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The Effect Human Papilloma Virus on Pregnancy Outcome

Authors : Amrit Gupta, Suchi Rani, Vineeta Agarwal, Swast Tiwari, Anup Kumar, Sachin Sharma

Abstract : Pregnancy is a unique state in which a balance of immune tolerance and suppression is necessary to protect the fetus without compromising the mother's health. Human papilloma virus (HPV) is viral infection which mainly gets transmitted through sexual contact. The HPV infection can cause infections in the placenta and increase the inflammatory response in the mother, affecting pregnancy outcomes. This may result in adverse maternal and neonatal outcomes. The objectives of this research are to evaluate the effect on clinical course in pregnancy and maternal outcome in pregnant women with HPV infection and to evaluate the effect on neonatal health in terms of adverse clinical effects. Methodology: The prospective cohort study was done in a tertiary care institution over two years. In this study, 250 participants were recruited. The study included pregnant women who attended the antenatal clinic for routine check-ups. Written informed consent was obtained from each participant. Participants were asked to fill out a detailed questionnaire about their lifestyle, including demographic characteristics, sexual behaviors, past gynecological history, and medical and surgical history. HPV was the preliminary screening method, and a Pap smear was done in patients who came out to be HPV positive. Samples were collected with the cotton stick or HC2 sampler brush. Cyto-brush was rotated 3–5 times in the region of ecto-cervix. After the collection of the sample, it was dissolved in PBS buffer and stored at − 80° for HPV DNA analysis. HPV DNA was detected using a hybrid capture assay (marketed as Digene HC2 high-risk HPV DNA test; Cat. No./ID: 5199–1220). The cohort was divided into two study groups: 1) those who were HPV positive and 2) those who were HPV negative. The chi-square test is used to compare categorical variables across groups. AQ5 Unpaired t-tests and independent sample tests are used to test the statistical significance of intergroup mean differences. P-values are considered significant if they are less than 0.05. In MS Windows, SPSS20 (IBM Corporation; NY, USA) was used for statistical analysis of all data. Results: Out of 228 pregnant women, 27.63% (n=63) of pregnant women were found positive for the HPV DNA test. In comparing the HPV-positive (N=63) and HPV-negative (N=165) groups using chi-square tests, several demographic variables exhibited statistically significant differences. Habitat distribution shows a significant difference ($p<0.001$), with 28.6% of HPV-positive individuals residing in rural areas compared to 8.5% of HPV-negative individuals. The presence of morbidity besides HPV infection differed significantly ($p<0.001$), with HPV-positive participants more likely to have additional morbidities (54%) compared to HPV-negative participants (32.1%). The mode of delivery showed significant differences ($p<0.05$), particularly in emergency lower segment cesarean section (HPV+: 41.3%, HPV-: 23.6%). Gestational age at delivery was significantly lower in the HPV-positive group (median 37.28 weeks, IQR 36.43-37.85) compared to the HPV-negative group (median 37.71 weeks, IQR 37.14-38.42), with a P-value of 0.003. Finally, birth weight was significantly lower in the HPV-positive group (median 2.75 kg, IQR 2.5-2.9425) compared to the HPV-negative group (median 2.9 kg, IQR 2.67-3.25) with a P-value of 0.001. Conclusion: In summary, our study offers valuable insights into the relationship between HPV infection during pregnancy, basic demographic factors and maternal and neonatal health outcomes.

Keywords : human papilloma virus, maternal health, fetal outcome, pregnancy
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