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Transmission of Human Papillomavirus at Birth

Because approximately 15 percent of asymptomatic, sexually active women harbor human papillomavirus (HPV) on the cervix, the vertical transmission of HPV from mother to infant during birth is a major public health concern. It has been suggested that oropharyngeal infection of the newborn may be a self-limited colonization and may not result in permanent infection and later development of disease related to HPV. Tenti and colleagues studied Italian women and their infants to establish the risk of perinatal HPV transmission and subsequent colonization.

The authors obtained cervicovaginal lavage specimens from 752 pregnant women at term. These women gave no history of cervical dysplasia and had negative Papanicolaou smears during the first trimester. Nasopharyngeal aspirates were obtained from the infants in the delivery room at five weeks, and at six, 12 and 18 months of age for identification of HPV DNA. Specimens that were positive for HPV were further tested to establish subtypes 6, 11, 16, 18 and 33.

Overall, 37 women (5.2 percent) were HPV-positive. Nine women (1.3 percent) carried oncogenic subtypes 16 or 18. Women who were HPV-positive were younger than the other mothers and more likely to smoke and to be unmarried. No significant differences in gestational age, birth weight or incidence of congenital or neonatal abnormalities were found between women who were HPV-positive and those who were HPV-negative. HPV DNA was detected in 11 infants (1.5 percent). All of these infants were born to HPV-positive women and, in every case, the subtype of HPV in the infant's nasopharynx was identical to that in the maternal cervix. The overall rate of vertical transmission of HPV was 30 percent, but no transmissions occurred when rupture of the membranes occurred less than two hours before delivery. When delivery occurred two to four hours after rupture of the membranes in an HPV-positive woman, the rate of transmission was approximately 33 percent; however, when delivery was delayed beyond four hours, the rate of transmission rose to 80 percent. All 37

infants who were born to HPV-positive women had negative oropharyngeal swabs for HPV at the five-week follow-up and at all subsequent tests up to 18 months of age.

The authors conclude that the time between rupture of the membranes and delivery is critical in vertical transmission of HPV infection, but that this should be regarded as a temporary contamination rather than a true infection. They found no evidence of colonization or HPV-related pathology in infants up to 18 months of age following exposure at birth.

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Tenti P, et al. Perinatal transmission of human papillomavirus from gravidas with latent infections. Obstet Gynecol April 1999;93:475-9.

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