

IMMUNOCORRECTIVE EFFECTS OF MAGNETIC INFRARED LASER THERAPY IN CHILDREN WITH RENAL DISEASES OF VARIOUS GENESIS

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Laser therapy has been used in the Nephrology Department in children with immune (glomerulonephritis) and nonimmune (pyelonephritis) renal diseases. Almost all of patients had secondary hypimmune conditions which clinically presented as frequent viral respiratory infections, chronic bacterial infections (tonsillitis, caries, paronychia), persistent herpes and hepatitis B viral infections. Immune disorders, whose severity varies with nephropathies, are an acknowledged major determinant of progress of nephropathies.

Reported immunocorrective effects of low-intensive laser radiation have been evaluated in 52 children aged 3 to 15 years (37 girls, 15 boys).

Group I was 30 children with chronic pyelonephritis (PN) and urinary bladder neurogenic dysfunction. Group II comprised 10 children with PN-associated chronic cystitis, and Group III was 12 children with glomerulonephritis (GN).

Magnetic infrared laser (MIL) therapy alone was used in group I and II patients. Laser radiation of a MILTA device was applied to kidney and bladder areas and to acupuncture points. MIL therapy alone was used in one half and in combination with drugs in the other half of Group III.

The radiation dosage per treatment was 0.001 Joules, and a total of number of treatments was 8-10.

Clinical symptoms, blood counts and chemistries, clinical and biochemical urinalysis, renal function, blood immunoglobulins, phagocytosis and Rebouc aseptic inflammation phases were controlled during therapy.

Before therapy, children of groups I and II had depressed phagocyte counts and indices, no abnormalities of blood immunoglobulins, and lower counts of theophylline-sensitive lymphocytes. A slower neutrophil release into the inflammatory site was seen in Rebouc phase-one inflammation and incomplete phagocytosis in phase two.

Children of these groups showed no clinical signs of active inflammation, except for bladder neurogenic dysfunction of a hyperreflexia type, and the urinary syndrome presented as isolated neutrophilia. Renal function was normal.

Laser therapy reversed to normal the initially depressed phagocyte counts, phase-one and phase-two inflammatory response, urinary bladder tone and enuresis in all Group I and Group II children. The therapy did not influence neutrophilia.

Two children of Group III had acute and ten chronic GN. Combined laser and drug therapy during maximally active inflammation produced a two-stage response. Exudation deteriorated after the fourth laser treatment, with successive rapid normalization of phase-one and phase-two inflammation progress seen in Rebouc tests by the end of therapy.

Of ten children with chronic GN (five with mesangioproliferative GN, two with fibrosing GN, one with a prominent tubulointerstitial component and one with minimal change GN), half had grade 1 inflammation with grade 2a-2b renal function. Laser therapy alone improved phagocytosis and aseptic inflammation response in all. Phagocytosis tests and renal nitrogen excretion were impaired during combined therapy in one patient with severe fibrosing GN and partial renal dysfunction (grade 2b-3), but returned to normal at two weeks following withdrawal of it. Three other patients treated by MIL combined with drugs showed phagocytosis improvement.

The study confirmed corrective effects of MIL therapy on local immunity of children with nephropathies of various genesis. Phagocytosis and the phagocyte index were improved by both isolated or combined MIL therapy. The cases of impairment appeared to be related to maximal severity of inflammation and prominent renal dysfunction concurrent with a scarce compensation reserve, a situation which warrants caution in MIL therapy of renal diseases.

