transrectal irradiation of prostate gland. HeNe laser (632.8nm/ 2mW at the end of light-guide, inserted into a vein) was used for intravenous LBI. Pulsed IR laser cluster probe (12x890nm/5W pulse power) was used for irradiation of skin projections of male genitals. Pulsed IR diode laser probe (890nm/15W pulse power) with transrectally inserting fiberoptic probe was used for prostate gland irradiation. LLLT started simultaneously with antibiotic, antiinflammatory and immune therapy.

RESULTS

Patients of group II reported (statistically reliable) faster resolution of symptoms of diseases (pain, dysuria, sex disorders), had better and more stable laboratory investigation reports (reduction and normalisation of leukocytes, elimination of microorganisms from specimens of urethral discharge, prostatic fluid, urine, sperm), grew of quantity and motility, as well as in percentage of normal forms of spermatozoa. Lower relapse rate for patients of group II (11%) than for patients of group I (18%) was recorded. No side effects or complications were detected. The authors estimated therapeutic 3D energy density for transrectal and cluster probe prostate gland irradiation.

The combination of intravenous LBI with local skin and prostate gland irradiation proved to be the most effective method of LLLT. The combination of medication therapy and LLLT provides better and faster resolution of the symptoms and normalization in results of instrumental examinations.

DISCUSSION

Obtained results proved that laser therapy is an acceptable tool in the complex treatment of male genital tract chronic inflammations, caused by STDs. Our studies supported the opinion that acceleration of treatment was mainly the result of activation of immune system and increase of concentration of antibiotics in target organs.

More works are required to study laser light distribution in different tissues to determine

the most effective 3D energy density for genital tract organs irradiation, combination of different wavelength lasers and methods of irradiation. Additional investigations are required to determine parameters of laser irradiation as the most promoting activity of immune system, increasing both microorganism sensitivity towards antibiotics and prostate gland permeability for antibiotics to create higher concentration of drugs in genital tract organs as well as to combine UV laser bactericidal action with the effect of antibiotics to achieve maximal medical effect.

COMPOSITE APPLICATION OF THE LOW-LEVEL LASER IRRADIATION (LLLI) AND OF BIOREGULATING PEPTIDE PROSTATILIN FOR THE TREATMENT OF SEXUAL DISTURBANCES CONDITIONED BY THE CHRONIC PROSTATITIS

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The present research studies low-level laser irradiation the composite application of peptide bioregulator prostatilin and the LLLI for the treatment of the chronic prostatitis complicated by sexual disturbances. We have observed 32 patients at the age of 23-43 suffering from the chronic non-specific prostatitis. The patients have had numerous attempts to cure the disease and received various kinds of therapy. All the patients complained of the suppressed sexual function. Please note the fact that 12 patients received only this therapy, while the rest 20 underwent also a course of laser therapy which started after the 5-th injection of the medicine. Such semiconductor laser apparatus as "MOTYLEK-20" and "MURAVEY" (firm "Technica") producing the laser irradiation with the wavelength of 0,89 nm have been used. After the therapy which made use exclusively of prostatilin has been given, it turned out that in 50 % of the cases the erectile ability has been restored. The rapid ejaculation, however, remained in 75 % of the cases. The composite application of prostatilin and LLLI has improved the degree of the sexual activity more essentially. Here restoration of adequate erections has been found in 83,3 % of the cases. Only 25 % of the men still had the symptoms of the rapid ejaculation and of effaced orgasm. Thus, LLLI being applied to the prostate in the infrared range is successfully combined with the peptide bioregulator prostatilin for the treatment of the chronic non-specific prostatitis, as the medicine and the LLLI mutually reinforce the general medical effect. Such composite therapy substantially compensates the sexual function when the mentioned above pathology is observed.