ISOLATION OF THE *CANDIDA ALBICANS* STEM FROM THE URINE

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Abstract

The yeasts are unicellular fungi that are multiplied vegetatively either by burjeonation, or by fission and the ways of the sexed stages are not included in the structure of fructification specific to ascomycetes or basidiomycetes. The yeasts of clinical interest are aerobe microorganisms or facultatively anaerobe, mesophyll and acidophil. As any microorganism able to determine infections, namely the colonization of the host and the inducing from it of a reaction of response and the yeasts have structures and mechanisms that give them the statute of pathogen or potential pathogen. The Candida type is a complex type and polymorph that includes over 160 species.

Keywords: *yeasts, Candida, species, acidophil.*

INTRODUCTION

The limit between pathogen and non pathogen can be very hard to specify, the yeasts considered non pathogen 1-2 decades ago are recognized today as pathogen agents in case of the immune compromised hosts.

The appearance of the conflict between the yeasts and the host is biased by a series of endogen or exogenous factors, that induce the host a condition of immunosuppression, either modifies quantitatively the existent report between the yeasts and the other categories of micro organisms.

The endogen biased factors are represented by: the age (premature newborn, elders), the particular physiological conditions (pregnancy). The exogenous biased factors include: cortical therapy, immune suppressor therapy after the transplant, prolonged antibiotics therapy, prolonged endo tracheal intubation, the prosthetic devices, radio therapy.

The yeasts can be isolated by the pathological products received in the clinical laboratory in the following situations: the contamination of the sample by defective maneuvers during the sampling, the colonization with yeasts of some areas (tegument, mucous) or cavities, infection with these microorganisms.

In case of the samples from sterile normal situses, the presence of yeasts indicates infection, if all the measures of prevention of the contamination were taken during the harvest. In case of the samples coming from non sterile situses, with their own microbiotis, the corroboration of the

clinical, epidemiological and lab data is absolutely necessary for the interpretation of the clinical significance of the yeasts.

Depending on the situs of isolation, the most frequently met fungi are:

- Cephalorachidian fluid: *Cryptococcus neoformans, Candida albicans, Candida parapsilosis, Candida tropicalis, Coccidioides immitis, Histoplasma capsulatum;*.
- Blood: *Candida albicans, Candida tropicalis, Candida parapsilosis, Cryptococcus neoformans, Histoplasma capsulatum, Candida lusitanie, Candida krusei, Trichosporon spp., Coccidioides immitis, Malassezia furfur;*
- Genitourinary Tract: *Candida albicans, Candida glabrata, Candida tropicalis, Candida parapsilosis, Penicillium spp., Candida krusei, Cryptococcus neoformans, Histoplasma capsulatum, Cladosporium spp., Aspergillus spp., Trochosporon spp., Alternaria spp.;*
- Respiratory tract: *Candida spp., Aspergillus spp., Alternaria spp., Geotrichum candidum, Fusarium spp., Acremonium spp., Scopulariopsis spp., Trichosporon spp., Histoplasma capsulatum, Coccidioides imitis;*
- Skin and phaneres: *Candida albicans, Acremonium spp., Alternaria spp., Aspergillus spp., Scopulariopsis spp., Geotrichum spp., Cladosporium spp., Trichophyton spp., Epidermophyton flocossum, Microsporum spp., Criptococcus neoformans*

MATERIAL AND METHODS

The analytical study was performed on a number of 130 patients, from the County Clinical Emergency Hospital Oradea. To each of these patients was harvested urine, the same as in the case of uro cultures designated for the diagnosis of the bacterial infections, in sterile bottles.

The period on which was extended the study is between 01.04.2014-30.09.2014.

For the performing of the study were used different types of examinations, and namely, the exam of culture and direct microscopic examination of the pathological products.

The microscopic examination was accomplished after the performing of the native and colored smear products with May – Grunwald – Giemsa.

The harvest on mediums of isolation was accomplished following the seeding of the samples on Agar Saouraud aditivated with cloramfenicol. Is accomplished thus in one stage, the isolation and the identification of the yeasts.

RESULTS

Table no. 1

Distribution of the cases with the species Candida albicans depending on the age

Candida albicans						
Group of age	Women		Men		Total	
	No.	%	No.	%	No.	%
<20	6	4,61	6	4,61	12	9,23
21 – 30	13	10	9	6,92	22	16,92
31 – 40	28	21,53	10	7,69	33	25,38
41 – 50	8	6.15	7	5,38	15	11,53
51 – 60	7	5,38	5	3,84	12	9,23
61 – 70	23	17,6	2	1,53	30	23,07
>70	5	3,84	1	0,76	6	4,61
Total	90	69,23	40	30,76	130	100,0

Fig. no.1. *Candida albicans*(www.candidoza.com)

Fig. no. 2. *Candida albicans,mediu Sabouraud agar*(www.candidoza.com)

Comparing the distribution depending on the age, is observed the fact that there are significant differences of the presence of albicans, between the 2 sexes.

Thus, is remarked the presence of an increased number of *Candida albicans* at the feminine sex 69,23%, compared to the masculine sex, 30,76%.

Most of the cases of the species of *Candida albicans* were registered for the group of age 31 -40, for women and men, significantly greater for women (21,53%), followed by the age 61 – 70, also with predominance for the feminine sex (17,6%).

DISCUSSIONS

The study of the cases with *Candida albicans*, from the County Clinical Emergency Hospital Oradea, regarded the fact that from the total of 130 cases, 90 of the patients are of feminine sex and 40 of masculine sex, the predominance being for feminine sex (69,23).

The recent studies performed in USA and Europe, objectivizes the increasing incidence of fungi infections, underling also the rate very increased of mortality that can reach 40-70% of the cases.

In USA during the last decades, the frequency of fungemias due to the stems of *Candida albicans* was diminished from 80% to approximately 50%.

In Romania, in a study performed on 32 positive hemocultures from a total of 1087 analyzed showed a reduced frequency of the isolation of the stems of Candida albicans (31,25%) and the prevalence of the emergent species, whose involvement in the production of fungemias was rarely signalized in the last decades.

In other studies performed in Brasil, Italy, USA respectively, the Cnadida parapsilosis is placed in the 2nd place even on the 1st place as frequency in candidemias.

The percentage variations that place either *Candida Glabrata*, or Candida parapsilosis on the second place depend on the size of the studies group, the clinical context, the fund pathology, the region were the investigations were made, the category of age of the patients.

CONCLUSIONS

The yeast infections are in majority endogen, but the exogenous contamination doesn't have to be neglected.

The appearance of the conflict between the yeasts and the host is favored by a series of endogen or exogenous factors, that either induce the hot a condition of immune depression, or modify quantitatively the report existent between the yeasts and the other categories of micro organisms.

The direct microscopic examination of the harvested pathologic products can direct the diagnosis to an yeast infection and sometimes can offer important clues regarding its etiology.

In general, the seeding of the samples is made on aditivated Agar Sabouraud with chloramphenicol, that suppresses the multiplication of the eventual contaminated bacteria.

The most increased incidence of the species of *Candida albicans* was registered at the feminine sex (69,23%), followed by the average age of 31-40 years, with a percentage of 21,53%.

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