

HIGH RISK HUMAN PAPILLOMAVIRUS INFECTION IN FEMALE KIDNEY TRANSPLANT RECIPIENTS

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Introduction and aim

Epidemiological studies indicate human papillomavirus (HPV) infections as the major factor for developing cervical cancer. The **aim of this study** was to identify HPV infection by prospective virus screening and reduce the risk of HPV-associated cancers by immunosuppressive treatment adjustment in *de novo* kidney transplant recipients.

Materials and methods

Cervical swabs for HPV DNA examination, cervical cytology (Papanicolaou smear) and blood testing for detection of high risk HPV (hrHPV) major capsid's protein L1 immunoglobulin G (ELISA method) were collected at 2 weeks, 6 months and 12 months after kidney transplantation. HPV DNA was tested by standard polymerase chain reaction with consensus primers targeting L1 region conservative for the majority of HPV types. All kidney transplant recipients were treated with induction therapy (basiliximab or ATG-Fresenius), steroids and mycophenolate mofetil and 87% of patients received tacrolimus as CNI. All rejection episodes were proved by the biopsy, and humoral rejection was treated by rituximab and / or plasmapheresis.

Results

Study included 30 white female kidney transplant recipients (mean age of 47,1 years old) of deceased (83%) and living (17%) donors. Only 3 patients missed one last sample at 12 months after operation. Of totally 87 analyzed samples 26 (30%) in 14 patients (47%) were positive for one or more HPV genotypes.

A single positive sample was observed in 6 patients, two consecutive positive samples in 4 patients and all three positive samples in 4 patients. A single genotype was found in 10% of women and multiple genotypes in 37% of women. The high risk genotypes (16, 18, 31, 35, 51, 56, 68) were isolated in 12 (40%) patients. The most prevalent genotype was 18 (in 27% of patients). None of patients received HPV vaccine prior to the transplantation, nobody had concomitant HIV infection. 20% of patients had antibodies against HPV, however they were not protective against relapse/*de novo* hrHPV infection.

Cervical intraepithelial neoplasia grade 1 (CIN1) was detected in 3 (10%) patients who at the same time were positive for hrHPV. None of them progressed to CIN2 during the study, and 2 of them cleared of the virus by month 12.

In the cohort group the only one factor associated with the presence of HrHPV infection was age less than 41 years old ($p=0,044$). There was no association between hrHPV existence and induction or maintenance immunosuppression medication or dosage. Neither development nor treatment for acute rejection increased the rate of hrHPV infection.

Conclusions

Human papillomavirus infection prevalence is high in transplant patient population.

Majority of the patients are infected with multiple high risk HPV genotypes.

Intensity of immunosuppression did not alter the rate of infection.

Conventional cervical cytology testing is not sensitive enough to detect lesions of high risk HPV infection in transplant patient.

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