DIAGNOSIS OF ONYCHOMYCOSIS

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Introduction. Onychomycosis is the most common cause of abnormal nails, but some diseases and nail trauma may mimic the clinical picture of onychomycosis and nail changes are mistaken for onychomycosis.

Aim. To identify the sensitivity of several diagnostic tests for onychomycosis.

Materials and methods. 25 patients with clinical manifestations of pathology nails are supervised. Patients were examined by standard methods (direct microscopy and fungal culture) and method of the polymerase chain reaction (PCR). Isolation DNA of nails was performed using phenol method, then the resulting DNA amplification was performed using punfungal primers ITS 4 and ITS 5. After the detection of the amplification reaction products is carried electrophoresis in 1.5% agarose gel in Tris-acetate buffer, 0.5 mM etydium bromide for 15 min and then analyzed by transilluminator with light with a wavelength of 310 nm. If a positive result amplicon detected a certain value and determine the species of fungus belonging

Result and discussion. The diagnosis of onychomycosis was confirmed microscopically in 14 (56%) patients. Culture fungi was obtained in 9 (37.5%) patients from 14, (5 - *Trichophyton rubrum*, 3 - *Trichophyton* mentagrophytes var interdigitale, 1 - Candida spp. The positive result was obtained in 18 patients (72%) by PCR. T. rubrum DNA was detected in 10 patients, positive reaction to panhrybkovi primers were 3, combined positive reaction to punfungal DNA primer + T. rubrum was in 5 patients. Analysis of etiological structure of onychomycosis, conducted by PCR-diagnostics and culture studies showed a significant percentage similarity of both methods for identifying pathogens and prevalence of dermatophytes. Of all the methods to identify pathological nail mycelium the cultural method was the least informative, as showed the smallest percentage of patients with onychomycosis, and the longest execution time (10-14 days). PCR method requires 24 hours to determine the type of fungus and the method of microscopy requires one hour but the kind of infectious agent is not defined.

Conclusions. The analysis of our results shows that the information content of the method of PCR in the diagnosis of onychomycosis is greater than the standard research methods: direct microscopy and fungal culture. Method PCR using pan fungal primers that specifically detect conserved regions of DNA of pathogens is the most promising species-specific and cost-effective.