Frequency of High Risk Papillomavirus Infection in Latvian Female Individuals

Liba Sokolovska [1], ***Maksims Cistjakovs*** [1], ***Alina Sultanova*** [1], ***Svetlana Chapenko*** [1], ***Baiba Lesina-Korne*** [2], ***Rafail Rozental*** [3], ***Modra Murovska*** [1], ***Ieva Ziedina*** [3]

[1] *Rīga Stradiņš University, A. Kirhenšteins Institute of Microbiology and Virology, Latvia*
[2] *Pauls Stradins Clinical University Hospital, Gynecology and Maternity, Latvia*
[3] *Rīga Stradiņš University, Laboratory of Transplantology, Latvia*

Introduction. Human papillomavirus (HPV) is a part of the *Papillomaviridae* virus family that are known to infect basal epithelial cells of the skin or the mucosal epithelium of the genitals, anus, mouth, or airways. Over 170 HPV types that have been completely sequenced and probably a lot more that have not been. Some of these types are considered as high risk HPV (HR-HPV) due to their association with cancer, including cervical cancer. The most common of high risk HPV types are HPV 18 and HPV 16 with their oncogenic potential being dependent on the expression of the oncoproteins E6 and E7.

Aim, Materials and Methods. The aim of this study is to determine the frequency of HR-HPV infection in Latvian female individuals. In this investigation randomly selected 70 female's (aged 21–78) cervical swabs were examined. DNA was exctracted using the phenol-chloroform method. To evaluate the quality of the exctracted DNA, polymerase chain reaction for β-globin was performed. Initial testing for high range of HPV types was done with polymerase chain reaction using consensus primers MY9/11 and GP5+/6+. Commercial HPV High Risk Screen Real-TM Quant qPCR kit was used for quantitative detection of 12 types of HR-HPV (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, and 59) in HPV positive DNA samples. Commercial AnyplexTM HPV28 detection kit was used for percise HR-HPV type indentification.

Results. Initial testing with consensus primers showed presence of HPV DNA in 26 of 70 (37 %) female cervical swabs. Dividing the women in age groups showed that the distribution of HPV is uneven and that it is most common (11 of 26; 42 %) among women within the age range of 40–50 years. About of 27 % HPV positive samples were positive on the presence of HR-HPV sequences. In one individual's DNA sample was detected clinically important HPV type 16 load (19 000 copies in 10^5 cells), others showed clinically insignificant viral loads (less than 1000 copies in 10^5 cells). Among HR-HPV positive samples the most common HR-HPV type was HPV 16.

Conclusions. First results show intermediate frequency rate of HR-HPV types in Latvian female induviduals with HPV 16 as the dominant type. Although, to make final conclusions further investigation of bigger numbers of individuals in the group is required.

Rīga Stradiņš University grant RSU ZP 12/2013.