

DISCLAIMER: Results of database and or Internet searches are subject to the limitations of both the database(s) searched, and by your search request. It is the responsibility of the requestor to determine the accuracy, validity and interpretation of the results.

Date: 28 March 2018

Sources: Medline, Embase.

Mode of Delivery and Condylomata Acuminata (Genital Warts)

[See full search strategy](#)

1. Effect of mode of delivery on vertical human papillomavirus transmission - A meta-analysis.

Author(s): Chatzistamatiou, K; Sotiriadis, A; Agorastos, T

Source: Journal of obstetrics and gynaecology : the journal of the Institute of Obstetrics and Gynaecology; 2016; vol. 36 (no. 1); p. 10-14

Publication Date: 2016

Publication Type(s): Meta-analysis Journal Article Review

PubMedID: 26367314

Abstract: A systematic review of the literature has been conducted (last update March 2014) for clinical studies reporting the prevalence of human papillomavirus (HPV) in the offspring of HPV-infected women in association to their mode of delivery. A meta-analysis was carried out according to the identification of concordant neonatal to maternal HPV types. Overall eight studies were included in the meta-analysis. Our pooled results, showed that caesarean section is associated with significantly lower rates of HPV transmission than vaginal birth (14.9% vs. 28.2%, risk ratio or RR: 0.515, 95% confidence interval or CI: 0.34-0.78). The number of caesarean sections needed to prevent one case of perinatal infection (number needed to treat or NNT) would be 7.5. As a conclusion it should be noted that caesarean section decreases the risk for perinatal HPV transmission by approximately 46%. Perinatal transmission still occurs in approximately 15% of the children born by caesarean section.

Database: Medline

2. Possible non-sexual modes of transmission of human papilloma virus.

Author(s): Sabeena, Sasidharanpillai; Bhat, Parvati; Kamath, Veena; Arunkumar, Govindakarnavar

Source: The journal of obstetrics and gynaecology research; Mar 2017; vol. 43 (no. 3); p. 429-435

Publication Date: Mar 2017

Publication Type(s): Journal Article Review

PubMedID: 28165175

Available at [Journal of Obstetrics and Gynaecology Research](#) - from Wiley Online Library Science , Technology and Medicine Collection 2017

Abstract:AIM There is strong evidence to suggest vertical and horizontal modes of transmission of human papilloma virus (HPV), an established etiologic agent of cervical cancer. Infants, children, and adults can acquire both high-risk and low-risk infections by birth or by close contact even though HPV is mainly transmitted sexually. A thorough review of the literature was performed to assess the possible non-sexual modes of transmission of HPV. METHODS An electronic search of databases for review articles, cross-sectional studies, cohort studies, and case reports on non-sexual modes of transmission among sexually unexposed women and children was carried out using search terms such as "human papilloma virus, HPV, transmission, horizontal transmission, vertical transmission, and fomites". Articles published between 1983 and 2015 were retrieved. RESULT Epidemiological and clinical data support various non-sexual modes of transmission especially at the time of birth and by close contact. Even though the role of fomites in the transmission of HPV is not well established, HPV-DNA positivity has been reported in transvaginal ultrasound probes and colposcopes after routine disinfection. CONCLUSION Awareness needs to be spread among the public about alternate modes of transmission. For a proper understanding of the exact natural history of HPV infection acquired via the non-sexual route, long-term prospective studies need to be undertaken.

Database: Medline

3. Human beta-defensin 1, 2 and 3 production by amniotic epithelial cells with respect to human papillomavirus (HPV) infection, HPV oncogenic potential and the mode of delivery.

Author(s): Szukiewicz, Dariusz; Alkhalayla, Habib; Pyzlak, Michal; Watroba, Mateusz; Szewczyk, Grzegorz; Wejman, Jaroslaw

Source: Microbial pathogenesis; Aug 2016; vol. 97 ; p. 154-165

Publication Date: Aug 2016

Publication Type(s): Journal Article

PubMedID: 27289038

Abstract:BACKGROUND Human beta-defensins (HBD) produced by human amniotic epithelial cells (HAEC) co-create an innate antiviral immune response in the materno-placento-fetal unit. Oncogenic potential of HPV may reflect its ability to avoid immune recognition. In this study we assessed the risk of HAEC infection with human papillomavirus (HPV) in relation to the type of labor and the impact of the oncogenic potential of HPV on HBD production in HAEC. METHODS A comparative analysis [HPV(+) vs. HPV(-)HAEC] of the production of HBD were performed. HAEC were isolated from placentas of 116 HPV(+) and 36 HPV(-) parturients (groups I and II, respectively) using trypsin-based method. The cases of premature rupture of membranes (PROM), natural labors (NL) and cesarean sections (CS) were analysed in respective subgroups. High-risk (HR-HPV) and low-risk (LR-HPV) genotypes of HPV in cervical smears and HAEC were identified using the Roche Linear Array[®] HPV Genotyping Test. HBD-1,-2,-3 concentrations in the HAEC culture supernatant were assessed using ELISA. RESULTS The highest percentage (42.1%) of HPV transmission to HAEC occurred in PROM, an intermediate value was observed after NL (38.5%), and the lowest (25.6%) after CS. The mean concentrations of HBD-2 and HBD-3 in group I were up to 3.1- and 2.8-fold higher ($p < 0.05$), respectively. The mean concentration of HBD-2 was higher ($p < 0.05$) in LR-HPV infection compared with HR-HPV. CONCLUSION The course of labor and the mode of delivery influence the risk of HPV transmission to the HAEC. HPV infection upregulates HBD-2 and HBD-3 production in HAEC. Smaller increases in HBD-2 level after HR-HPV infection as compared to LR-HPV may affect cancerogenesis. Therapeutic potential of HBD-2 for HR-HPV infection should be assessed in future studies.

Database: Medline

4. Risk factors of the vertical transmission of human papilloma virus in newborns from singleton pregnancy-preliminary report

Author(s): Skoczynski M.; Kwasniewska A.; Gozdicka-Jozefiak A.

Source: Journal of Maternal-Fetal and Neonatal Medicine; Feb 2014; vol. 27 (no. 3); p. 239-242

Publication Date: Feb 2014

Publication Type(s): Article

PubMedID: 23697795

Available at [Journal of Maternal-Fetal and Neonatal Medicine](#) - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract:Objective: The aim of this study was to analyze the relationship between the frequency of Human Papilloma Virus (HPV) isolation in pregnant women and their offspring, and to assess the risk of maternal-neonatal transmission. Study design: The study included vaginal/buccal smears of 135 pregnant women, as well as the buccal smears and the respiratory discharge samples from their neonates. The material was tested for the presence of HPV DNA by means of PCR. Results: Twenty-two HPV 11-positive cases (16.3%) were detected amongst pregnant women, along with 16 neonatal HPV 11-positive cases (11.85%). The concordance rate of maternal and neonatal HPV 11 DNA was 54.5%. Three maternal variables: the presence of HPV 11, less than 10 years of education, and common law proved significant risk factors for vertical transmission. Conclusion: Asymptomatic HPV infection of a pregnant woman rather than the mode of delivery or other obstetrical characteristics constitutes significant risk factor of vertical transmission. © 2014 Informa UK Ltd. All rights reserved.

Database: EMBASE

5. Distribution of maternal and infant human papillomavirus: risk factors associated with vertical transmission.

Author(s): Hahn, H S; Kee, M K; Kim, H J; Kim, M Y; Kang, Y S; Park, J S; Kim, T J

Source: European journal of obstetrics, gynecology, and reproductive biology; Jul 2013; vol. 169 (no. 2); p. 202-206

Publication Date: Jul 2013

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 23578811

Abstract:OBJECTIVETo evaluate the rate of human papillomavirus (HPV) infection in pregnant women and their neonates, and the risk factors associated with vertical transmission of HPV infection from mothers to neonates.STUDY DESIGNCervical HPV testing was undertaken in pregnant women over 36 weeks of gestation, and mouth secretions and oral mucosa of neonates were tested for HPV immediately after delivery. HPV-positive neonates were rechecked 2 months postpartum to identify the persistence of HPV infection. In HPV-positive mothers, the placenta, cord blood and maternal peripheral blood were also analysed for HPV to confirm whether transplacental HPV infection occurred.RESULTSHPV was detected in 72 of 469 pregnant women (15.4%) and in 15 neonates (3.2%). Maternal HPV positivity was associated with primiparity and abnormal cervical cytology. The rate of vertical transmission was 20.8%, and all HPV-positive neonates were born from HPV-positive mothers. Vertical transmission was associated with vaginal delivery and multiple HPV types in the mother. Neonates with HPV showed a tendency for higher maternal total HPV copy number than neonates without HPV, but this difference was not significant ($p=0.081$). No cases of HPV infection were found in the infants at 2 months postpartum, and no HPV was detected in placenta, cord blood or maternal blood.CONCLUSIONS Vertical transmission of HPV is associated with vaginal delivery and multiple HPV types in the mother; however, neonatal HPV infection through vertical transmission is thought to be a transient.

Database: Medline

6. Management of genital warts in pregnancy

Author(s): Hamouda T.; Freij M.A.; Saleh M.

Source: Clinical and Experimental Obstetrics and Gynecology; 2012; vol. 39 (no. 2); p. 242-244

Publication Date: 2012

Publication Type(s): Article

PubMedID: 22905475

Abstract:Genital warts are the most prevalent form of viral genital mucosal lesions. In pregnancy they may proliferate and become easily irritated due to the increased vascularity and altered immunity. This case highlights the importance of a multidisciplinary approach and exact planning to ensure good outcome in the management of genital warts in pregnancy.

Database: EMBASE

7. Rate of vertical transmission of human papillomavirus from mothers to infants: Relationship between infection rate and mode of delivery

Author(s): Park H.; Lee S.W.; Lee I.H.; Ryu H.M.; Kim T.J.; Cho A.R.; Kang Y.S.; Hong S.R.; Kim S.S.; Seong S.J.; Shin S.M.

Source: Virology Journal; 2012; vol. 9

Publication Date: 2012

Publication Type(s): Article

PubMedID: 22497663

Available at [Virology Journal](#) - from BioMed Central

Available at [Virology Journal](#) - from Europe PubMed Central - Open Access

Available at [Virology Journal](#) - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract:Background: In contrast to consistent epidemiologic evidence of the role of sexual transmission of human papillomavirus (HPV) in adults, various routes may be related to HPV infection in infants. We have assessed the extent of HPV infection during the perinatal period, and the relationship between mode of delivery and vertical transmission. Results: A total of 291 pregnant women over 36 weeks of gestation were enrolled with informed consent. Exfoliative cells were collected from maternal cervix and neonatal buccal mucosa. HPV infection and genotypes were determined with an HPV DNA chip, which can recognise 24 types. The HPV-positive neonates were re-evaluated 6 months after birth to identify the presence of persistent infection. HPV DNA was detected in 18.9 % (55/291) of pregnant women and 3.4 % (10/291) of neonates. Maternal infection was associated with abnormal cytology ($p = 0.007$) and primiparity ($p = 0.015$). The infected neonates were all born to HPV-positive mothers. The rate of vertical transmission was estimated at 18.2 % (10/55) which was positively correlated with maternal multiple HPV infection ($p = 0.003$) and vaginal delivery ($p = 0.050$), but not with labour duration and premature rupture of membranes. The rate of concordance of genotype was 100 % in mother-neonate pairs with vertical transmission. The neonatal HPV DNAs found at birth were all cleared at 6 months after delivery. Conclusions: Vertical transmission of HPV DNA from HPV infected mother to the neonate increased when the infant was delivered through an infected cervix. However, the absence of persistent infection in infants at 6 months after delivery may suggest temporary inoculation rather than true vertical infection. © 2012 Park et al.; licensee BioMed Central Ltd.

Database: EMBASE

8. Rate of vertical transmission of human papillomavirus from mothers to infants

Author(s): Park H.; Lee C.; Lee S.W.; Lee I.H.; Ryu H.M.; Yoon S.N.; Kang Y.S.; Hong S.R.; Kim S.S.; Shin S.M.; Kim H.J.; Seong S.J.; Kim T.J.

Source: International Journal of Gynecological Cancer; Oct 2012; vol. 22

Publication Date: Oct 2012

Publication Type(s): Conference Abstract

Abstract:Background: In contrast to consistent epidemiologic evidence of the role of sexual transmission of human papillomavirus (HPV) in adults, various routes may be related to HPV infection in infants. Aims: We have assessed the extent of HPV infection during the perinatal period, and the relationship between mode of delivery and vertical transmission. Methods: A total of 291 pregnant women over 36 weeks of gestation were enrolled with informed consent. Exfoliative cells were collected from maternal cervix and neonatal buccal mucosa. HPV infection and genotypes were determined with an HPV DNA chip, which can recognize 24 types. The HPV-positive neonates were re-evaluated 6 months after birth to identify the presence of persistent infection. Results: HPV DNA was detected in 18.9 % (55/291) of pregnant women and 3.4 % (10/291) of neonates. Maternal infection was associated with abnormal cytology ($p = 0.007$) and primiparity ($p = 0.015$). The infected neonates were all born to HPV-positive mothers. The rate of vertical transmission was estimated at 18.2 % (10/55) which was positively correlated with maternal multiple HPV infection ($p = 0.003$) and vaginal delivery ($p = 0.050$). The rate of concordance of genotype was 100 % in mother-neonate pairs with vertical transmission. The neonatal HPV DNAs found at birth were all cleared at 6 months after delivery. Conclusions: Vertical transmission of HPV DNA from HPV infected mother to the neonate increased when the infant was delivered through an infected cervix. However, the absence of persistent infection in infants at 6 months after delivery may suggest temporary inoculation rather than true vertical infection.

Database: EMBASE

9. The rate of vertical transmission of human papillomavirus from mothers to infants: Relationship between infection rate and mode of delivery

Author(s): Kim T.J.; Lee J.H.; Jang H.S.; Kim J.S.; Lee I.H.; Cho A.R.; Kim J.W.; Shim J.W.; Lee K.H.; Lim K.T.; Hong S.R.

Source: Cancer Research; Apr 2012; vol. 72 (no. 8)

Publication Date: Apr 2012

Publication Type(s): Conference Abstract

Available at [Cancer Research](#) - from HighWire - Free Full Text

Available at [Cancer Research](#) - from Free Medical Journals . com

Abstract: Objectives: To assess the prevalence of human papillomavirus (HPV) infection among pregnant women and to evaluate the rate of vertical transmission of HPVs to their infants. Methods: 491 pregnant women and their infants delivered at Cheil General Hospital & Women's Healthcare Center were prospectively recruited for this study between February 2010 and November 2011. Cervical swabs and blood samples were collected from the women at 32-36 weeks of gestation. Neonatal buccal swabs and cord blood were taken immediately after birth. HPV positive neonates were rechecked HPV DNA at 6 months postpartum. HPV genotyping with HPV DNA chip (MyGene Co., Seoul, Korea) was used to detect the HPV of mothers and neonates. Type specific PCR was performed to see HPV DNA in the maternal and cord blood in cases of mother and infant infected same types of HPV DNA. Results: HPV DNA was positive in 16% (80/500) of mothers and 3.5% (17/491) of neonates. The rate of vertical transmission of HPV to their infant was 21.3% (17/80). HPV DNA type-specific maternal/neonate concordance was 100%. 16 HPV positive infants were delivered vaginally and 1 HPV positive infant was delivered by cesarean section with labor. There is no HPV positive infants delivered from cesarean section without labor. All HPV positive neonates were converted HPV negative at 6 months after birth. There was no viremia in maternal and cord blood in cases of mother and infant infected same type of HPV DNA. Conclusions: Prevalence of HPV DNA in neonates born from HPV positive mothers was significantly high. However, these data suggest that neonatal HPV DNA positive is not true vertical infection but contamination during vaginal delivery.

Database: EMBASE

10. Human papillomavirus in the oral cavity of children and mode of delivery: a retrospective study.

Author(s): Mammas, I N; Sourvinos, G; Giamarelou, P; Michael, C; Spandidos, D A

Source: International journal of STD & AIDS; Mar 2012; vol. 23 (no. 3); p. 185-188

Publication Date: Mar 2012

Publication Type(s): Journal Article

PubMedID: 22581872

Abstract:Our study aimed to examine the relationship between the presence of human papillomavirus (HPV) in the oral cavity of children and their mode of delivery. We investigated the presence of HPV infection in oral biopsies from 190 children (mean age: 7 years, range: 2-14 years) using the polymerase chain reaction (PCR) technique. Sixteen of 190 children (8.4%) were HPV-positive, with no significant difference between those delivered vaginally and by Caesarean section (C-section). The majority of the HPV-positive children were infected with type 16, whereas in the younger age group HPV type 11 was detected more frequently in children delivered by normal vaginal delivery (NVD) than by C-section. Our findings demonstrate the presence of HPV in the oral cavity of children delivered by both C-section as well as NVD. Further research on the possible modes of transmission of oral HPV infection will enable us to understand the natural history of HPV infection in childhood.

Database: Medline

11. Epidemiology of recurrent respiratory papillomatosis.

Author(s): Larson, Daniel A; Derkay, Craig S

Source: APMIS : acta pathologica, microbiologica, et immunologica Scandinavica; Jun 2010; vol. 118 (no. 6-7); p. 450-454

Publication Date: Jun 2010

Publication Type(s): Journal Article Review

PubMedID: 20553527

Available at [APMIS](#) - from Wiley Online Library Science , Technology and Medicine Collection 2017

Abstract:Recurrent respiratory papillomatosis (RRP) was first described in the 1800s, but it was not until the 1980s when it was convincingly attributed to human papilloma virus (HPV). RRP is categorized into juvenile onset and adult onset depending on presentation before or after the age of 12 years, respectively. The prevalence of this disease is likely variable depending on the age of presentation, country and socioeconomic status of the population being studied, but is generally accepted to be between 1 and 4 per 100 000. Despite the low prevalence, the economic burden of RRP is high given the multiple procedures required by patients. Multiple studies have shown that the most likely route of transmission of HPV in RRP is from mother to child during labor. Exceptions to this may include patients with congenital RRP who have been exposed in utero and adult patients who may have been exposed during sexual contact. Although cesarean section may prevent the exposure of children to the HPV virus during childbirth, its effectiveness in preventing RRP is debatable and the procedure itself carries an increased risk of complications. The quadrivalent HPV vaccine holds the most promise for the prevention of RRP by eliminating the maternal reservoir for HPV.

Database: Medline

12. Question 2: do caesarean sections reduce the maternal-fetal transmission rate of human papillomavirus infection?

Author(s): Winckworth, Lucinda C; Nichol, Richard

Source: Archives of disease in childhood; Jan 2010; vol. 95 (no. 1); p. 70-73

Publication Date: Jan 2010

Publication Type(s): Journal Article Review

PubMedID: 20040689

Available at [Archives of disease in childhood](#) - from BMJ Journals - NHS

Available at [Archives of disease in childhood](#) - from ProQuest (Hospital Premium Collection) - NHS Version

Database: Medline

13. Pregnancy and sexually transmitted viral infections

Author(s): Singhal P.; Naswa S.; Marfatia Y.S.

Source: Indian Journal of Sexually Transmitted Diseases; Jul 2009; vol. 30 (no. 2); p. 71-78

Publication Date: Jul 2009

Publication Type(s): Review

Available at [Indian journal of sexually transmitted diseases](#) - from Europe PubMed Central - Open Access

Available at [Indian journal of sexually transmitted diseases](#) - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract: Viral infections in pregnancy are a major cause of morbidity and mortality for both mother and fetus. Viral STIs occur as surface infection and then gradually infect immunologically protected sites. Therefore, these are asymptomatic, hidden and hence underdiagnosed, persistent and difficult to treat. HSV, HPV, HBV, HIV and CMV (cytomegalovirus) are the common ones. Most of these are transmitted during intrapartum period. Proper screening, identification and treatment offered during prenatal period may help in preventing their complications. Twenty five percent of women with a history of genital herpes have an outbreak at some point during the last month of pregnancy. Acyclovir is the accepted efficacious and safe therapy for HSV in pregnancy. Globally, HPV infection is the most common sexually transmitted infection. Neonatal transmission can occur in the absence of clinically evident lesions. HPV 6 or 11 may lead to Juvenile Onset Recurrent Respiratory Papillomatosis (JORRP). TCA, liquid nitrogen, laser ablation or electrocautery can be used to treat external genital HPV lesions at any time during pregnancy. Cesarean section is recommended only if the lesions are obstructing the birth canal. Mother to child transmission (MTCT) in HIV accounts for 15-30% during pregnancy and delivery, and a further 5-20% of transmission occurs through breastfeeding. HBV infection during pregnancy does not alter the natural course of the disease. In women who are seropositive for both HBsAg and HBeAg, vertical transmission is approximately 90%. Pregnancy is not a contraindication for HBV vaccination. Cytomegalovirus (CMV) is the most common intrauterine infection. Cytomegalic inclusion disease (CID) is the most severe form of congenital CMV infection. Treatment is supportive.

Database: EMBASE

14. Human Papillomavirus (HPV) infection in pregnant women and mother-to-child transmission of genital HPV genotypes: A prospective study in Spain

Author(s): Castellsague X.; Munoz J.; Albero G.; de Sanjose S.; Bosch F.X.; Drudis T.; Canadas M.P.; Gonce A.; Perez J.M.; Ros R.; Quintana M.J.

Source: BMC Infectious Diseases; May 2009; vol. 9

Publication Date: May 2009

Publication Type(s): Article

PubMedID: 19473489

Available at [BMC Infectious Diseases](#) - from BioMed Central

Available at [BMC Infectious Diseases](#) - from Europe PubMed Central - Open Access

Available at [BMC Infectious Diseases](#) - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract:Background: Studies on HPV infection in pregnant women and HPV transmission to the child have yielded inconsistent results. Methods: To estimate mother-to-child HPV transmission we carried out a prospective cohort study that included 66 HPV-positive and 77 HPV-negative pregnant women and their offspring attending a maternity hospital in Barcelona. To estimate HPV prevalence and genotype distribution in pregnancy we also carried out a related screening survey of cervical HPV-DNA detection among 828 pregnant women. Cervical cells from the mother were collected at pregnancy (mean of 31 weeks) and at the 6-week post-partum visit. Exfoliated cells from the mouth and external genitalia of the infants were collected around birth, at the 6-week post-partum visit, and around 3, 6, 12, and 24 months of age. All samples were tested for HPV using PCR. Associations between potential determinants of HPV infection in pregnant women and of HPV positivity in infants were also explored by logistic regression modelling. Results: Overall cervical HPV-DNA detection in pregnant women recruited in the HPV screening survey was 6.5% (54/828). Sexual behavior-related variables, previous histories of genital warts or sexually transmitted infections, and presence of cytological abnormalities were statistically significantly and positively associated with HPV DNA detection in pregnant women recruited in the cohort. At 418 infant visits and a mean follow-up time of 14 months, 19.7% of infants born to HPV-positive mothers and 16.9% of those born to HPV-negative mothers tested HPV positive at some point during infants' follow-up. The most frequently detected genotype both in infants and mothers was HPV-16, after excluding untyped HPV infections. We found a strong and statistically significant association between mother's and child's HPV status at the 6-week post-partum visit. Thus, children of mothers' who were HPV-positive at the post-partum visit were about 5 times more likely to test HPV-positive than children of corresponding HPV-negative mothers ($p = 0.02$). Conclusion: This study confirms that the risk of vertical transmission of HPV genotypes is relatively low. HPV persistence in infants is a rare event. These data also indicate that vertical transmission may not be the sole source of HPV infections in infants and provides partial evidence for horizontal mother-to-child HPV transmission. © 2009 Castellsague et al; licensee BioMed Central Ltd.

Database: EMBASE

15. Human papillomavirus in the placenta and umbilical cord blood.

Author(s): Sarkola, Marja E; Grénman, Seija E; Rintala, Marjut A M; Syrjänen, Kari J; Syrjänen, Stina M

Source: Acta obstetricia et gynecologica Scandinavica; 2008; vol. 87 (no. 11); p. 1181-1188

Publication Date: 2008

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 18972230

Available at [Acta obstetricia et gynecologica Scandinavica](#) - from Wiley Online Library Science , Technology and Medicine Collection 2017

Abstract:OBJECTIVETo analyze human papillomavirus (HPV) DNA in umbilical cord blood and in placenta, including its cellular localization.DESIGNLongitudinal prospective study.SETTINGMaternity Unit of Turku University Hospital, and MediCity, University of Turku.SAMPLESPlacental and cord blood samples obtained at delivery from 315 mothers and 311 neonates included in the Finnish HPV Family Study.METHODSHPV testing by nested PCR and sequencing. Tyramide amplified in situ hybridization (ISH) for viral DNA localization in placenta. Correlation to mother's and neonate's oral and genital HPV status and maternal demographic data.MAIN OUTCOME MEASURESDetection and cellular localization of HPV DNA.RESULTSHPV DNA was detected in 4.2 and 3.5% of placenta and cord blood samples, respectively, including HPV types 16, 6, 83 and 39. In placenta, HPV6 and 16 DNA was localized in syncytiotrophoblasts. Abnormal cytology increased the risk of HPV+ placenta and cord blood. History of genital warts was the only independent predictor of cord blood HPV in multivariate analysis (adjusted OR=4.0, 95% CI: 1.09-14.54, p=0.036). HPV DNA in cord blood increased the risk of genital (OR=4.0, 95% CI: 1.08-14.83, p=0.048) and oral (OR=4.4, 95% CI: 1.17-16.14, p=0.039) HPV DNA carriage of the neonate. HPV+ placenta increased the risk of oral HPV of the neonate (OR=8.6, 95% CI: 2.73-27.13, p=0.0001). Delivery mode did not predict HPV status of the neonate.CONCLUSIONS HPV DNA is detected in placental trophoblasts and umbilical cord blood. The presence of HPV DNA at these sites increases the risk of a neonate testing HPV-positive at birth.

Database: Medline

16. The occurrence of genital types of human papillomavirus in normal pregnancy and in pregnant renal transplant recipients.

Author(s): Gajewska, Malgorzata; Wielgos, Miroslaw; Kamiński, Pawel; Marianowski, Piotr; Malejczyk, Magdalena; Majewski, Slawomir; Marianowski, Longin

Source: Neuro endocrinology letters; Aug 2006; vol. 27 (no. 4); p. 529-534

Publication Date: Aug 2006

Publication Type(s): Journal Article

PubMedID: 16891989

Abstract:OBJECTIVEThe aim of this study was to evaluate: 1) The prevalence of human papillomavirus (types 6 and 11 carrying a low risk of neoplasia, and type 16 implicated as cause of cervical neoplasia and cancer) in normal pregnant women and pregnant renal transplant recipients. 2) The correlation between maternal HPV infection and HPV presence in the cord blood and the oral cavity of the neonate. Evaluation of a likely, additional route of HPV transmission to the fetus, apart from the infected birth canal during vaginal delivery. The correlation between the mode of delivery in HPV-infected patients and the presence of HPV in their offspring.DESIGNThirty-nine pregnant patients were included in the study. The study group consisted of nine pregnant renal transplant recipients. The control group consisted of 30 patients with normal pregnancy. The DNA of HPV types 6, 11 and 16 was studied in the discharge from the cervical canal, the maternal venous blood, the cord blood and the buccal smear obtained from the neonates.SETTINGA university teaching hospital delivering approximately 2000 women annually.RESULTSHuman papillomavirus (HPV) was found in 10 (26%) of 39 subjects. HPV types 6 and 11 was found in 7 (18%) of 39 subjects while HPV type 16 was present in 5 (13%) of the subjects. The co-occurrence of HPV types 6, 11 and 16 was detected in 2 patients from the control group. Transmission of HPV was established in 70% of study patients and their offspring.CONCLUSIONS1) The HPV was found with 26% pregnant women. 2) The occurrence of HPV infections with pregnant renal transplant recipients in comparison with normal pregnancy was on similar level. High percentage of HPV transmission from mother to neonate was obtained. 3) The cesarean section probably doesn't protect from HPV infection. 4) There's a suggestion, the HPV infection of fetus may occur in utero.

Database: Medline

17. Vertical transmission of the human papillomavirus: a systematic quantitative review.

Author(s): Medeiros, Lidia Rosi; Ethur, Anaelena Bragança de Moraes; Hilgert, Juliana Balbinot; Zanini, Roselaine Ruviano; Berwanger, Otávio; Bozzetti, Mary Clarisse; Mylius, Luciane Calil

Source: Cadernos de saude publica; 2005; vol. 21 (no. 4); p. 1006-1015

Publication Date: 2005

Publication Type(s): Journal Article Review

PubMedID: 16021238

Available at [Cadernos de saude publica](#) - from Scientific Electronic Library Online

Abstract: In order to better understand the exact mode and risk of vertical transmission in asymptomatic pregnant women, as well as the relationship between HPV transmission and mode of delivery, we have proposed this systematic quantitative review of prospective cohort studies. A comprehensive search was performed in the Cochrane Library, MEDLINE, LILACS, CANCELIT, and EMBASE, as well as in the reference lists from the identified studies. Nine primary studies, which included 2,111 pregnant women and 2,113 newborns, met our selection criteria and were analyzed. A positive HPV test in the mother increased the risk of vertical HPV transmission (RR: 4.8; 95%CI: 2.2-10.4). We also observed a higher risk of HPV infection after vaginal delivery than after cesarean section (RR: 1.8; 95%CI: 1.3-2.4). The results of this meta-analysis showed the HPV DNA-positive rate only after birth, but an HPV DNA-positive neonatal sample does not necessarily indicate infection; it could merely indicate contamination (perinatal HPV contamination may have occurred). Infants born through vaginal delivery were at higher risk of exposure to HPV.

Database: Medline

18. Asymptomatic genital infection of human papillomavirus in pregnant women and the vertical transmission route.

Author(s): Deng, Dongrui; Wen, Liangzhen; Chen, Wen; Ling, Xiazhen

Source: Journal of Huazhong University of Science and Technology. Medical sciences = Hua zhong ke ji da xue xue bao. Yi xue Ying De wen ban = Huazhong keji daxue xuebao. Yixue Yingdewen ban; 2005; vol. 25 (no. 3); p. 343-345

Publication Date: 2005

Publication Type(s): Journal Article

PubMedID: 16201291

Available at [Journal of Huazhong University of Science and Technology. Medical sciences = Hua zhong ke ji da xue xue bao. Yi xue Ying De wen ban = Huazhong keji daxue xuebao. Yixue Yingdewen ban](#) - from SpringerLink

Abstract: To further investigate the vertical transmission route of human papillomavirus (HPV) and the indication for the choice of mode of delivery, the infective status of 152 asymptomatic pregnant women and the maternal-fetal transmission were studied. By using general primers in polymerase chain reaction (GP-PCR) combined with restriction fragment length polymorphism analysis, HPV DNA positive rate in cervical secretions and venous blood in asymptomatic pregnant women was 36.21% and 52.78%, respectively, and the identified genotypes were mainly HPV16 and 18. The maternal-fetal transmission rate of HPV via genital tract as well as blood was 40.91% and 57.89%, respectively. It was concluded that besides the transmission route of genital tract and amniotic fluid, there was also transplacental transmission of HPV in utero. Therefore, in our opinion, it is not an absolute indication to perform a cesarean delivery for the pregnant women with HPV asymptomatic genital infection.

Database: Medline

19. The occurrence of genital types of human papillomavirus in normal pregnancy and in pregnant women with pregestational insulin dependent diabetes mellitus.

Author(s): Gajewska, Malgorzata; Marianowski, Longin; Wielgos, Mirosław; Malejczyk, Magdalena; Majewski, Sławomir

Source: Neuro endocrinology letters; Dec 2005; vol. 26 (no. 6); p. 766-770

Publication Date: Dec 2005

Publication Type(s): Comparative Study Journal Article

PubMedID: 16380676

Abstract:OBJECTIVEThe aim of the study was to evaluate the prevalence of human papillomavirus, both types of a low oncogenic risk (HPV 6, 11) and a type carrying a high oncogenic risk (HPV 16) in the genital tract of the pregnant patients, their venous blood, the cord blood and the oral cavities of the neonates. Normal pregnant women and pregnant women with insulin dependent diabetes mellitus (IDDM) diagnosed before pregnancy were included in the study.DESIGNThe study group consisted of 15 pregnant women aged 22 to 32 years with IDDM diagnosed before pregnancy. The control group consisted of 30 patients aged 18 to 38 years, with normal pregnancy. The DNA of HPV types 6, 11 and 16 was studied in the discharge from the cervical canal, the maternal venous blood, the cord blood and the buccal smear obtained from the neonates. To detect of viral DNA the PCR was used.SETTINGA university teaching hospital delivering approximately 2000 women annually.RESULTSHuman papillomavirus (HPV) was found in 12 (26.7%) of the 45 pregnant women. Of the 15 patients with pregestational IDDM the DNA of HPV was detected in four (26.7%) of the patients. The DNA of HPV types 6 and 11 was found in three (20%) patients. The DNA of HPV type 16 was detected in one pregnant patient in the study group (6.67%). Of the 30 control patients, HPV DNA was detected in eight (26%). In two (6.6%), infection with oncogenic and non-oncogenic types of HPV was diagnosed. The DNA of HPV types 6 and 11 was found in six (20%) subjects. Of the 30 control patients, the DNA of HPV type 16 was detected in four (13.3%). The transmission of HPV from HPV-positive mother to fetus was found in 50% of cases.CONCLUSIONS(i) There was a similar level of occurrence of HPV infections in pregnant women with IDDM when compare with normal pregnancy. (ii) High percentage of HPV transmission from mother to neonate was determined. (iii) The cesarean section probably does not protect the neonate from HPV infection. (iv) There is a suggestion that fetus may be affected by HPV infection during intrauterine life.

Database: Medline

20. Human papillomavirus prevalence and types in newborns and parents: concordance and modes of transmission.

Author(s): Smith, Elaine M; Ritchie, Justine M; Yankowitz, Jerome; Swarnavel, Sandhya; Wang, Donghong; Haugen, Thomas H; Turek, Lubomir P

Source: Sexually transmitted diseases; Jan 2004; vol. 31 (no. 1); p. 57-62

Publication Date: Jan 2004

Publication Type(s): Research Support, U.s. Gov't, Non-p.h.s. Journal Article Research Support, U.s. Gov't, P.h.s.

PubMedID: 14695959

Available at [Sexually transmitted diseases](#) - from Ovid (LWW Total Access Collection 2015 - Q1 with Neurology)

Available at [Sexually transmitted diseases](#) - from Ovid (Journals @ Ovid) - London Health Libraries

Abstract:BACKGROUND AND OBJECTIVESThe purpose of this investigation was to determine the risk of vertical and early contact transmission of human papillomavirus (HPV) in newborn infants based on concordance and sequence match to HPV types in parents.STUDY DESIGNThe genitals of pregnant women and newborns and oral cavity of parents and newborns were analyzed using polymerase chain reaction and DNA sequencing. Data were collected about reproductive health and risk factors for HPV.RESULTS Only one mother/newborn and no father/newborn pair was concordant for an HPV type. All other infected newborns had uninfected or discordant type infected parents.CONCLUSION The risk of vertical transmission to the oral or genital region of newborns is rare, and transmission between parents and the hospitalized newborn does not appear to occur. Lack of parent/child concordance suggests that newborns detected with HPV in their oral cavity or genitals could have become infected by their mother at untested intervals during pregnancy or in newborns with infection in the oral cavity by other contacts after birth.

Database: Medline

21. Condyloma in pregnancy is strongly predictive of juvenile-onset recurrent respiratory papillomatosis.

Author(s): Silverberg, Michael J; Thorsen, Poul; Lindeberg, Henning; Grant, Linda A; Shah, Keerti V

Source: Obstetrics and gynecology; Apr 2003; vol. 101 (no. 4); p. 645-652

Publication Date: Apr 2003

Publication Type(s): Journal Article Research Support, U.S. Gov't, P.h.s.

PubMedID: 12681865

Available at [Obstetrics and gynecology](#) - from Free Medical Journals . com

Available at [Obstetrics and gynecology](#) - from Ovid (LWW Total Access Collection 2015 - Q1 with Neurology)

Abstract:OBJECTIVETo assess the risk of juvenile-onset recurrent respiratory papillomatosis conferred by a maternal history of genital warts in pregnancy, and to identify additional cofactors such as the method of delivery (cesarean versus vaginal) and procedures or complications during pregnancy.METHODSA retrospective cohort design was used to evaluate maternal and infant characteristics associated with respiratory papillomatosis among Danish births between 1974 and 1993. Using data from Danish registries, we identified 3033 births with a maternal history of genital warts during pregnancy. Fifty-seven respiratory papillomatosis cases were identified by review of medical records from ear, nose, and throat departments.RESULTSSeven of every 1000 births with a maternal history of genital warts resulted in disease in the offspring, corresponding to a 231.4 (95% confidence interval 135.3, 395.9) times higher risk of disease relative to births without a maternal history of genital warts. In women with genital warts, delivery times of more than 10 hours were associated with a two-fold greater risk of disease. Cesarean delivery was not found to be protective against respiratory papillomatosis, and no other procedures or complications during pregnancy were observed to increase the risk of respiratory papillomatosis.CONCLUSION A maternal history of genital warts in pregnancy is the strongest risk factor for respiratory papillomatosis in the child. Future studies should examine the efficacy of genital wart treatment for the prevention of disease.

Database: Medline

22. External genital warts: diagnosis, treatment, and prevention.

Author(s): Wiley, D J; Douglas, John; Beutner, Karl; Cox, Tom; Fife, Kenneth; Moscicki, Anna-Barbara; Fukumoto, Lynne

Source: Clinical infectious diseases : an official publication of the Infectious Diseases Society of America; Oct 2002; vol. 35 ; p. S210

Publication Date: Oct 2002

Publication Type(s): Journal Article

PubMedID: 12353208

Available at [Clinical infectious diseases : an official publication of the Infectious Diseases Society of America](#) - from Oxford Journals - Medicine

Abstract:External genital warts (EGWs) are visible warts that occur in the perigenital and perianal regions. They are due primarily to non-oncogenic human papillomavirus (HPV) types, usually types 6 and 11. Physical examination assisted by bright light and magnification is the recommended approach for primary diagnosis. Biopsy is indicated when EGWs are fixed to underlying structures or discolored or when standard therapies are not effective. Recurrences are common, and there is no single treatment that is superior to others. Among women with atypical squamous cells, molecular HPV testing may be useful in determining who should be referred for colposcopy. Condoms may provide some protection against HPV-related diseases and thus are recommended in new sexual relationships and when partnerships are not mutually monogamous. Because the efficacy of cesarean section in preventing vertical transmission of HPV infection from women with EGWs to their progeny has not been proved, it is not recommended.

Database: Medline

23. Human papillomavirus in the oral cavities of children and adolescents.

Author(s): Summersgill, K F; Smith, E M; Levy, B T; Allen, J M; Haugen, T H; Turek, L P

Source: Oral surgery, oral medicine, oral pathology, oral radiology, and endodontics; Jan 2001; vol. 91 (no. 1); p. 62-69

Publication Date: Jan 2001

Publication Type(s): Research Support, U.s. Gov't, Non-p.h.s. Journal Article Research Support, U.s. Gov't, P.h.s.

PubMedID: 11174573

Abstract:OBJECTIVEThe purpose of this pilot study was to determine the frequency of human papillomavirus (HPV) in the oral cavities of children and adolescents and to identify potential risk factors for HPV infection.STUDY DESIGN Sociodemographic information was obtained on 268 healthy infants, children, and adolescents who were < or = 20 years old. Oral squamous cells were collected from swabs with young children and from oral saline solution rinses with older children and adolescents. Extracted DNA was evaluated for HPV by polymerase chain reaction, dot blot hybridization, and DNA sequencing. Factors associated with the presence of HPV were tested by using chi(2), Fisher's exact test, and logistic regression tests.RESULTSHPV was detected in 6.0% of the participants. HPV frequency among young children (<7 years old) was 8.7% (11/127), and among adolescents (13-20 years old) it was 5.2% (5/97). HPV was not detected in children aged 7 to 12 years old (0/44). Fifty-four percent (6/11) of HPV-positive children were 1 year of age or less; 3 of the HPV-positive children (<7 years old) were delivered by cesarean section. No statistically significant association was found between the detection of HPV in the oral cavity and method of delivery or gender; parent's race, education, HPV-related conditions, smoking history, or number of sex partners; or adolescent's smoking history or history of sexual activity.CONCLUSIONSThis study

suggests that HPV is present in the oral cavity primarily in children 2 years old and younger and in adolescents 13 years and older. Cesarean delivery was not protective against oral HPV infection; in fact, half of the HPV-positive infants were born by cesarean delivery.

Database: Medline

24. Perinatal transmission of human papillomavirus from gravidas with latent infections

Author(s): Tenti P.; Zappatore R.; Migliora P.; Spinillo A.; Belloni C.; Carnevali L.

Source: Obstetrics and Gynecology; 1999; vol. 93 (no. 4); p. 475-479

Publication Date: 1999

Publication Type(s): Article

PubMedID: 10214817

Available at [Obstetrics & Gynecology](#) - from Free Medical Journals . com

Available at [Obstetrics & Gynecology](#) - from Ovid (LWW Total Access Collection 2015 - Q1 with Neurology) .

Abstract:Objective: To evaluate the risk of perinatal human papillomavirus (HPV) transmission from mothers with latent infections to the oropharyngeal mucosae of their infants. Methods: Seven hundred eleven mother-newborn pairs were tested. Polymerase chain reaction was done with MY09/MY11 consensus primers to identify HPV DNA in maternal cervicovaginal lavages and newborn nasopharyngeal aspirates. Positive cases were further amplified with type- specific primers for HPVs 6, 11, 16, 18, and 33. All infants born to HPV- positive mothers were observed to 18 months for appearance of HPV in oropharyngeal mucosae. Results: Human papillomavirus DNA was detected in 11 neonates born vaginally to HPV-positive women, a vertical transmission rate was 30% (95% confidence interval [CI] 15.9, 47). Nasopharyngeal aspirates were HPV-negative in all 11 cases in which rupture of membranes occurred less than 2 hours before delivery. When rupture preceeded delivery by 2-4 hours, and when it occurred after more than 4 hours, the respective rates for HPV positivity were seven of 21 and four of five (chi2 for trend = 10.7, P = .001). At follow-up, virus was cleared from the oropharyngeal samples as early as the 5th week. Conclusion: Pregnant women with latent HPV infections have low potential of transmitting the virus to the oropharyngeal mucosae of their infants. The time between rupture of the amnion and delivery seems to be a critical factor in predicting transmission. Human papillomavirus- positive infants should be considered contaminated rather than infected since virus is cleared over several months after birth.

Database: EMBASE

25. Maternal-fetal transmission of human papillomavirus.

Author(s): Wang, X; Zhu, Q; Rao, H

Source: Chinese medical journal; Aug 1998; vol. 111 (no. 8); p. 726-727

Publication Date: Aug 1998

Publication Type(s): Journal Article

PubMedID: 11245028

Abstract:OBJECTIVETo investigate the maternal-fetal transmission of human papillomavirus (HPV).METHODSSamples of exfoliated cervical cells were obtained from 73 pregnant women on their third-trimester examinations. Samples of fetal membranes, amniotic fluid and nasopharyngeal swab were obtained from the parturients and their neonates. The presence of HPV types 16, 18 and 35 deoxyribonucleic acid was detected by polymerase chain reaction (PCR) and endonuclease method.RESULTSHPV types 16, 18 and 35 deoxyribonucleic acid were found in 26 (35.6%) of 73 specimens of cervical cells obtained from the parturients, and in 31 (42.5%) of 73 specimens of fetal membranes, 6 (15.4%) of 39 specimens of amniotic fluid, and 5 (14.7%) of 34 neonatal nasopharyngeal swabs obtained from the neonates. The restriction endonuclease analysis of the amplified products showed that HPV types 16, 18 and 35 were positive in 24.7%, 9.6% and 1.4% respectively of parturients, and 11.0%, 4.1% and 0 respectively of neonates. The maternal-fetal transmission rate of HPV was 50% (7/14) for spontaneous vaginal delivery, and 33.3% (4/12) for cesarean section.CONCLUSIONHPV can be transmitted from mothers to their babies not only through the placenta during pregnancy, but also through the genital tract during delivery.

Database: Medline

26. Risk factors for juvenile onset recurrent respiratory papillomatosis

Author(s): Shah K.V.; Shah F.K.; Bishai D.; Kashima H.K.; Stern W.F.

Source: Pediatric Infectious Disease Journal; May 1998; vol. 17 (no. 5); p. 372-376

Publication Date: May 1998

Publication Type(s): Article

PubMedID: 9613648

Available at [The Pediatric infectious disease journal](#) - from Ovid (LWW Total Access Collection 2015 - Q1 with Neurology)

Abstract:Background. Children born to condylomatous mothers are at risk for developing juvenile onset recurrent respiratory papillomatosis (JORRP). We inquired whether the triad of vaginal delivery, being firstborn and maternal age of <20 years are also risk factors for JORRP. Methods. Data for JORRP and adult onset recurrent respiratory papillomatosis cases were obtained from questionnaires answered by patients or their parents for the Recurrent Respiratory Papillomatosis Foundation. The observed numbers of cesarean births, first order births and births to mothers <20 years old were compared with expected numbers for the same variables, which were computed by distributing the cases by year of birth and then applying to them national annual statistics for the year of birth. In addition observed and expected numbers of first order births to mothers <20 years old were compared with corresponding numbers in mothers 20 years old or older. Results. In JORRP cases the relationships between observed and expected numbers of cases were as follows: cesarean births, 4.6-fold less; first order births, 1.6-fold greater; maternal age <20 years old, 2.6-fold greater. All these differences were statistically highly significant. The observed parity effect was mediated to a large extent by maternal age. In contrast there were no significant differences between observed and expected numbers of adult onset recurrent respiratory papillomatosis cases with respect to any of the above variables. Conclusions. Young primiparous mothers with condylomas are at a high risk for transmission of JORRP to their infants. The option of cesarean delivery should be discussed with a mother who has condyloma at the time of delivery.

Database: EMBASE

27. Clinical observation on vertical transmission of human papillomavirus.

Author(s): Xu, S; Liu, L; Lu, S; Ren, S

Source: Chinese medical sciences journal = Chung-kuo i hsueh k'o hsueh tsa chih; Mar 1998; vol. 13 (no. 1); p. 29-31

Publication Date: Mar 1998

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 11717920

Abstract:OBJECTIVETo observe the possibility of maternal-fetal vertical transmission of human papillomavirus (HPV) via amniotic fluid.SUBJECTS AND METHODSSpecimens of cervical secretions from 30 pregnant women were obtained during the third trimester before rupture of membrane, and specimens of pharyngeal secretions of their neonates were obtained 12-48 h after birth. Amniotic fluids were collected in 13 pregnant women during cesarean section. The presence of HPV types 6, 11, 16, 18, 31, 33, 35, 38 deoxyribonucleic acid were detected by consensus polymerase chain reaction.RESULTSHPV deoxyribonucleic acid was found in 16 cervical secretions, 14 pharyngeal secretions and in 3 amniotic fluids, the positive rate was 53.3%, 46.7%, 23.1% respectively. The pharyngeal secretion was also HPV positive in one of the three neonates from the amniotic fluid positive mothers.CONCLUSIONThe results indicate that HPV can be transmitted in utero through amniotic fluid and cesarean section can not protect the neonates against vertical transmission completely.

Database: Medline

28. Low risk of perinatal transmission of human papillomavirus: results from a prospective cohort study.

Author(s): Watts, D H; Koutsky, L A; Holmes, K K; Goldman, D; Kuypers, J; Kiviat, N B; Galloway, D A

Source: American journal of obstetrics and gynecology; Feb 1998; vol. 178 (no. 2); p. 365-373

Publication Date: Feb 1998

Publication Type(s): Journal Article Research Support, U.s. Gov't, P.h.s.

PubMedID: 9500501

Abstract:OBJECTIVEOur purpose was to evaluate the risk of perinatal transmission of human papillomavirus.STUDY DESIGNPregnant women were evaluated at <20 weeks' and between 34 and 36 weeks' gestation for genital human papillomavirus by clinical and colposcopic examination and by polymerase chain reaction. Their 151 infants were evaluated at birth, 6 weeks, and 6, 12, 18, 24, and 36 months of age for detection of human papillomavirus deoxyribonucleic acid by polymerase chain reaction on samples from the mouth, external genitalia, and anus. Polymerase chain reaction was performed with human papillomavirus L1 consensus primers and hybridization to human papillomavirus types 6, 11, 16, 18, 31, 33, 35, 39, and 45 and to a generic probe.RESULTSDuring pregnancy 112 (74%) of 151 women had historic, clinical, or deoxyribonucleic acid evidence of genital human papillomavirus infection. At 479 infant visits, human papillomavirus deoxyribonucleic acid was detected from only five (1.5%) of the 335 genital, four (1.2%) of the 324 anal, and none of the 372 oral or nasopharyngeal specimens. A positively reacting specimen was obtained from three (4%) of 80 infants born to women with human papillomavirus deoxyribonucleic acid detected at 34 weeks' gestation and from five (8%) of 63 born to women without human papillomavirus deoxyribonucleic acid ($p = 0.47$). All positive results in the infants were positive only with the generic probe and were preceded or followed by negatively reacting specimens. No clinical manifestations of human papillomavirus infection were detected in any infant.CONCLUSIONSThe isolated detection of unclassified human papillomavirus types from infants at only single visits may represent low-level

genital or nongenital human papillomavirus or may represent contamination. Although perinatal transmission of human papillomavirus is not ruled out by these data, the upper 95% confidence interval for detection of perinatal transmission from women with any evidence of genital human papillomavirus was only 2.8%.

Database: Medline

29. Perinatal transmission of human papillomavirus in infants: Relationship between infection rate and mode of delivery

Author(s): Tseng C.-J.; Liang C.-C.; Soong Y.-K.; Pao C.-C.

Source: Obstetrics and Gynecology; Jan 1998; vol. 91 (no. 1); p. 92-96

Publication Date: Jan 1998

Publication Type(s): Article

PubMedID: 9464728

Available at [Obstetrics & Gynecology](#) - from Ovid (LWW Total Access Collection 2015 - Q1 with Neurology)

Abstract:Objective: To determine the transmission rate of human papillomavirus (HPV) in newborn infants of HPV-positive women and to assess the relationship between perinatal HPV transmission and mode of delivery. Methods: Three hundred one pregnant women were selected: vaginal delivery (n = 160) or cesarean delivery (n = 141). We assessed the presence of the HPV types 16 and 18 DNA sequences in buccal and genital swabs of neonates born to HPV-positive mothers, using the polymerase chain reaction. Results: The overall frequency of HPV 16/18 infection among the pregnant women was 22.6% (68/301). At birth, the overall frequency of HPV transmission from HPV 16/18-positive mothers to newborns was 39.7% (27/68). A significantly higher rate of HPV 16/18 infection was found at birth when infants were delivered vaginally than when infants were delivered by cesarean (18/35 or 51.4% versus 9/33 or 27.3%, $P = .042$). However, there was no significant difference in the incidence of perinatal HPV infection between the HPV types 16 and 18 in either vaginal delivery group or in the cesarean delivery group (all $P > .100$). No significant difference was found between the buccal and genital sites (27/68 versus 21/68, $P = .234$), or between male and female infants overall (12/36 versus 15/32, $P = .255$). Conclusions: The findings suggest that neonates are at higher risk for exposure to HPV after vaginal delivery than after cesarean delivery.

Database: EMBASE

30. Exposure of an infant to cervical human papillomavirus infection of the mother is common

Author(s): Puranen M.H.; Yliskoski M.H.; Saarikoski S.V.; Syrjanen K.J.; Syrjanen S.M.

Source: American Journal of Obstetrics and Gynecology; 1997; vol. 176 (no. 5); p. 1039-1045

Publication Date: 1997

Publication Type(s): Article

PubMedID: 9166165

Abstract:OBJECTIVE: The purpose of this study was to determine the potential of exposure of an infant to cervical human papillomavirus infection of the mother. STUDY DESIGN: Cervical scrapes of the mothers and nasopharyngeal aspirate fluids of their infants were analyzed at the time of delivery. The study included 106 infants born by vaginal delivery or by cesarean section and their 105 mothers. Positive results were confirmed and typed by direct deoxyribonucleic acid sequencing or single-strand conformation polymorphism of the polymerase chain reaction product. RESULTS: Both the mother's and her infant's samples were positive for the same type of human papillomavirus in 29 mother-infant pairs. Interestingly, five infants born by cesarean section were found to be human papillomavirus deoxyribonucleic acid positive for the same human papillomavirus type as their mother. The overall concordance between human papillomavirus types in the mother and her newborn was 69% (29/42). Regardless of match in types found in the mother's and her infant's sample, human papillomavirus deoxyribonucleic acid positivity was found in 39 of all the 106 infants (37%). CONCLUSIONS: Our results indicate that the infant of the human papillomavirus-infected mother is exposed to infection even when the cervical infection of the mother is subclinical. The possibility of transplacental exposure has to be considered as well.

Database: EMBASE

31. Role of cesarean section in prevention of recurrent respiratory papillomatosis--is there one?

Author(s): Kosko, J R; Derkay, C S

Source: International journal of pediatric otorhinolaryngology; Mar 1996; vol. 35 (no. 1); p. 31-38

Publication Date: Mar 1996

Publication Type(s): Multicenter Study Journal Article Review

PubMedID: 8882107

Abstract:Recurrent respiratory papillomatosis (RRP) is a benign yet aggressive neoplasm that produces considerable morbidity in children. Previous studies have linked RRP in children to mothers with genital tract human papillomavirus infections (HPV). Risk factors for vertical transmission have not been well identified. Controversy exists among obstetricians and otolaryngologists regarding the role of cesarean section in preventing the transmission of HPV disease from mother to child. We address this issue by presenting the results of a national survey of otolaryngologists, the American College of Obstetrics and Gynecology position statement, the relevant literature regarding the association between RRP and maternal HPV, and the proposed mechanisms for HPV transmission at birth. We postulate a very limited role for cesarean section in preventing transmission of RRP, given our present knowledge of this disease.

Database: Medline

32. Perinatal transmission of human papillomavirus (HPV). PCR analysis of 164 pregnancies

Author(s): Tenti P.; Zappatore R.; Spinillo A.; Belloni C.; Romagnoli S.; Giunta P.; Migliora P.; Maccarini N.V.U.; Facchini D.; De Benedittis M.; Defendi S.; Carnevali L.

Source: Medecine Biologie Environnement; 1995; vol. 23 (no. 2); p. 137-140

Publication Date: 1995

Publication Type(s): Article

Abstract:We searched, by polymerase chain reaction (PCR), for the presence of HPV DNA in a series of 164 mothers and of their newborn babies, to evaluate the risk of perinatal transmission of the infection. In the mothers (all with negative PAP smear and without genital warts) the identification of HPV DNA was performed on cervico-vaginal lavage and in neonates on oropharyngeal aspirates. The test was repeated on an oral swab five weeks after birth in all infants born from HPV-positive mothers. HPV infection was identified in 19 (11.6%) mothers and in 6 (3.6%) neonates. The frequency of perinatal vertical transmission, from HPV positive mothers to their neonates, was 31.6% (6/19). At five weeks after birth all the oral samples from the 19 infants born from HPV positive mothers were negative. We could conclude that in the case of HPV-positive but clinically silent pregnant women, the presence of HPV DNA in oropharyngeal aspirate from their babies is probably to be considered a contamination, devoid of any pathological implication.

Database: EMBASE

33. Perinatal vertical transmission of human papillomavirus and subsequent development of respiratory tract papillomatosis.

Author(s): Smith, E M; Johnson, S R; Cripe, T P; Pignatari, S; Turek, L

Source: The Annals of otology, rhinology, and laryngology; Jun 1991; vol. 100 (no. 6); p. 479-483

Publication Date: Jun 1991

Publication Type(s): Research Support, U.s. Gov't, Non-p.h.s. Journal Article Research Support, U.s. Gov't, P.h.s.

PubMedID: 1647745

Abstract:This study prospectively examined the potential for human papillomavirus (HPV) to be transmitted vertically to newborns during delivery. Exfoliated cervical cells were extracted from 72 pregnant women during the third trimester and again during labor prior to delivery, and tested for the presence of HPV DNA. These results were compared with HPV DNA specimens from their newborns, who were sampled by exfoliated cells from the oral-pharyngeal cavity and vulva or tissue from the foreskin 24 to 72 hours after delivery. Among the mothers, 18.1% (13 of 72) typed HPV-positive by the ViraPap/ViraType DNA hybridization technique. Two neonates (2.8% or 2 of 72) tested positive from oral-pharyngeal specimens. This finding supports the hypothesis that respiratory tract papillomatosis may develop as a result of perinatal vertical transmission of HPV. Furthermore, this study suggests that neither cesarean section nor prepartum treatment of HPV lesions will always protect against neonatal acquisition of HPV.

Database: Medline

34. Herpes simplex and human papillomavirus genital infections: controversy over obstetric management.

Author(s): Osborne, N G; Adelson, M D

Source: Clinical obstetrics and gynecology; Dec 1990; vol. 33 (no. 4); p. 801-811

Publication Date: Dec 1990

Publication Type(s): Journal Article Review

PubMedID: 1963124

Abstract:Plasma inhibitory factors, high levels of sex hormones, and depression of cell-mediated immunity may interfere with the natural host resistance to viral infections during pregnancy. It is apparent that hormonal, immunologic, and vascular changes in pregnancy may account for increased replication of herpes and for enhanced growth of condylomatous lesions. The challenge is to develop a rational plan of management for pregnant patients with herpes simplex or human papilloma virus infection. There has been a reevaluation of previous recommendations for the management of herpes in pregnancy. Although the consequences of neonatal infection are severe or fatal, the value of routine weekly screening is questionable. This regimen is a poor predictor of neonatal exposure to herpes since only one fourth of women shedding virus at the time of delivery can be identified by routine cultures. The mode of delivery should therefore be based on the presence or absence of lesions at the time of confinement. Cesarean section should be reserved for patients with lesions or with prodromal symptoms of recurrent disease at the time of delivery. Patients with ruptured membranes and active genital lesions should also be delivered by cesarean section. The spectrum of HPV-related diseases in pregnancy is poorly understood. Many questions remain unanswered. It may not be practical to treat very large or extensive genital warts during pregnancy. A cesarean section may be the best choice in these cases. It may be premature to recommend cesarean section for delivery of all pregnant women with symptomatic genital HPV infection. More data are needed. We recommend laser ablation of condylomatous lesions when discovered during pregnancy. Laser vaporization is associated with minimal morbidity when used by experienced surgeons. Trichloroacetic acid is excellent for minimal disease or for treatment of recurrences in pregnancy. Since the immune system seems to play an important role in control of viral disease, we advise pregnant patients to adopt a lifestyle which promotes health. We advise a balanced diet, an appropriate exercise program, and an environment free of unnecessary stress. We suggest avoidance of cigarettes, drugs, and alcohol.

Database: Medline

Strategy 400323

#	Database	Search term	Results
1	Medline	exp "DELIVERY, OBSTETRIC"/	72443
2	Medline	(deliver* OR labor OR labour OR birth* OR childbirth*).ti,ab	836217
3	Medline	(1 OR 2)	865020
4	Medline	exp "CONDYLOMATA ACUMINATA"/	5053
5	Medline	(genital* ADJ2 wart*).ti,ab	2295
6	Medline	(Venereal ADJ2 wart*).ti,ab	85
7	Medline	(4 OR 5 OR 6)	6339
8	Medline	(3 AND 7)	184
9	Medline	(1 AND 7)	26
10	Medline	exp "INFECTIOUS DISEASE TRANSMISSION, VERTICAL"/	14182
11	Medline	(7 AND 10)	38
12	EMBASE	exp "OBSTETRIC DELIVERY"/	129044
13	EMBASE	exp "CONDYLOMA ACUMINATUM"/	7829
14	EMBASE	(genital* ADJ2 wart*).ti,ab	3013
15	EMBASE	(Venereal ADJ2 wart*).ti,ab	90
16	EMBASE	(13 OR 14 OR 15)	9203
17	EMBASE	(12 AND 16)	54

18	EMBASE	exp "VERTICAL TRANSMISSION"/	12995
20	EMBASE	(16 AND 18)	48
21	EMBASE	exp "WART VIRUS"/	32322
22	EMBASE	(12 AND 21)	104
23	EMBASE	(18 AND 21)	122
24	Medline	exp PAPILLOMAVIRIDAE/	29302
25	Medline	(hvpv).ti,ab	34809
26	Medline	(24 OR 25)	43747
27	Medline	(1 AND 26)	37
28	Medline	(10 AND 26)	123
29	Medline	(2 AND 28)	60
30	Medline	(cesarean* OR caesarean*).ti,ab	52266
31	Medline	exp "CESAREAN SECTION"/	40769
32	Medline	(30 OR 31)	64746
33	Medline	(7 AND 32)	30
34	Medline	(26 AND 32)	57