

## **TREATMENT OF CHILDREN WITH ENURESIS WITH LOW-INTENSIVE LASER ENERGIES**

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Enuresis is related to a so-called hyperreflexive maladapted bladder in a significant percentage of children. This condition is common in countries with low living standards as well as in industrially developed nations. Conventional therapy of such patients is not uniformly effective, and this makes clinicians look for new high-tech diagnostic and therapeutic modalities.

Studies in our urology clinic enrolled a total of 510 children with enuresis ranging in age from 3 to 15 years.

Apart from clinical studies, we monitored paraclinical findings with attention to the pattern of spontaneous micturition, an objective measure of disease progress and therapy results. Urinary flowmetry was conducted.

To control disease progress and therapy, blood microcirculation was evaluated in the patients. The studies of microcirculation and tissue blood flow used biomicroscopy with photographic imaging of conjunctival small vessels using an M-70-A capillaroscope.

Laser therapy was used in 286 children. Drugs were withdrawn from therapy of 30 percent of children. Reflex therapy employed the red spectrum of a multichannel helium-neon laser MACDEL - 00.00.03 with a 632.8 nm wavelength and of a semiconductor laser MACDEL - 00.00.02.2 with a 650 nm wavelength. Laser radiation was applied to reference and auricular points.

An infrared semiconductor MACDEL - 00.00.02.1 laser with a 850 nm wavelength was used to improve bladder innervation and trophic function, and to reverse bladder musocal inflammation if it was present and accounted for hyperreflexia. The bladder area was irradiated.

Laser therapy stopped enuresis or made its episodes less frequent. The bladder volume increased by 20 to 50 percent in almost all children.

Pretreatment microcirculatory disorders were qualified as grades 2-3, and reverted to grades 0-1 after eight-ten laser treatments.

Therefore, initial experience with laser therapy of enuresis has been encouraging and suggesting its promise in pediatric urology.

The method is physiological and does not require massive drug treatment, an important consideration in children with enuresis, who are vulnerable to allergy.

The high clinical efficacy of this intervention is related to improved tissue trophism and urinary tract neurotransmission, bladder musocal inflammation reversal and a general stimulating effect of laser therapy.