HIGH RISK HUMAN PAPILLOMAVIRUS INFECTION IN LATVIAN FEMALE RENAL TRANSPLANT RECIPIENTS

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Introduction. According to the literature high risk human papillomavirus (HR-HPV) is the most common cause of cervical cancer development. Due to long term immunosuppressive therapy renal allograft recipients has a higher risk of developing HPV infection and associated malignancies.

Aim. to investigate frequency of HR-HPV infection in female renal allograft recipients.

Materials and methods. In this investigation 23 female kidney recipients positive on HPV infection (age 28 – 68) were enrolled and examined progressively. Peripheral EDTA-blood samples and cervical swabs were collected from each patient 2 weeks, 6 months and 12 months after transplantation.

Polymerase chain reaction (PCR) with consensus primers was used for initial detection of wide range HPV types. 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 recipients’ HPV positive DNA samples. Commercial eLISA kit was used for detection of HR-HPV L1-capsid’s antibody (IgG) in recipients’ plasma.

Results. Majority of recipients (39%; 9/23) were positive already 2 weeks after renal transplantation (RT), additionally three recipients became positive 6 months (52%; 12/23) and four recipients (69%; 16/23) 12 months after renal transplantation. qPCR results showed that most of patients (63%) had either HR-HPV type 51 or type 56. Specific typing confirmed that one patient was infected with HR-HPV 18 and one patient had HR-HPV 16. In two patients co-infection with two different HR-HPV types was found.

HR-HPV L1 IgG antibodies in plasma were detected in 38% (6/16) of recipients positive on HR-HPV sequences in cervical swabs and in 57% (4/7) of recipients negative on them. All IgG positive patients had these antibodies from the beginning of the study.

There was important connection between viral load in cervical swabs and HR-HPV L1 IgG antibodies in the plasma. 50% (3/6) of IgG positive patients developed detectable viral load only 12 months after RT and 33% (2/6) of them had virus clearance within half a year. Furthermore, IgG positive patients showed only clinically insignificant HR-HPV viral load. There are 7 patients who had shown viral load increment during the study and 6 of them were IgG negative.

Conclusion. HR-HPV L1 IgG antibodies could be used as a prognostic marker for virus clearance from the host. Reduced humoral immunity during immunosuppressive therapy may play an important role in development of HR-HPV infection and its clearance, however further investigation is required.