

## Kidney

Anesteziol Reanimatol. 1993 Sep-Oct;(5):49-51.

### **[The magneto-laser effect on liver functions in the complex treatment of hepatorenal failure]**

[Article in Russian]

[Shimanko II](#), [Limarev VM](#).

Complex therapy of acute hepatorenal failure included magnetic field and laser applied to hepatic area and blood extracorporeally. In 26 patients magnetic field and laser were applied to the hepatic area. When compared to a control group of 30 patients a more prompt decrease in blood bilirubin was noted, alongside with a drop in blood fibrinogen, which enhanced a threat of profuse bleeding. There was no decrease in blood fibrinogen or an accelerated drop in bilirubin during extracorporeal application of the technique in 23 patients, as compared to a control group of 20 patients. As the technique has different effects on the liver it should be used with care and only when clinically indicated in patients with acute hepatorenal failure.

Urol Nefrol (Mosk). 1999 Mar-Apr;(2):28-9.

### **[Effect of low-intensity laser therapy on urinary tract function]**

[Article in Russian]

**Kul'chavenia EV.**

The paper reports the results of the study of low-intensity infrared laser radiation effects on partial kidney functions. The course of the laser radiation resulted in improved blood supply to the kidney in 57.9% of the cases. Stimulation of the secretion and urodynamics was registered in 63.1 and 79% of the cases, respectively. Positive changes were also noted in diuresis, nitrogen-excretory and concentration functions of the kidneys.

### **Estimation of efficiency of magnetolaserotherapy in metaphilactik of stone disease**

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The cause of stones formation in kidneys are rather various, one of which is membranes distabilisation of renal tubuls and infringement of colloid system.

For an estimation of efficacy of influence magneto-laser therapy on frequency of a stones relapse we studied 68 patients from 18 to 70 years old, after natural stone elimination within one to three months. The estimation of active stone formation was made on the basis of a phenomenon "Shatochina-Shabolma". 33 patients were treated with medicines and medical plants. The therapy was given according to the nature of the stone. 35 patients besides common therapy got magneto-laser therapy on a kidneys area, the number of sessions was 8-12 during course of treatment.

The results of research have shown, that in group of the patients who have received magneto-laser therapy only in 2 (5.7 %) patients in a month have come active stone formation, in 9 (25.7 %) - in 2 months, in 17 (48.6 %) - in 3 months, and in 18 (51.4 %) - active stone formation 3 months later was not revealed. At the same time in the group of control receiving common therapy, active stone formation was revealed in a month in 13 (39.4 %) patients, in 2 months - in 21 (63.6 %), and in three months - in 29 (87.9 %) and only in 4 (12.1 %) patients active stone formation was not revealed.

Thus, magneto-laserotherapy in patients with stone disease is pathogenically reasonable with laser radiation stabilizing influence on biomembranes, that brings about colloid systems normalization and decreasing the risk of stone formation.

## **QUANTUM THERAPY OF DIABETIC NEPHROPATHY**

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The influence of low energy helium-neon (HN) and infrared (IR) laser irradiation on the clinical laboratory indications of 33 patients with insulin dependent diabetes mellitus was studied. It was shown that laser therapy must be prescribed strictly individually for each case taking into account the immune status of the organism. Laser therapy is effective only at the early stages of renal disorder. HN laser irradiation of kidneys is accompanied by activation indications of primarily humoral immunity while in case of IR laser irradiation these are activation indications of cell-bound immunity. Considering the partially auto-immune nature of kidney affection this phenomenon can be regarded as a positive factor which liquidates immunity deficit on the one hand and as a dangerous tendency of the activation of some nephron alteration mechanisms on the other. The difference in the therapeutic effectiveness of the two kinds of lasers is connected with the different penetrating power of the rays and changes in the organism's photochemical processes which depend on the wavelength and irradiation power.

### **Dynamics of renal function in patients with acute pyelonephritis and diabetes treated with magnetolaserotherapy**

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We studied 98 patients with acute pyelonephritis and diabetes, 62 (63,3 %) patients out of them with not complicated forms, with complicated 36 (36,7 %). The renal function was controlled on the base of clinical signs, biochemical and radioimmunological data. Renal dysfunction was revealed in all patients. Renal dysfunction of the first degree in patients with not complicated pyelonephritis was diagnosed in 36 (58%), the second degree - in 21 (34%), the third degree - in 5 (8%) patients. Renal dysfunction of the first degree in patients with complicated pyelonephritis was diagnosed in 11 (30.6%), the second - in 17 (47.2 %), the third degree in 8 (22.2 %).

Patients with complicated pyelonephritis were treated after restoration of urine outflow by upper urinary tract. Kidney catheterisation was performed in 32 (88.9%) patients, transcutaneous kidney puncture - in 4 (11.1%) patients. Besides antibiotics, detoxical therapy all patients were treated with magnetolaserotherapy using "MILTA" apparatus. In patients with not complicated pyelonephritis the renal function has normalized in 21 patients (33,9 %), first degree renal dysfunction was found in 26 (41,9 %), second - in 15 (24. %). The improvement of renal dysfunction by one degree was revealed in 29 (46,7 %) patients, in 8 (12,9 %) by two degrees. In patients with the complicated pyelonephritis the renal function has normalized in 7 (19 %), the first degree renal dysfunction - in 10 patients (27,7 %), the second - in 13 (36 %), the third - in 6 (16,6 %), improvement of renal dysfunction by one degree was revealed in 11 (30.6%), by two degrees - in 2 (5.6%) patients.

The results received are explained by positive medical effect of magnetolaserotherapy on inflammatory process in kidneys and renal function. Such effect is caused by improvement of microcirculation and reduction of kidneys tissue edema.

Dynamics of lipid metabolism and peripheral blood flow rates in patients with atherosclerosis in conjunction with renal dysfunction after the course of combined laser therapy.

Kovalyova T V et al.

During an 8 year period patients with atherosclerosis and renal dysfunction have been treated with intravenous laser blood irradiation (ILBI). The study has demonstrated a decreased level of total cholesterol, LDL cholesterol and triglycerides with an simultaneous increase of HDL cholesterol levels. No pharmaceuticals were given during the treatment period. The authors state that ILBI results in a stable hypolipidemic situation which prevents atherogenesis in patients with metabolic disorders, particularly in patients with renal pathologies.

Urol Nefrol (Mosk). 1997 Mar-Apr;(2):12-3.

**[Changes in the oxygen tension of the kidney cortex in exposure to laser irradiation at different wavelengths (an experimental study)]**

[Article in Russian]

[Safarov RM](#), [Ianenko EK](#), [Kazachenko AV](#).

Experiments with exposure of the renal cortex to different kinds of laser radiation with measurement of pO<sub>2</sub> demonstrated that intravenous UV laser radiation inhibits tissue oxygenation. Subvascular blood exposure to infrared and intravenous one to He-Ne laser are beneficial as such radiations improve oxygenation of the renal cortex.

### **APPLICATION OF A HELIUM-NEON LASER (HNL) FOR THE CORRECTION OF RENAL FUNCTION IN PATIENTS WITH CHRONIC GLOMERULONEPHRITIS (CGN)**

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The non-immune mechanisms of progressing renal failure are hemodynamic disorders and breaking of coagulation processes. The increase of spontaneous and induced hypercoagulation and depression of enzymatic link of blood fibrinolytic activity are present in the active stage of CGN. The prolonged antitrombotic treatment by anticoagulants and desagregants renders favourable stabilizing effect on preservation of residual renal function in patients with CGN. According to the results of many studies (non-nephrology) it is considered proved that the use HNL real improvement of microcirculation and decrease systematic hypertension and correction of hemocoagulation changes. 45 patients with CGN: 30 men and 15 women at the age 23-45 were examined. All the patients got the intravenous blood irradiation by the light of HNL (632,8 nm, with 2.5-3,0 mW capacity on its end, during 25-30 min). The three-year observation the patients got 4-6 courses of 12-15 procedures in laser therapy (LT). The condition of microcirculation, intraglomerular hypertension and hyperfiltration was estimated by renal functional reserve (RFR). The condition of hemocoagulation processes was estimated by coagulation parameters. Before the course of treatment RFR was retained - 22,2% pts, reduced - 31,2% pts, absent - 46,6% pts. After the course of treatment RFR was retained - 56,3% pts, reduced - 25,9% pts, absent - 17,8% pts. The use of LT given authentic ( $p < 0,05$ ) improvement of coagulogram parameters to 4-5 procedures, which preserved during the next 6-9 months. According to the obtained results the patients with CGN should be treated with FTNL have positive influence on intraglomerular hypertension and hemocoagulation processes in order to slow further progressing of renal process on non-immune way.

Urol Nefrol (Mosk). 1993 Mar-Apr;(2):17-20.

### **[The effect of magnetic and laser therapy on the course of an experimental inflammatory process in the kidneys]**

[Article in Russian]

**Rodoman VE, Avdoshin VP, Eliseenko VI, Andriukhin MI, Rudyk IaV.**

Magnetolaserotherapy (impulse power 3.6-15.2 mW, 10-50 mT) in rabbits with acute pyelonephritis resulted in significant improvement against the responses in the control group. Histologically, this appeared as exudation phase reduction, more rapid proliferation, replacement of the inflammation focus for granulation tissue.