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Observations concerning the appearance of yeasts in human's respiratory system

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INTRODUCTION

The paper is a continuation of studies started in 1986 dealing with fungi in respiratory system of inhabitants of the Olsztyn province – with special attention to yeasts (D y n o w s k a, 1990). This paper attempts to determine the frequency of occurrence of yeasts in human respiratory system according to the sex and age of patients and season of the year.

MATERIAL AND METHODS

The fungi have been isolated from the throat, sputum and bronchitis lavatio of patients of the Department of Tuberculosis Lung Disease and Oncology in Olsztyn – – 1986 till 1992. The cultures and identification were conducted according to formly accepted methods (D y n o w s k a, 1990). Onomatics have been modified by B a r n e t t et al. (1990); 18651 persons at the age of 18 – 90 were examined; 6131 samples comprising 16 species of fungi belonging to the family *Cryptococcaceae* and *Saccharomycetaceae* (D y n o w s k a, in print) have been isolated.

RESULTS

On the ground of investigations it was observed that fungi, most often and abundantly isolated in autumn and winter more rarely – in spring and summer (Tab. 1).

This concerns men as well women. Fungi were most often isolated from people between the age of 61-70, most rarely from people up to the age of 20. It is worth noticing that a small frequency of occurrence of fungi was observed in the organism of young people, in 1992 (Tab. 2). Fungi appeared more often in men than women. On the other hand, fungi were found more often in women between the age 40-60.

Table 1

Number of people with fungi in seasons of a year

Years / Seasons	1986		1987		1988		1989		1990		1991		1992	
	w	m	w	m	w	m	w	m	w	m	w	m	w	m
Winter	130	135	136	146	98	125	135	135	125	134	128	140	115	120
Spring	101	105	115	120	100	100	100	104	90	98	100	102	88	94
Summer	76	80	98	104	68	74	61	70	65	75	75	81	65	72
Autumn	135	132	150	155	140	150	90	100	140	150	148	162	96	100

w – women, m – men

Table 2

Proportion of different age groups, troughout the whole period of research

Age of patients	Sex	Proportion of different age groups (%)						
		1986	1987	1988	1989	1990	1991	1992
to 20	w		0.5			0.1		
	m	1.2	0.8	1.0		1.0	1.8	2.6
21-30	w	2.5	2.9	1.8	1.5	1.6	2.4	2.9
	m	2.5	1.2	1.9	1.4	2.5	4.2	4.8
31-40	w	3.1	4.5	2.8	2.1	2.4	4.7	5.0
	m	4.5	4.4	3.1	3.0	3.0	5.5	6.0
41-50	w	9.2	10.9	7.5	7.6	7.9	11.2	11.5
	m	6.0	8.2	4.5	4.2	4.2	6.0	6.4
51-60	w	8.5	9.5	6.5	6.6	6.0	10.5	10.4
	m	8.2	9.0	5.9	5.0	5.4	8.0	8.8
61-70	w	8.5	9.0	8.5	7.5	7.8	10.5	10.5
	m	12.4	13.8	10.0	9.5	9.9	14.1	14.5
71-80	w	5.0	6.0	4.5	3.5	4.0	6.5	5.5
	m	8.1	8.5	5.0	4.2	4.1	10.8	12.2
81-90	w	2.5	3.0	2.0	1.9	2.0	3.5	3.5
	m	4.0	5.1	2.5	2.0	2.0	4.0	4.4

w – women, m – men

DISCUSSION

During the last decades more often had bad cases of mycosis. Most often it concerns infections of secondary character. The sensitivity to infection by fungi is very common and concerns people at every age. Most invasions, being observed, have an character of an acquired infection. If an illness condition appears – it depends on the immunity response of every organism – stating as immunology dike or cellular defence.

Analyzing the results of our research, the proportion of discovered infections, according to the season of a year, have been observed. K u r n a t o w s k i (1992) observed, that about 15-20 % of positive cultures more have been received in summer, but those results concerned an oral cavity. In those studies ontocenosis of oral cavity was omitted because of the possibility that of many saprophytes in it. Those saprophytes may occur in great numbers in the summer because a lot of fruit eaten during that season. On the other hand, autumn and winter (when most fungi were isolated) are seasons of more intensively occurring infections – treated with antibiotics. In consequence we may observe diminution of biological stabal balance, shortage of vitamins and immunity decrease.

In 1986-1989 the decrease of positive results was observed. But from 1990 they begun to increase both in women and men (D y n o w s k a, in print). However, little superionty of participation of men in it was noticed. The exceptional case of isolating more fungi from women concerned people between the age of 41-60. May be it is result od a tiring period of climacterium when a lot of women have general problems with their organism and metabolism.

The most endogenous mycosis in Poland are candidiosis – among them there is the most dominating form – bronchial and lung. This form occurs particularly with older people (K o w s z y k - G i n d i f e r, S o b i c z e w s k i, 1986; Z a r e m b a, 1990). The observations confirm this. Among fungi pathogenic for a man of genus *Candida*, particularly *C. albicans* Barkhout (S c h a b i ń s k i, 1960; B r z e z i ń s k i et al., 1972; D a v i e s, 1982; R i e t h, 1983; D r u t z, 1986; K o w s z y k - G i n d i f e r, S o b i c z e w s k i, 1986; D y n o w s k a, 1990; K u r n a t o w s k a, 1992; G e r a i n t, P e t e r, 1993) was carefully examined. However, the list of fungi which may cause sickness conditions is still increasing (D y n o w s k a, in print).

Some literature informations (D u t k i e w i c z, J a b ł o ń s k i, 1989) suggest that people working in warm and moisty rooms are particularly exposured to yeasts infections. On the grounds of our studies it is difficult to find various groups of employees particularly more or less exposed to yeasts. The infections may be associated not only with the working conditions but also with the place of residence. Patients having been examined were mainly inhabitants of towns and suburban area, where the air is much more polluted than in the country. We may conclude that people living in towns are less resistant and more often suffer from respiratory system illnesses. In towns there is a variety of antibiotics, which are in many cases overdosed. In such cases there will be more yeasts.

In Polish literature there is not much information about yeasts in respiratory system. In that situation there is a serious need to conduct research which would not only enable the identification of fungi but but would determinate their biology. The whole therapy and treatment of patiens depends on the biology of fungi. Fungi should not be disregarded as the potential causes of many sicknesses of exogenous and endogenous origin.

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