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PHOTOTHERAPY, PHOTODYNAMIC THERAPY

A NEW PROTOCOL IN PHOTODYNAMIC THERAPY FOR THE TREATMENT OF ONYCHOMYCOSIS

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Introduction: onychomycosis is a common infection of the finger or toenails, predominantly caused by Trichophyton Rubrum. Treatment is complex and requires long courses of systemic and topical antimycotic drugs. The main pitfalls in conventional therapy are high recurrence rate, interaction with other drugs, treatment compliance and toxic side effects. In recent years treatments with laser sources opened a new field of research and, to date, long pulse Nd-Yag 1064 nm is the only approved treatment for human onychomycosis, even if its efficacy is under scrutiny.

A recent in vitro study has demonstrated the high efficacy of the photodynamic effect of rose Bengal on spore suspensions of T. Rubrum. Rose Bengal was able to induce a fungicidal effect on T. rubrum when photosensitized with the fluence of 228 J/cm2 by a green laser (λ= 532 nm). This effect was confirmed by a first study we performed on patients affected by T. Rubrum onychomycosis.

Objective: in this new study, we describe our second experience on six patients affected by onychomycosis, treated with a variant of this innovative photodynamic protocol.

Materials and Methods: the nail surface was pretreated with a fractional CO2 laser, then a topical application of a solution of Rose Bengal diluited at 140 μM was applied for 30 minutes and thereafter irradiated with a 550 nm IPL source. Treatment was repeated every three weeks until clearance. Fungal cultures were tested before starting the protocol and after the last photodynamic session to demonstrate complete clearance of T. Rubrum.

Results: fungal clearance, no significant side effects and good compliance were observed in all patients. The number of sessions needed to obtain clearance ranged between 3 and 7.

Conclusion: this outcome agrees with our previous study and shows that the Rose Bengal PDT treatment is a potential new cure for T. rubrum infections.





