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FAMILY CHLAMYDIOSIS IN UPPER RESPIRATORY TRACT.

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Abstract: The paper represents the results of studying 44 households with family members having upper respiratory tract diseases, associated with Chlamydia infection. Control group included 43 households with ENT family members, who didn't show Chlamydia. Diagnostics was provided by using the complex of laboratory methods (direct immune fluorescent and immune enzyme analysis, polymerase-chain reaction). The presence of one patient with respiratory chlamydiosis in a household results in infecting other family-members with Chlamydia.

Key words: Chlamydia infection in upper respiratory tract, household hotbed of respiratory chlamydiosis.

At present Chlamydia infection has the status of serious problem for international and national public health due to its high prevalence, variability in clinical signs, lesion location, high costs of diagnostics and treatment, liability to becoming chronic, influence on population reproduction of [2, 4, 5, 9, 11, 12, 13, 14, 15 and many others]. Complexity, heterogeneity and insufficient level of knowledge in Chlamydia infection pathogenesis dictate a necessity to aim the research at its different links, including such important pathogenic link as intra-family infecting. Previously the majority of research for ENT, associated with Chlamydia infection was based on the positions of a separate individual. The necessity to accept new approach in terms of intra-family infecting had escalated, taking into account such factors as type of transmission (droplet, contact), high susceptibility to pathogen.

Unfortunately the problem is being developed only concerning urinal genital chlamydiosis [7, 9, 10], despite every family member who has respiratory localization of Chlamydia infection can become the source of "family chlamydiosis" and the threat to infect all the rest of the family members. Household approach to preventive measures against extragenital diseases had been already supported by several scientists [2, 3].

Hereby, the target of the research was to study the frequency of respiratory chlamydiosis and characteristics of its signs in family members of ENT patients with verified Chlamydia infection.

Subject and Methods of Research.

Subject of research are families of ENT patients, receiving treatment of acute and chronic pathology of upper respiratory tract in a hospital ENT-department. We tested 87 households by single-step method. There was a patient with identified Chlamydia infection in 44 out of them. These 44 composed main group with children patients in 24 of them and adult patients in 20. Control group numbering 43 households included family members who did not have confirmed Chlamydia. The number in cohort was determined according to V.I.Paniotto method (1982). Total number of subjects in the tested families was 245: 123 subjects in the main group (38 children, 85 adults) and 122 subjects in control (33 children, 89 adults). Family members from different groups matched each other in terms of age and gender.

Research laboratory methods included identification of two types of Chlamydia (Chlamydia trachomatis and Chlamydophila pneumoniae). Two direct tests were used for revealing them (direct immune fluorescent analysis and polymerase chain reaction) and one indirect test (immune enzyme analysis). Polymerase chain reaction and immune enzyme analysis were carried out by test-systems "VectorChlamy-DNA-amli" and "ChlamyBest-strip" ("Vector-Best"). To provide immune fluorescent analysis we used test-system "ChlamySlode" ("Galart"-Liagnostikum).

The description of binaural signs is represented by relative frequency, expressed in per cent and 95% of confidence interval (95% CI). Estimation of relevance in differences between indices was executed by Student's t-criterion and Fisher's exact criterion. Maximum reasonable possibility of α -error (p) was accepted as statistical meaning level equal or lower than 0.05.

Research Results and Discussions.

Research results showed high stage of Chlamydia infection contagiousness in hotbed of respiratory chlamydiosis. Among all family members, including ENT patients with identified Chlamydia – we found Chlamydia in 81 subjects (in 65.9%, 95% CI 57.3 - 73.9). The increase in the quantity of infected subjects was 30.1%. At the same time Chlamydia were identified in 73.7% (95% CI 58.7 - 87.7) children and in 62.4% (95% CI 52.0 - 72.7) adults. We didn't mark constituent difference in susceptibility to Chlamydia between children and adults ($p=0.2$). In 27.3% of households all the family members were infected. In 34.1% of households more than two thirds of the family members were infected. In 27.3% - from half to 60% of all family members. Only in 5 households (in 11.4%) less than one third of family members were infected.

In 28 households out of 44 (in 63.6%, 95% CI 49.0 - 77.1) with verified Chlamydia patients, there were other family members being infected. The increase of infected subjects in these families achieved 44.1%. Contamination of all family members was marked in 42.9%; more than two thirds of family members – in 46.4%; from 50% to 60% - in 10.7%. The absence of Chlamydia in members of 16 families of ENT patients with confirmed respiratory chlamydiosis can be supposedly explained by presence of persistent infection, hardly diagnosed by laboratory means or "recent" infecting of the subject who is the source of contamination.

We revealed 103 cases of different Chlamydia contamination in 81 family members (see Table.). Simultaneous presence of two Chlamydia types was marked in 17.9% of family members (in 15.8% children and in 18.8% adults). In children as compared to adults the frequency of Chlamydophila infection was considerably higher than Chlamydia trachomatis verification (in 68.4% against 21.1%, $p < 0.001$). We didn't find differences in the frequency of these types of Chlamydia in adults: the same indices were correspondingly 44.7% and 36.5% ($p = 0.3$).

We revealed the following age peculiarities: Chlamydophila pneumoniae was met in adults before the age of 30 considerably more frequent as compared to subjects of elder generations (in 64.3% against 35.1%). Mono infecting with Chlamydia trachomatis was found more often in ages older than 30 years (in 22.8% against 7.2%). We marked similar tendencies in children. The elder the child, the lower was the frequency of Chlamydophila pneumoniae (in 93.8% in ages from 3 to 6 years against 50.0% in children older than 7 years old). Chlamydia trachomatis as mono infection was verified only in schoolchildren (in 9.1%). We didn't find gender dependency in susceptibility to upper respiratory tract Chlamydia infecting among family members.

We diagnosed ENT chronic pathology (including those of inflammatory genesis) in families with the hotbed of respiratory chlamydiosis 1.7 and 2.2 times more often ($p < 0.001$), than in control: correspondingly in 73.2% (95% CI 65.0 – 80.6) against 42.6% (95% CI 34.0 – 51.5) and in 67.5% (95% CI 59.0 - 75.4) against 30.3% (95% CI 22.5 – 38.8). Besides, there were more subjects with combinatory pathology (in 22.8% against 6.6%, $p < 0.001$) in families with chlamydiosis hotbed on the account of family members with two diseases of throat (in 12.2% against 2.5%, $p = 0.002$) or simultaneous diseases of throat and nose (in 7.3% against 1.6%, $p = 0.02$).

Regardless the presence or absence of respiratory chlamydiosis hotbed the more frequent localization of ENT chronic diseases was throat. In Chlamydia infected families this pathology was diagnosed more often (in 59.3% against 24.6%, $p < 0.001$) on the account of higher frequency of tonsillitis (in 20.3% against 5.7%) and pharyngitis (in 35.0% against 10.7%). The share of throat diseases was 3 times higher than the share of nose diseases (74.6% against 24.6%). The same indices in families without chlamydiosis hotbed differed 1.6 times (55.0% against 35.0%).

Above-mentioned tendencies were typical for both children and adults in the families. In children from chlamydiosis hotbed families as compared to children from non-infected families the levels of total chronic ENT pathology, inflammatory chronic diseases, throat diseases were correspondingly 81.6%, 71.1%, 76.3% against 39.4% ($p<0.001$), 15.2% ($p<0.001$), 30.3% ($p<0.001$). In adult family members the frequency of the mentioned pathology reached correspondingly 69.4%, 65.9%, 51.8% against 43.8% ($p<0.001$), 36.0% ($p<0.001$), 22.5% ($p<0.001$). Among some forms of chronic nosology in adult members in infection hotbed families the following forms were more frequently revealed: pharyngitis (in 45.9% against 14.6%, $p<0.001$). As for children, tonsillitis and pharyngitis were diagnosed only in families with the source of Chlamydia contamination (correspondingly 31.6% and 10.5% subjects).

Thus, patients with upper respiratory tract diseases associated with Chlamydia infection, are the sources of this infection and are the threat of infecting members of the family. That is why performing preventive measures against intra family respiratory chlamydiosis allows to improve health indices not only in a family, but in the society as a whole.

Conclusions.

1. The contamination of family members with Chlamydia takes place in 63.6% families of ENT diseases patient with identified Chlamydia. Infection had been found in all family members in 42.9%, in more than two thirds of all family members – in 46.4%, from 50% to 60% - in 10.7%.

2. In family hotbeds of upper respiratory tract Chlamydia infection we diagnosed ENT chronic pathology 1.7 times more often as compared to families, where ENT patient is not infected with Chlamydia on the account of throat diseases such as tonsillitis and pharyngitis in other family members.

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Table. The prevalence of Chlamydia different types in family hotbeds of respiratory chlamydiosis.

Group	Mono infecting with Chlamydophila pneumoniae		Mono infecting with Chlamydia trachomatis		Chlamydia mixed infection		Totally infected by Chlamydia	
	n	%, 95% CI	n	%, 95% CI	n	%, 95% CI	n	%, 95% CI
Adults (n=85)	22	25.9 16.6-35.7	15	17.6 10.3-26.4	16	18.8 11.3-27.8	53	62.4 52.0-72.7
Children (n=38)	20	52.6 36.7-68.5 pch-a=0.01	2	5.3 0.5-14.5 pch-a=0.04	6	15.8 6.1-28.9 pch-a=0.7	28	73.7 59.7-87.7 pch-a=0.2
Total (n=123)	42	34.2 25.8-42.5	17	13.8 8.3-20.5	22	17.9 11.6-25,1	81	65.9 57.3-73.9

Note: p is statistical significancy for differences in groups of children and adults according to Student's and Fisher's criterion.

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ANTIBIOTIC ACTIVE METABOLITE OF FUNGI OF THE GENUS *TRICHODERMA*

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Summary. Were studied by the hole effect of metabolites of fungi *Trichoderma harzianum* on the number of gram-pozitive and gram-negative microorganisms: *Bacillus subtilis*, *Micrococcus luteus*, *Salmonella moskow*, *S. typhimurium*. Shown antibiotic activity of metabolites of the fungus *T. charzianum* against *M. luteus*, *S. moskow*. These metabolites are promising as producers of new antibiotic drugs.

Key words: bactericidal action, imperfect fungi, metabolites of fungi of the genus *Trichoderma*, the method of holes, gram-negative and gram-pozitive microorganisms.

Introduction

It is known that the culture fluid of the lower fungi contain substances with antibiotic properties. Research in this area being quite active, constantly found new metabolites with useful properties. [1,2,4,8,9,11,12,13,14]. Fungi of the genus *Trichoderma* are well known as producers of exoenzymes and has long been widely used by man. Of them receive a cellulase, xylanase, lipase, lignindegidrogenazy, chitinase, pectinase, a number of specific oxidases used in medicine [3].

Trichoderma fungi are producers of metabolites having high antibiotic activity against fungi and bacteria. Research in this direction being very active, constantly find new metabolites with useful properties [3]. The initial task of our research was to study the biological activity of native fungal strains of *Trichoderma* species against a number of opportunistic microorganisms. Were studied following strains of fungi *Trichoderma*:

Table 1