Abstract

Genital Mycoplasmas are a group of complex and unique microorganisms which have been associated with a wide range of infectious diseases, especially in adults.

The lack of knowledge concerning the pathogenic potential of Mycoplasmas and Ureaplasmas is due to several factors: these microorganisms are difficult to detect because they grow on special environments which are not available in many microbiology laboratories, they have an increased prevalence in healthy individuals, the number of clinical studies regarding disease association with the presence of these microorganisms in the lower urogenital tract is small, and the disease has various other aspects that put genital Mycoplasmas at the bottom of the list when etiologic factors are considered.

Lately, increased importance is given to genital Mycoplasmas - which are recognized as perinatal pathogens - due to new laboratory detection methods using gene amplification test of nucleic acid.

This paper presents: the epidemiology of genital Mycoplasmas as a factor for infertility and premature birth; the involvement of Mycoplasmas in the pathology of the male urogenital tract; the link between the infection with genital Mycoplasmas and infertility; recent changes in the genotype of Ureaplasmas; perinatal complications in Mycoplasma hominis and Ureaplasma urealyticum infection; the possibilities to detect these microorganisms in the laboratory, including molecular methods, therapeutic considerations for the treatment of systemic disease and the developed antimicrobial resistance.

The first part of the paper presents specialized studies available in books and papers. There is a particular concern among specialists from related fields to describe these microorganisms and to determine their exact role and the severity of involvement in different pathological syndromes.

Currently, there are molecular identification methods that facilitate the classification of urogenital Mycoplasmas in clinical specimens, which allowed the variations of Ureaplasma to be classified as individual species. Work will continue however to establish whether there are pathogenic differences between urogenital Mycoplasma specimens.

An exciting and only partly elucidated concept is the involvement of Mycoplasma urealyticum subspecies in major events such as preterm labor, systemic diseases in
infants, infertility, chronic conditions such as urogenital inflammatory diseases, and the relationship between the patient's immune status and therapeutic success.

The evaluation of the role of human Mycoplasmas in sexually transmitted diseases was complicated by the presence of a commensal flora in the urogenital tract with Mycoplasma, as well as approaches to define their pathogenic role.

Also, the paper summarizes techniques for detecting infections with Mycoplasma, including DNA tests and other detection methods. However, before processing, biological samples must be obtained correctly, requiring considerable attention when harvesting and transporting the samples to the laboratory, especially if the samples need to be inoculated on special media.

In the special part of the paper we studied the characteristics of Mycoplasma infection on a group of women and men presenting urogenital pathology associated with the presence of these microorganisms.

Laboratory determinations for Ureaplasma urealyticum and Mycoplasma hominis have been performed to evaluate the involvement of these microorganisms in patients with urethritis, chronic prostatitis, vaginosis or infertility. We also considered other conditions found in the studied patients, associated with the presence of Mycoplasmas: BIP, miscarriage, puerperal infection, pregnancy stopped in evolution, premature birth or imminent pre-term delivery.

The paper presents cases with vaginal and urethral discharge positive for one or both of the studied agents, often in association with other urethral infections. We carried out antibiograms to study the bacteria's sensitivity to antimicrobial agents. Statistical analysis of the obtained data showed a significant correlation between clinical and laboratory results. The results of the statistical analysis are presented in graphs and tables. The therapeutic decisions were based on the bacteria's sensitivity given by the antibiogram.

The first study aims to examine the correlation between genital syndromes and the incidence of Ureaplasma urealyticum and Mycoplasma hominis organisms in vaginal discharge, and whether the antibiotic treatment of these syndromes is targeted and effective.

Four of the eight clinical diagnoses associated with the presence of one or both Mycoplasmas presented statistically significant differences, demonstrating the need to test genitourinary Mycoplasma in cases of infertility, vaginosis and risk of premature birth. In the other four medical conditions that were associated with the presence of Mycoplasmas, although the differences were not statistically significant, it is necessary
to consider the role of Ureaplasma urealyticum and/or Mycoplasma hominis in the pathogenesis of these conditions.

The second study was conducted on men with urethral discharge, analyzing the expressed prostatic secretion, and performing a urine culture before and after the prostate massage.

Although the studied genital microorganisms can be found in the saprophytic flora, in some cases they can cause urogenital tract infections, such as urethritis or prostatitis, and even infertility. In men, the asymptomatic infection of the urogenital tract is difficult to detect, there is no test to be used for screening. The presence of these microorganisms is not correlated with urethritis and prostatitis, but we could demonstrate a statistically significant correlation in the cases of infertility.

The antibiogram showed a better response to antimicrobial agents in the group of women.

Our results, obtained by studying a small group of patients, cannot be considered definitive, but we consider the research deserves to be continued. It is noted that we do not have acceptable sensitivity for antimicrobial agents for use in pelvic inflammatory diseases, which indicates that an antibiogram or a precise identification of Mycoplasmas prior to the administration of antibiotics may be unnecessary.

The inflammatory pathology of the urogenital tract - such as infertility - with no apparent cause of infection, requires the testing of secretions and urine for both the bacterial and fungal flora, and special tests for Chlamydia and Mycoplasmas.