

TWO-WAVE LASER THERAPY OF CHRONIC PROSTATITIS AND URETHRITIS

S.P. Selivanov, V.E. Prokop'ev, S.N. Isaeva, E.A. Usynin, and V.V. Udu

Cancer Research Institute,

Tomsk Scientific Center of the Russian Academy of Medical Sciences, Tomsk

Received November 3, 1997

We present some results of the chronic prostatitis and urethritis treatment with the help of low-intensity radiation of a semiconductor laser emitting 5–10 mW mean power at two wavelengths, $\lambda = 0.65$ and $0.85 \mu\text{m}$. We have found that the transdermic irradiation of projected zones of the affected organs decreases the terms of treatment of chronic prostatitis and urethritis by 1.5–2 times and increases the remission periods from six months up to 1.5 years.

Certain positive results of application of the low-intensity He–Ne laser radiation at 632.8 nm wavelength to treatment of the stomach and the duodenal ulcer have been published in our earlier papers.^{1,2} It was established that already after first session of laser irradiation the serious changes at all levels of the organism activity take place, namely, at the molecular, cellular, organic, and organism levels. At the end of the treatment course we observed activation of the immune, humoral and vegetative nervous systems. It is realized as a complex of the adaptation and complementary reactions toward restoration of the normal organism homeostasis. This observation concerns both the intravenous and transdermic irradiation of the circulating blood and irradiation of the projection of affected organs at diseases of various etiologies and pathogenesis, namely, ischemic heart illness, diabetes mellitus, diseases of the inflammatory character of various organs, etc. The wide therapeutic spectrum of this method applications shows that the laser radiation acts on the pathogenetic mechanisms of the above specified diseases. These mechanisms are: the stabilization of the processes of the peroxide oxidation of the lipoids due to activation of the fermentative and nonfermentative antioxidant systems; the activation of microcirculatory processes in the area of the pathologic focus.

The treatment of chronic prostatitis and urethritis is an urgent and simultaneously complex problem since these diseases are widely spread while the existing treatment is low efficient. In recent medical literature there are only few messages on application of laserotherapy to treatment of the inflammatory processes of the masculine genital organs by the intravenous and transdermic irradiation by the He–Ne and semiconductor lasers, Refs. 3 and 4.

As concerning the above-stated we have investigated the possibility of stimulating positive therapeutic effect by use of transdermic low-intensity irradiation of the affected organ projections at chronic prostatitis and urethritis. In so doing a two-wave semiconductor laser with the wavelengths of 0.65 and $0.89 \mu\text{m}$ was used.

A semiconductor laser apparatus PHOTON–02 delivering 5–10 mW power at the wavelengths 0.67 and $0.89 \mu\text{m}$ was used to treat the patients. The technique is as follows. During one session four fields of the affected organs are irradiated simultaneously, that is, the areas of the prostatic gland and prostatic and trailing parts of the urethra. The latter area is the projection of the navicular fovea. Each field was irradiated during three minutes. Thus, the total action time was 12 minutes. The duration of the treatment course varied from five to ten days (one-week or two-week course).

We examined two groups of patients, twenty-five persons each. The first group with the prostatitis symptoms and with the leukocyte quantity in prostatic secret more than ten was treated by usual medicamentous means. The second group was treated using above-stated technique of laserotherapy in addition to the medicinal treatment. Before the treatment and in time after it we have performed: the echography of the affected organs for the exact knowledge of the fields irradiated; the microscopic and bacteriological analyses of the secrets and urine; the biochemical and immunologic research of the blood.

The evaluation of the treatment efficiency was conducted by determining the leukocyte quantity in the prostatic secret, analysis of biochemical and immunologic parameters of blood, and on the subjective sensations of the patients.

The results obtained show, that the use of low-intensity two-wave irradiation favors blocking the inflammatory processes and improves the functional condition of the prostatic gland and urethra. This was confirmed by a reliably noticeable decrease in the leukocyturia and in the bacteriuria disappearance in the prostate secret and in the third urine portion as well as in the normalization of the size and functional condition of the affected organs. We observed the normalization of biochemical and immunologic parameters of the blood. The duration of the clinical remission was from six months up to 1.5 years.

It should be noted, that in the patient group that received, in addition to the medicinal treatment, the laserotherapy the effect from treatment came on the average on two weeks earlier, in comparison with the patient group who didn't receive the laserotherapy. In this patient group the remission was observed already after the first treatment course.

Thus, the transdermic two-wave low-intensity laser irradiation of the projected fields of the affected organs at the treatment of the chronic prostatites and urethrites shorten the treatment by 1.5–2 times and allows one to achieve better remission if the patients were treated by the combined method.

REFERENCES

1. I.I. Tyutrin, V.V.Udut, V.E. Prokop'ev, S.A. Naumov, V.A. Tatarnikov, and A.V. Karpov, *Laser Phototherapy* (Graffiti, Tomsk, 1994), 272 pp.
2. V.V.Udut, A.V.Karpov, S.A. Naumov, V.P. Yakushev, and V.E. Prokop'ev, in: *Action of the Low-Intensity Laser Radiation on Blood*, (Scientific Book Press, Kiev, 1989), pp. 201–202.
3. A.P. Evstigneev and A.K. Polonskii, eds., *Application of Semiconductor Lasers and Lightdiodes in the Medicine* (Kaluga, 1994), 76 pp.
4. Yu.I. Kushniruk and A.I. Neronov, in: *Action of the Low-Intensity Laser Radiation on Blood*, (Scientific Book Press, Kiev, 1989), pp. 118–119.