

CHLAMYFAST-OIA TEST IN THE GENITAL CHLAMYDIA MALE INFECTION DIAGNOSIS

Anka Vasic, Natasa Miladinovic Tasic, Dragan Zdravkovic and Suzana Tasic

The genital infections caused by *Chlamydia trachomatis* (*Ch. trachomatis*), *Mycoplasma hominis* (*M. hominis*) and *Ureaplasma urealyticum* (*U. urealyticum*) represent, in the countries with developed industry, those diseases which are most often sexually transmissible. Chronic infections provoked by the mentioned causes are considered to be the risk factors for sterility.

The aim of this paper is to examine the importance and specific characteristics of the CHLAMYFAST-OIA test in the Chlamydia genital infection diagnosis. This study includes 400 male patients with urethritis symptoms. The CHLAMYFAST-optical immunologic test has been used to determine the presence of the *Ch. trachomatis* in the genital tract of 360 males (Mycoplasma, International, France). The genital microplasmas, that is *M. hominis* and *U. urealyticum*, have been detected with the use of MYCOFAST-test (Mycoplasma International, France). The presence of the genital microplasmas has been studied in 129 patients.

Chlamydia genital infection has been determined in 128 males (35,55%). The genital infection caused by *M. hominis* has been determined in a largely lower number of patients (3; 2,32%), as well as the infection caused by *U. urealyticum* (in 8 patients; 6,20%). Mixed infections have been detected in 8 patients. In 6 men (4,64%) there has been detected a mixed infection caused by genital microplasmas. The mixed infection provoked by *Ch. trachomatis* and *M. hominis*, and the one caused by *Ch. trachomatis* and *U. urealyticum*, has been proven only in one patient respectively. *Acta Medica Medianae* 2004; 43(3): 33-36.

Key words: genital infections, *Chlamydia trachomatis*, *Mycoplasma hominis*, *Ureaplasma urealyticum*

The Public Health Institute, Nis

Correspondence to: Anka Vasic
The Public Health Institute
50 Dr Zoran Djindjic Street
18000 Nis, Serbia and Montenegro
Phone: +381 18 714 350, e-mail: doradika@eunet.yu

Introduction

Chlamydia genital infections are predominantly sexually transmissible. Due to its high prevalence, its course and possible complications, this disease has, up to the present time, provoked a great interest of experts from various fields of medicine. In lots of studies, the significant place is, above all, occupied by the diagnostic, preventive and therapeutic aspects of this disease.

The infections caused by *Chlamydia trachomatis* (*Ch. trachomatis*) can result in female sterility because of the development of salpingitis and ectopic pregnancy. The genital Chlamydia infection in women can become the risk factor for the development of the Chlamydia infections of the eye and respiratory tract in the newborn infants (1,2,3). There can be found very

controversial facts in the medical literature concerning the effect of this bacterial infection on the fertility of men, although it can be stated with great certainty that *Ch. trachomatis* has the adherence effect upon spermatozooids (4, 5, 6). The newest researches of Vigil et. al. point out the findings of the reticular bodies in the spermatozooids, which represents a very significant fact for determining of the pathogenetic processes in the Chlamydia infection in men (7) (Table 1).

The prevention of the development of such serious and dangerous complications means timely diagnosis and adequate therapy.

Table 1. Possible complications of the Chlamydia infections

Infection	Clinical entity	Complications
Men	urethritis, epidididimitis, proctitis, conjunctivitis	Ryter syndrome
Women	cervicitis, salpinghithis, urethritis, bartholinithis, conjunctivitis	ectopic pregnancy, infertility, arthritis, dermathitis
Newborn infants	conjunctivitis	intestinal pneumonia

Material and methods

This study includes 400 male patients with urethritis symptoms.

The material of the genital tract of men, scarificat of the uretral mucosis, has been examined to determine the presence of the *Ch. trachomatis*, as well as of the genital microplasmas.

The CHLAYFAST-optical immunologic test (Mycroplasma, International, France) has been used to determine the presence of the *Ch. trachomatis* in the genital tract of 360 men. There were 50 patients in the age group who were younger than 30, 270 patients were from 30 to 50 years old, and 40 patients were older than 50.

The genital microplasmas, that is *Mycoplasma hominis* (*M. hominis*) and *Ureaplasma urealyticum* (*U. urealyticum*) have been detected with the MYCOFAST-test (Mycroplams, International, France). The presence of the genital microplasmas has been studied in 129 patients.

There were 90 patients who underwent the microbiological examination of the genital tract material concerning the presence of both *Ch. trachomatis* and genital microplasmas.

Results

The presence of the Chlamydia genital infection has been determined in 128 men (35,55%). A significantly lower percentage of patients have suffered from the genital infection caused by both *M. hominis* (3; 2,32%) and *U. urealyticum* (8; 6,20%) (Table 2).

Table 2. The findings of the *Ch. trachomatis* and genital microplasmas

Findings	Number of the examined patients	Number of the positive patients	% of the positive patients
Ch. Trachomatis	360	128	35,55%
M. hominis	129	3	2,32
U. urealyticum	129	8	6,20
M.hominis+U. urealyticum	129	6	4,64
Ch.trachomatis + M.hominis	90	1	1,11
Ch.trachomatis + U. urealyticum	90	1	1,11

Mixed infections have been proved in 8 patients. In 6 men (4,64%) there has been determined a mixed infection caused by genital microplasmas. The mixed infection provoked by *Ch. trachomatis* and *M. hominis*, as well as by *Ch. trachomatis* and *U. urealyticum* has been found in only one case respectively.

Concerning the age structure of the patients no significant difference has been recorded in the

findings of *Ch. trachomatis*. Namely, the highest percentage of the Chlamydia genital infection has been recorded in the patients who were from 30 to 50 years old (35,92%), whereas a somewhat lower percentage has been determined in the patients younger than 30 (32,00%) and those older than 50 (30,00%) (Table 3).

Table 3. The findings of *Ch. trachomatis* in patients of different age

Age	The total number of checkups	Positive findings of <i>Ch. trachomatis</i>
Under 30	50	19 (32,00%)
From 30 to 50	270	97 (35,92%)
Over 50	40	12 (30,00%)

Discussion and conclusion

The first recorded facts about the connection of *Ch. trachomatis* and genital infections date as far as from 1883, from Koch (8).

The turning point in diagnosing the Chlamydia infections of the genital tract and eye was the introduction of the immunofluorescence test by Wang and Graystone, during the 70s, XX century. This immunologic method created a possibility for the satisfactory specificity and for the application of the test in the routine diagnosing of the infections caused by *Ch. trachomatis* (9, 10).

Up to 1970, there were successfully applied methods of cultivating on the chicken embryo as well as on the McCoy cells, but they, due to the technically complicated and long procedure and economic factors, represented more a part of the scientific research work than of the routine operation (1,11).

The Chlamydia infections were, up to 1980, mainly diagnosed by the process of proving the presence of *Ch. trachomatis* in the epithelial cells of the urethra, whether by cultivating the carrier or by detecting of this kind using the direct immunofluorescence methods (12). Numerous researches have come up with the same results that the prevalence of the Chlamydia infections exists in male patients suffering from nonspecific urethritis, postgonococcal urethritis, epididemitis as well as in female patients suffering from salpingitis. American authors from this period emphasize even the prevalence of the Chlamydia infections in about 40% of patients with the symptoms of urethritis (13). The researches done in our country have almost identical results (4).

Taking into consideration the fact that, in cases of the clinical form of epididemitis, prostatitis and pelvic infection, the cause of the disease is not, in a number of cases, in the urethra secretion, then there emerged a need to perform the immunologic diagnosis of the specific antibodies in the patient serum. Immunologic examinations determined that the IgM specific antibodies represented the indicator of the acute Chlamydia infection in patients. The findings of the specific IgG antibodies in the low titer still represent a disputable fact, although according to the opinion of most of the authors they may represent the per-

sisting antibodies after the cured Chlamydia infection. The findings of the specific IgA antibodies have, from 1984 and considering some authors, become the marker of the active Chlamydia infection (4).

Technological development which made possible the establishing of the methods of molecular biology in the research analyses of the Chlamydia infections of the human genital tract, also created a possibility of determining the presence of *Ch. trachomatis* when in small number. This made it possible for the researches to detect the cause in asymptomatic male patients as well as in those with chronic infection. Introducing these methods in the research analyses has recently had as a result the facts that there does not exist a correlation between the findings of the specific antibodies in the serum and the presence of *Ch. trachomatis* in the serum, which was confirmed by the use of the DNA tests (3). These latest facts point out the necessity of introducing the methods of molecular biology in the routine diagnosis of Chlamydia infections in strictly chosen groups of population (2,14).

It is a fact that the infection caused by *Ch. trachomatis* may in a certain number of cases remain nondiagnosed, whether because of the use of some less sensitive methods, used in diagnosis, or because of the minimal symptoms or because of the absence of the infection signs in patients.

There exist a number of diagnostic methods that used to be recommended for determining the presence of *Ch. trachomatis* in the male and female genital tracts. In the routine practice, in order to diagnose the Chlamydia infection there are most often used the direct and indirect immunofluorescence (ITF) and immunoenzyme (ELISA) tests. The reference books have lately referred to these methods (ITF, ELISA and cultivating methods) as to the methods of less specificity and sensitivity, recommending at the same time the tests for the detection of DNA causes (15,2).

Taking into consideration the latest studies, there stand out, as the most specific tests, the methods of molecular biology, that is, the methods of the chain multiplying like the polymerase chain reaction (PCR) and ligase chain reaction (LCR). Many authors have emphasized that the sensitivity of the methods of chain multiplying is 10 to 50% higher than that of the routine methods, and that these methods represent the methods of choice in asymptomatic infections, as well as in the screening researches of the prevalence of the Chlamydia infections (2).

The CHLAMIFAST-optic immunologic test has been used in this paper for diagnosing the Chlamydia genital infections in men. The optic immunologic test is very simple to perform, technically it makes possible the direct visual detection of the cause of the disease, that is the detection of the extracted lipopolysaccharid antigen characteristic for *Ch. trachomatis*.

The sediment of the molecular thin layer with the specific antibodies changes in the precipitory test, which causes the change of the refracted light from the test surface, that is the change of the color on the surface so that the test can be easily read with the naked eye.

This research has determined a very significant prevalence of the genital Chlamydia infections in men with the symptoms of urethritis. Using the CHLAMIFAST-OIA test there has been found a significant percentage of the Chlamydia infections in patients, which emphasizes the diagnostic importance of this test in the diagnosis of this sexually transmissible disease. Taking into consideration that this research includes only those patients with the emerging symptoms of the genital infection, no conclusions can be reached as to the application of this test in the detection of *Ch. trachomatis* in asymptomatic carriers.

As far as the age structure of the examined patients is concerned there has been recorded no significant difference in the percentage of men with the genital Chlamydia infection. The important prevalence of this infection has been proved in all patients.

The fact that there was a small number of patients with mixed infections, whether caused by Chlamydia infections together with some other kind of genital microplasmas or the ones caused by the *M. hominis* and *U. urealyticum*, points out the possibility of encountering certain problems in the process of diagnosing and giving a proper therapy. Academically speaking, each patient should indeed undergo a complete microbiological and parasitological examination of the genital tract. Yet, considering the fact that the number of patients with mixed infections is small, the academic approach would be, in any case, economically improper, if we want to be practical. Some further researches could establish the principles that would be used in case one doubts the presence of the mixed infection caused by *Ch. trachomatis* and genital microplasmas.

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CHLAMYFAST-OIA TEST U DIJAGNOSTICI GENITALNIH HLAMIDIJSKIH INFEKCIJA MU[KARACA

Anka Vasi}, Nata{a Miladinovi} Tasi}, Dragan Zdravkovi} i Suzana Tasi}

Genitalne infekcije izazvane vrstama *Chlamydia trachomatis* (*Ch.tracho-matis*), *Mycoplasma hominis* (*M.hominis*) i *Ureaplasma urealyticum* (*U.urealy-ticim*), u industrijskim, razvijenim zemljama predstavljaju naj-e{e seksualno transmisivne bolesti. Hroni-ne infekcije izazvane ovim uzro-nicima smatraju se i faktorom rizika za nastanak steriliteta. Cilj rada je ispitati zna-aj i specifi-nost CHLAMYFAST-OIA testa u dijagnostici hlamidijskih genitalnih infekcija.

U ovoj studiji obuhva}eno je 400 mu{karaca sa simptomima uretritisa. Za utvr|ivanje prisustva vrste *Ch. trachomatis* u genitalnom traktu 360 mu{karaca kori}en je CHLA-MYFAST-opti-ki imunski test (Mycoplasma, International, France). Genitalne mikoplazme, odnosno vrste *M. hominis* i *U. urealyticum*, detektovane su primenom MYCOFAST- testa (Mycoplasma International, France).

Prisustvo genitalnih mikoplazmi ispitivano je kod 129 bolesnika. Hlamidijska genitalna infekcija utvr|ena je kod 128 mu{karaca (35,55%). U znatno ni`em procentu kod bolesnika zabele`ena je genitalna infekcija izazvana vrstom *M. hominis* (3; 2,32%), kao i vrstom *U. urealyticum* (8; 6,20%). Me{ane infekcije dokazane su kod 8 bolesnika. Kod 6 (4,64%) mu{karaca utvr|ena je me{ana infekcija genitalnim mikoplazmama. Samo u po jednom slu-aju kod ispitivanih bolesnika zabele`ena je me{ana infekcija izazvana vrstama *Ch. trachomatis* i *M. hominis*, kao i vrstama *Ch. trachomatis* i *U. urealyticum*. *Acta Medica Medianae* 2004; 43(3): 33-36.

Klju-ne re-i: genitalne infekcije, *Chlamydia trachomatis*, *Mycoplasma hominis*, *Ureaplasma urealyticum*