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*Evaluation of some parameters of human semen
with positive chlamydial reaction*

Chlamydial *trachomatis* infection is quite prevalent and common both in male and female reproductive organs. The course of the infection is oligosymptomatic both in men and women and it is nonspecific (10).

Chlamydia trachomatis is a microorganism, which is very difficult to culture because of its intracellular reproductive cycle (10). Many infertile couples face the problem of Chlamydial *trachomatis* infection (3, 10). The frequency of this pathogenic infection, both in men and women, can be estimated at the level of 10% up to 30% (2, 3, 4). The discrepancy between the estimated figures of infections may result from different methods employed for the identification of this microorganism (3) and the degree of "inadequate treatment" in patients with oligosymptomatic course of infection. The available literature reports no clear data concerning chlamydial *trachomatis* infections and their relation to semen parameters (2, 3).

The objective of the research study was to determine any differences in semen quality between men with the positive chlamydial *trachomatis* reactions and those with the negative reactions.

MATERIAL AND METHODS

The research studies included seventy (70) men aged 25 to 46, who reported at the Andrology Outpatient Department, Medical University of Lublin for some problems with genitourinary system (pain in the *pelvis minor* region, crotch, phallus, vesical tenesmus, etc.). All the patients were examined for the presence of *Chlamydia trachomatis* with immunoenzymatic *Chlamydia* Ipazyme test, used for marking the serum antibodies (IgA and IgG). The positive test results were assumed for the dyed navy blue compounds of antibodies with antigens, diluted 1:16 for IgA antibody, and those diluted 1:64 and 1:128 for IgG antibody. All of them had ultrasonographic examinations of sexual glands (prostate, seminal vesicles, testicles, epididymis).

Semen examination was performed in each patient. The semen for examination was collected in the morning, through masturbation, following a period of at least 4–5 days of sexual abstinence. Each of the men stated that he had not drunk alcohol for the previous 5 days. The parameters were evaluated in the laboratory according to WHO standards (9) for, among others, semen volume, sperm count per 1 ml, percentage of motile spermatozoa (motions A and B).

The patients were divided into two groups: Group I – 33 *Chlamydia* positive men (+) and Group II – 37 *Chlamydia* negative men (-). The semen parameters were compared between both groups of the examined patients. The significance of differences for the variables compatible with the normal distribution was examined using T-student test.

RESULTS

No statistically significant differences were found in the median age of the examined groups; the median age of group I was 34 years and the median age of group II was 33.8 years. Lower sperm motility was statistically significant in group I versus group II (Fig. 1). No statistically significant differences were determined in respect to the analysis of the semen volume, sperm count per 1 ml and the percentage of spermatozoa of abnormal structure (Fig. 2).

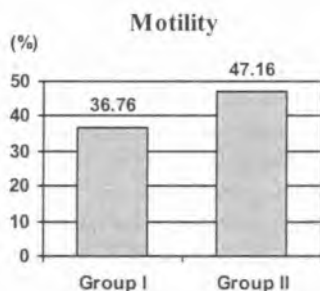


Fig. 1. Differences of the sperm motility between group I and group II

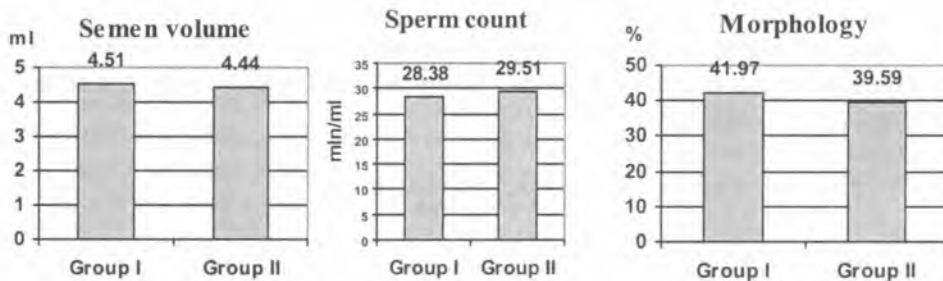


Fig. 2. Differences of the semen volume, sperm count and morphology between group I and group II

DISCUSSION

The present studies aimed at evaluation of the influence of *Chlamydia trachomatis* infection upon the parameters of semen. The median age of the examined persons was 33.9 years. The basis for the selection were disorders of genitourinary system, like in the paper of Zdrojowska-Stefanow et al. (11), where the patients were selected because of their symptoms of epididymitis. In our survey group the *Chlamydia t.* positive patients constituted 47.14%. And it is a very high percentage of infection. In different papers rates of infections caused by this microorganism will range from 1% to 30%, depending on the age of the surveyed group, their social and economic conditions and sexual habits, and in particular on promiscuity (5, 8).

The influence of *Chlamydia trachomatis* infection upon the fertility has been discussed for many years. The available literature estimates the presence of chlamydial antibodies in patients who have undergone treatment for infertility at the level of 35% or less (23%) (3, 4). The largest rate of incidence of *Chlamydia trachomatis* can be observed among people 15 to 24 years old (6). And the median age of the majority of couples treated for subfertility falls between 30 and 33 years (3), thus the association of previously acquired chlamydial infection with the conception problems regarding part of the patients, cannot be eliminated. However, these results cannot be directly related to those obtained in our research study because of different selection criteria.

In the present research study the relationship between positive chlamydial tests and decreased motility of spermatozoa was noticed. Similar results were obtained by G d o u r a R. et al. (4). The literature contains contradictory reports concerning the connection between the existence of *Chlamydia trachomatis* infection and male infertility. C e n g i z T. et al. (1) found in their research study significant influence of chlamydial antigens upon such semen parameters as: density, morphology, motility and/or viability, while P e n n e V. S. et al. (7) found no such relation between semen quality and *Chlamydia trachomatis* infection.

CONCLUSION

Further research studies should be performed in order to define the relationship between *Chlamydia trachomatis* infection and male infertility. It is also necessary to develop a research programme that can enable us to diagnose latent infections.

REFERENCES

1. C e n g i z T. et al. Chlamydial infections and male infertility. *Int. Urol. Nephrol.*, 26, 6, 687, 1997.
2. D i e t e r l e S. et al.: Chlamydial immunoglobulin IgG and IgA antibodies in serum and semen are not associated with the presence of *Chlamydia trachomatis* DNA or rRNA in semen from male partners of infertile couples. *Hum. Reprod.*, 10, 315, 1995.
3. E g g e r t - K r u s e W. et al.: Chlamydial serology in 1303 asymptomatic subfertile couples. *Hum. Reprod.*, 12, 7, 1464, 1997.
4. G d o u r a R. et al.: *Chlamydia trachomatis* and male infertility in Tunisia. *Eur. J. Contracept. Reprod. Health Care* 6, 2, 102, 2001.
5. N a y y a r K. C. et al.: Prevalence of genital pathogens among female prostitutes in New York City and Rotterdam. *Sex Transm. Dis.*, 4, 105, 1986.
6. P a a v o n e n J., W o l n e r - H a n s s e n P.: *Chlamydia trachomatis*: a major threat to reproduction. *Hum. Reprod.*, 4, 111, 1989.
7. P e n n e V. S. et al.: IgA antibodies to *Chlamydia trachomatis* and seminal parameters in asymptomatic infertile males. *Arch. Androl.*, 46, 3, 189, 2001.
8. W e s t r o m L.: Incidence, prevalence and trends of acute pelvic inflammatory disease and its consequences in industrialized countries. *Am. J. Obstet. Gynecol.*, 138, 880, 1980.
9. WHO laboratory manual for the examination of human semen sperm – cervical mucus interaction; World Health Organisation, 1999, Fourth Edition.
10. W i t k i n S. S. et al.: Detection of *Chlamydia trachomatis* in semen by the polymerase chain reaction in male members of infertile couples. *Am. J. Obstet. Gynecol.*, 168, 5, 1457, 1993.
11. Z d r o j o w s k a - S t e f a n o w B. et al.: Role of *Chlamydia trachomatis* in epididymitis. Part I: Direct and serologic diagnosis. *Med. Sci. Monit.*, 6, 6, 1113, 2000.

SUMMARY

The objective of the present research study was to compare some parameters of human semen of positive immunoenzymatic test for the *Chlamydia trachomatis* presence in blood serum with the results of those with the negative test results. Seventy (70) men with genitourinary system problems were examined: in 33 cases positive chlamydial tests were found as compared to 37 negative tests. The parameters of semen were compared in both groups. Statistically significant sperm reduced motility was found in the group with positive chlamydial test results.

Ocena niektórych parametrów nasienia u mężczyzn
z obecnością dodatnich odczynów chlamydiowych

Celem pracy było porównanie niektórych parametrów nasienia mężczyzn z obecnością dodatnich testów immunoenzymatycznych w kierunku *Chlamydia trachomatis* w surowicy krwi z mężczyznami z testami ujemnymi. Przebadano 70 mężczyzn z dolegliwościami dotyczącymi narządu moczowo-płciowego: u 33 stwierdzono dodatnie testy chlamydiowe, ujemne u 37. Porównano parametry nasienia wśród obu badanych grup. Stwierdzono istotnie statystycznie mniejszą ruchliwość plemników w grupie dodatnich testów chlamydiowych.