

## Concomitant infections with human papillomavirus and various mycoplasma and ureaplasma species in women with abnormal cervical cytology

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### ABSTRACT

**Purpose:** The objective of the present study is to verify possible association between infections with mycoplasmas and ureaplasmas and the presence of HPV infections in women diagnosed with abnormal cervical cytology.

**Material/Methods:** The investigation included 387 non-pregnant women among whom: 62 were diagnosed with ASCUS, 167 with LSIL, 27 with HSIL, 49 with cervical carcinomas, and 82 females with normal cytology.

The presence of HPV infection and identification of both ureaplasma and mycoplasma were confirmed by PCR using specific primers.

**Results:** HPV infections were demonstrated in 156 females (40%), with mycoplasmas and/or ureaplasmas were confirmed in 93 cases (24%).

In HPV-positive patients, infections with mycoplasmas/ureaplasmas were more frequent, particularly for ureaplasmas (*U. urealyticum* p=0.004, *U. parvum* p=0.027). The percentage of females infected with *U. urealyticum* significantly increased in women diagnosed with cervical carcinoma as compared to controls.

The statistical analysis demonstrated that the risk of HPV infection while already infected with any of the four analyzed species of *Mycoplasmataceae* increased two-fold. With concomitant of *U. urealyticum* infection, the risk of HPV infection was 4.7-fold greater than in the absence *U. urealyticum* infection.

**Conclusion:** Since the presence of *U. urealyticum* associates significantly with the HPV infection, genotyping of the ureaplasma species should be recommended.

**Key words:** HPV, mycoplasma, ureaplasma, squamous intraepithelial lesions

### INTRODUCTION

Human papillomavirus (HPV) infections strongly associate with cervical carcinogenesis [1]. It appears that a significant stimulating effect on the process of carcinogenesis may be also exerted by other factors, such as concomitant sexually transmitted diseases [2,3]. Microorganisms from the family *Mycoplasmataceae* (mycoplasmas and ureaplasmas) represent atypical lacking cellular wall bacteria that either closely adhere to epithelial cells of the urinary tract or penetrate these cells.

The presence of different members of the *Mycoplasma* species (*M. hominis* - *Mh*, *M. genitalium* - *Mgg*) is also associated with various urogenital diseases [4-6]. These microorganisms adhere to various other human cells, penetrate the cells and disturb the normal cell metabolism, and cause DNA damage (progressive chromosomal loss and translocations). These bacteria may also trigger chronic inflammation of the urinary tract. *Mycoplasma*-mediated oncogenesis has a long latency and requires a chronic persistent infection (close interaction with mammalian cells for long-period of time without causing acute cytopathic effects) [7-10]. Lukic *et al.* suggested that

# Concomitant Infections

**R Bogdan**



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