LABORATORY AND CLINICAL STUDY OF MUCOCUTANEOUS INFECTIONS

CAUSED BY CANDIDA

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Given the importance granted to the present correlations between skin and general pathology, I found this thesis useful and interesting, based on analysis of cases diagnosed from dermatology and the latest data from the literature. In the last twenty years Candida has become a major pathogen worldwide and this is this associated with morbidity and high costs. It is therefore necessary to know the epidemiology (the species involved), pathogenesis (Candida isolation does not always mean infection), clinical forms and therapeutic aspects of fungal infections. Isolation, identification of the etiologic agent and profiling of sensitivity are essential. Unfortunately often not taken into account essential for proper understanding and management of fungal infection: the land on which the infection occurs and the consequences of global infection. Therefore, only antifungal substances without taking other measures of igienodietetic and/or immune therapy, shows a simplistic approach to the disease process.

The personal researches are based on performing two studies. The first study concerns the analysis of pooled establishing the most common species of Candida, spectrum antifungal susceptibility of isolates and highlight factors that induce the appearance of mucocutaneous candidiasis. The second study is based on in vitro research anticanandidiasis action of natural plant extracts and cultures of Candida albicans behavior in contact with various acids. The study aims to highlight which of the substances studied deserves to be included in future studies to use different formulas antimycotics. Case studies included 475 cases grouped according to the clinical form of candidiasis. For identification of Candida species from patients with presumptive diagnosis of candidiasis and to establish the antifungal susceptibility of species isolated, study material was represented by a total of 110 taken from a number of 475 positive samples. Results were read after 24 hours, during which samples were thermostated to 37 degrees Celsius. Isolation of fungi was done on Sabouraud medium, and identification of Candida species and fungigrama were performed using SAS FRANCE ELITECH CANDIFAST kit, with two stages: the first has been to identify biochemical species, and the second was tested susceptibility to antifungal agents.

I our study patients diagnosed with clinical forms of candidiasis were 3.32% of all consultations by ambulatory, relatively low incidence compared with others dermatological pathologies. The study group consisted of: 89 patients with oral candidiasis (18.74%); 149 patients with genital candidiasis (31.37%); 126 patients with various forms of intertrigo (26.52%); 72 patients presented onixis and perionixis (15.16%) and 39 children with diaper candidiasis (8.21%). For each patient we studied the topography of lesions, clinical appearance, symptoms, associated diseases, recurrent character. Stressing that there were patients in our study who experienced one or more predisposing factors, the presence of candidiasis has been associated with the highest percentage (22.66%) consumption of drugs, followed by the existence of diabetes (17.38%) and obesity (16.21%). Ethanolic toxic factor I met the 8.2% of patients studied. Patients with lung disease were 4.42% and 2.31% were associated malignancies. Pregnancy has favored the emergence of candidiasis to 1.37% of patients. 1.76% of patients infected with Candida leg ulcers.
Statistical calculations was demonstrated that there was a significant association between predisposing factors and place of harvest (p = 0.000). Thus the diseases associated, pharyngeal prevailed at locations in front of the genital or lingual.

Following microbiological study, out of 110 fungal isolates with the species that we encountered most commonly in vaginal secretions, pharyngeal, lingual deposits, was Candida albicans (82.73%) followed by Candida kefyr (5.45%), Candida parapsilosis (3.63%), Candida glabrata (2.72%), Candida krusei (1.18%). 24.57% of strains have developed resistance to one or more antifungal. 23.07% of the strains of Candida albicans have developed various forms of resistance. Regarding the range of sensitivity, our study reveals the following: Candida strains showed increased sensitivity to antifungics but different from one species to another, most species showing increased sensitivity to Nystatin, Econazole, Fluconosine, Amphotericin B, strains of Candida non-albicans showed the increased resistance to Fluconazole, Ketoconazole and Miconazole followed. Nystatin was most effective in vitro (99.45%), followed by Econazole (98.35%). 84.60% of the strains of Candida albicans were susceptible to Fluconazole, compared to 68.42% of non-albicans species, including Candida glabrata and Candida krusei were resistant 100%. 16.66% of Candida kefyr strains were resistant to fluconazol. The strains of Candida parapsilosis were susceptible to all tested antifungics. Candida glabrata strains developed the same type of resistance (to Ketoconazole, Fluconazole and Miconazole) have similar behavior and strains of Candida krusei (Fluconazole resistant).

In the second study, for the capitalization of plant extracts, we decided to study the behavior of Candida albicans cultures seeded on Sabouraud medium under conditions with various extracts. Tested to such in vitro action of plant extracts of different strains of Candida collected from patients. This research is intended to highlight which of the substances studied deserves to be included in future studies to use different formulas antifungics. We used in this study the following extracts from vegetation or cultivated plants: Matricaria chamomilla, Calendula officinalis, Salvia officinalis, Herba Hyperici, Lavandula augustifolia, Viola tricolor, Achillea millefolium, Plantago major, Cinnamomum, Eucalyptus folium, Citrus limon, Aloe, Allium sativum. As standard we used Malaleuca aetheroleum alternifolia (tea tree essential oil), quoted in the literature as the most known natural antifungal. Same time we intend to study and behavior of yeast cultures under the action of active principles (organic and inorganic weak acids) compared with their behavior under the action of antiseptic substances known. For this study we propose cultivation Sabouraud medium due to the advantage of faster growth and a clearly defined zones of inhibition. Assessment of the effects of the substances studied inhibitorii quality is made by measuring diameters of inhibition zones. Susceptibility testing of isolates of Candida albicans is a realization by diffusion method currently used for bacterial susceptibility testing, appropriate for antifungal (CLSI standard M44-A), interpretation of results is performed by comparing zones of inhibition to standardized values. Even if there are differences in diameters of inhibition zones, explained by the fact that the strains were different, all strains developed the same type of sensitivity, all strains of Candida albicans included in the study had the same behavior to the substances tested. Similar behavior to substances weaver was observed for strains of Candida krusei, Candida glabrata respectively.

We appreciate that there is a significant association between the studied substance and effectiveness of its presentation (infusion, decoction, tincture, etc.). In our study the most effective substances have been conditioned as oils, 72.2% of them retaining its effectiveness on the tenth day, followed by conditional substances as pulvis solution and tinctures. Conditioned plant extracts as decoction or infusion had no antifungal effect in vitro, according to our study, and except infusions of Herba hyperici and Salvia officinalis, than other developed colonies of bacilli spores, environmental contaminants, in which there were no more developed colonies of Candida. I met poor inhibition for the tinctures of Salvia officinalis, Calendula officinalis; average inhibition for the propolis tincture, Citrus limon oil, Eucalyptus oil, Lavandula augustifolia oil, Salvia officinalis oil, Malaleuca alternifolia oil and good inhibition for the Cinnamomi oil.

From our study, according to the response after 24 hours of the substance studied, it appears that the most effective used substances are Cinamomi volatile oil, followed by Povidone iodine, then followed by Lavandula
augustifolia oil, Malaleuca oil and lactic acid, Salvia officinalis and Eucalyptus essential oils. Although the literature Malaleuca alternifolia volatile oil is placed among the most effective natural antifungal, we appreciate according the results of our study the high efficiency of Cinamomi volatile oil compared with the lactic acid or some common antiseptic. In terms of plant extracts, the inhibitory effect was dependent on plant extract, the dose and time interaction in vitro. The dose-effect relations depends on the nature of the plant and the solvent used (hydro-alcoholic or oily). Oil extracts have antifungal better as the hydro-alcohol. Conditioned plant extracts as 15% decoction or 15% infusion had no antifungal effect. Extract efficiency was observed between 24-48 hours from when the rate of proliferation in vitro Candida is maximum.

We believe that these data may be useful in developing new antifungal formula, establishing protocol clinical use, but needs extensive additions by further research on larger lots and more efficient techniques, which we certainly will make future disposal.