

OBSTETRIC AND GYNAECOLOGICAL ASPECTS OF HIV INFECTION

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ABSTRACT

The prevalence of human immunodeficiency virus (HIV) infection has increased among the female population worldwide, and to a lesser extent in Finland. The problems associated with HIV infection among women especially concern the effects on pregnancy, vertical transmission, contraception and prevention of HIV horizontal transmission, and the increased risk of cervical pre-malignant lesions and cancer of the cervix.

We examined the outcome of pregnancies among HIV-infected women during 1993–2003 in Helsinki, use of the levonorgestrel-releasing intrauterine system (LNG-IUS) among HIV-infected women and the prevalence and risk factors of cytological and histologically proven cervical lesions in this population.

Between 1993 and 2003 a total of 45 HIV-infected women delivered 52 singleton infants. The annual prevalence of HIV infection among women delivering in the hospital district of Helsinki and Uusimaa increased from 0.6/10 000 to 4.8/10 000 between 1993 and 2002. HIV infection was diagnosed during pregnancy in 18/45 (40%) of the mothers. Seventeen of the mothers received antiretroviral (ARV) medication prior to pregnancy and in 34 (66%) cases, the medication was started during pregnancy. A good virological response (i.e. HIV RNA load <1000/mL during the last trimester) to ARV medication was achieved in 36/40 (90%) of the patients in whom HI viral load measurements were performed; in 24/40 (60%) of the patients HIV RNA load was below the detection limit of the assays. Of the infants, 92% were born at term, and their mean (\pm SD) birth weight was 3350 \pm 395 g. The Caesarean section (CS) rate was low, 25%. All newborns received ARV medication and none of the infants born to mothers with pre-delivery diagnosis of maternal HIV infection were infected.

The safety and advantages of the LNG-IUS were studied prospectively (14 months) among 12 HIV-infected women and retrospectively (mean duration of follow-up 45 months) among six HIV-infected women. The LNG-IUS was well tolerated and no cases of PID or pregnancy were noted. Menstrual bleeding was reduced significantly during use of the LNG-IUS; this was associated with

a slight increase in haemoglobin levels. In a prospective study, serum oestradiol (E2) concentrations remained in the follicular range in all subjects. Among subjects using ARV medication, the proportion of cervicovaginal lavage specimens with detectable HIV RNA was 10% both before and after insertion of an LNG-IUS. No Pap smear changes were observed and the level of CD4 lymphocytes remained stable throughout the follow-up period.

Data on 108 systematically followed HIV-infected women during 1989–2003 and on 153 HIV-infected women during 1989–2006 were collected for analysis of cytological Pap smear abnormalities and for analysis of histologically verified dysplasia, respectively. The mean prevalences of low-grade squamous intraepithelial lesions (LSIL) and high-grade SIL (HSIL) were high: 15% and 5%, respectively. A reduced CD4 lymphocyte count was associated with an increased prevalence of SIL, whereas duration of HIV infection, use of ARV medication and HI viral load were not. The cumulative risk of any type of SIL was 17% after one year and 48% after five years among patients with initially normal Pap smears. The risk of developing SIL was associated with young age and a high initial HI viral load. However, CD4 level, ARV medication, HCV co-infection and smoking were not associated with the development of SIL. During the follow-up 51 subjects (33%) displayed cervical intraepithelial neoplasia (CIN), (16% CIN1 and 18% CIN 2-3). Only one case of cancer of the uterine cervix was detected. Pap smears were reliable in screening for CIN; 75% of CIN patients showed HSIL or LSIL in Pap smears taken at the time of dysplasia. The incidence of CIN showed a decreasing tendency from 12.7 to 3.5 (per 100 subjects) between 2000 and 2005 ($p=0.07$). The risk of CIN was not associated with decreased levels of CD4 lymphocytes, duration of HIV infection, use of ARV medication or plasma HI viral load. However, both nulliparity ($p<0.01$) and BV ($p<0.04$) emerged as significant risk factors of CIN.

Cervical intraepithelial neoplasia was treated by means of LEEP ($n=34$). The recurrence rate was low; 16% of the subjects showed recurrence during the follow-up period. The nadir of the CD4 lymphocyte count was lower ($p=0.04$) and the HI viral load higher ($p=0.03$) among subjects with CIN recurrence. Duration of HIV infection, use of ARV medication, and positive margins were indistinguishable among subjects with and without CIN recurrence.

In conclusion, a combination of universal antenatal screening and multidisciplinary management allows individualized treatment and prevents vertical transmission of HIV. Use of the LNG-IUS is safe among HIV-infected women and cervicovaginal shedding of HIV RNA is not affected by use of the LNG-IUS. The risk of cervical pre-malignant lesions is high among HIV-infected women despite systematic follow-up. [Full text](#)