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Seroprevalence of human papillomavirus 16 and 18 among women and men in Tehran, Iran: implication for human papillomavirus vaccination

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Background: Human papillomavirus (HPV) is one of the most common sexually transmitted infections in both women and men and 80% of general population will be infected with HPV at some time during their life.

Infection with the high-risk HPVs most notably types 16 and 18, can lead to cervical cancer and other anogenital (anal, vulvar, vaginal and penile) cancers. Prophylactic vaccination with HPV vaccines has a high efficacy to protect against HPV infection. The assessment of the gender and age-specific seroprevalence of HPV is essential for planning of HPV vaccine implementation into the preventive programs. In this study we aimed to determine the seroprevalence of HPV-16 and 18 in both males and females in Tehran, Iran.

Material/methods: In this cross-sectional study, 378 women (10-35 years) and 162 men (10-25 years) from Tehran, Iran were enrolled. Cases with prior HPV vaccination and/or immunodeficiency disorders were

excluded. Subjects categorized in 5 age groups including 10-15, 16-20, 21-25, 26-30 and 31-35 years (54 men and 54 women in first three age groups and 108 women in last two age groups). Anti-HPV IgG antibodies against HPV-16 and HPV-18 were detected by ELISA using HPV-16 and 18 L1-capsids as antigen.

Results: HPV-16 antibody was detected in 15.6% and 13.6% of women and men respectively. Antibody against HPV-18 was found positive in 12.7% and 8% of women and men respectively. The highest seroprevalence of HPV-16 and 18 were seen in women aged 26-30 years (22.2% and 19.4% respectively) and the lowest HPV-16 and 18 seropositivity rates were seen in 10-15 years males and females (9.3% and 1.9% respectively). In our cohort of study, in males, both anti-HPV-16 and 18 increased after age 15 years peaking in men aged 21-25 years. In women, both HPV-16 and 18 seropositivity increased after 15 years, declined at 21-25 years and peaking in women aged 26-30 years and again decreased after 30 years.

Conclusions: Our data showed increasing exposure rate to high risk HPV vaccine types in our studied population over 15 years of age. In order to prevent the HPV related cancers, implementation of HPV vaccine into the national immunization program in Iran and vaccination of females and males less than 15 years of age is suggested.