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Voluntary pregnancy termination among women with HIV in the HAART era (2002-2008): a case series from a national study.

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Summary

There is limited information about the determinants of voluntary pregnancy termination (VPT) among women with HIV in the current context of wide access to highly active antiretroviral therapy (HAART). To investigate this issue, we analysed the characteristics of a series of voluntary pregnancy terminations (VPT) which occurred in an ongoing observational national study of pregnant women with HIV between 2002 and 2008. Sixty-three cases of VPT were compared with 334 pregnancies not ending in a VPT concurrently reported from the same centers. Voluntary pregnancy terminations showed significant associations with unplanned pregnancy (odds ratio [OR]: 24.3; 95% confidence interval [CI]: 5.8-101.2), previous pregnancies reported to the study (OR 2.5; 95%CI: 1.30-4.82), lower CD4 counts (270 vs. 420 cells/mm³), and HIV-infected current partner (OR: 1.88; 95%CI: 0.97-3.63).

Our data indicate that there is still the need to improve pregnancy planning among women with HIV, and strongly suggest that interventions aimed at improving pregnancy planning might also reduce the occurrence of VPT. Women with low CD4 counts and those with an HIV-infected partner represent two groups that should receive particular attention in preventive strategies.

Background and Methods

Following the introduction of highly active antiretroviral therapy (HAART), several studies have described the rates and outcomes of pregnancy among women with HIV (Cotter, Garcia, Duthely, Luke, & O'Sullivan, 2006; European Collaborative Study, 2005; Kourtis, Schmid, Jamieson, & Law, 2007; Szyld et al., 2006; Townsend, Cortina-Borja, Peckham & Tookey, 2008; Tuomala et al, 2005; Watts et al., 2007), but there is limited information about the determinants of voluntary pregnancy termination (VPT) among women with HIV in recent years. Defining whether particular clinical or demographic characteristics are associated with this event may be of interest for epidemiological purposes and for the design and implementation of preventive measures.

In order to investigate this issue, we studied the characteristics of the VPT reported during the last seven years to the *□□□□□□□□□□□□□□□□ (anonymised)*, an ongoing observational national study which evaluates different outcomes among pregnant women with HIV (□□□□□□□□□□ et al, 2006). The study is structured as a prospective cohort, with reporting recommended before pregnancy outcome. Retrospective reports are also allowed, but represent less than 20% of total cases in the project. Laboratory and clinical data (including coinfections with hepatitis viruses and details on antiretroviral treatment) are collected from hospital records of Obstetrics, Infectious Diseases and Pediatrics departments following women's consent. Information on past and recent substance use and on the HIV status of current partner is based on the women's reports. It is estimated that the study collects no less than 50% of all deliveries from HIV-infected mothers occurring in the country (□□□□□□□□□□ et al., 2006). Both study protocol and patient information sheet received Ethics approval. For the present analysis we considered all the centers who reported at least one VPT from December 2001 (study start) to September

2008, and compared the pregnancies ending in a VPT with all the pregnancies with a first trimester assessment, concurrently reported from the same centers, that did not end in a VPT. Categorical data were compared using the χ^2 test and quantitative data by the Mann-Whitney test for independent samples. P values below 0.05 were considered as significant. Data were analysed using the SPSS software, version 13.0.1 (SPSS Inc., Chicago, USA).

Results

Overall, 71 cases of VPT and 438 pregnancies not ending in a VPT were reported from 14 centers. Following exclusion of 8 cases of VPT associated with structural, genetic, or chromosomal abnormalities and of 104 pregnancies not ending in a VPT associated with either first trimester spontaneous abortion (n: 53) or presentation after first trimester of pregnancy (n: 51), 63 cases of VPT not motivated by any of the above abnormalities were compared with 334 pregnancies that presented within the first trimester, had a normal ultrasonographic assessment at this time, and did not end in a VPT.

The main characteristics of pregnancies with and without VPT are shown in Table 1. No significant differences between the two groups were observed for maternal age, time since HIV diagnosis, HIV viral load, preconception counselling, nationality, coinfection with hepatitis viruses, recent substance use, history of intravenous drug use, history of sexually transmitted diseases (STD), antiretroviral experience and treatment status at conception. In addition, no differences in VPT rate were observed between women with and without a previous history of VPT. Conversely, VPT rate was significantly higher in those women who had at least another pregnancy reported to the project (odds ratio [OR]: 2.5; 95% confidence interval [CI]: 1.30-4.82; $p=0.005$), had not planned current pregnancy (OR: 24.3; 95%CI: 5.8-101.2; $p<0.001$), and had more advanced HIV disease, as indicated by lower

CD4 cell counts (median: 270 vs. 420, $p= 0.011$). Women with an HIV-infected partner were slightly more likely to have a VPT, although this was only borderline significant (OR: 1.88; 95% CI: 0.97-3.63; $p= 0.057$) (Table 1).

Discussion

Different studies conducted before the year 2002 reported a reduction in voluntary pregnancy termination among women with HIV following introduction of HAART in clinical practice (Bongain et al., 2002; Massad et al., 2004; van Benthem et al., 2000). The main objective of our analysis was to define which factors are currently associated with an occurrence of VPT among women with HIV, in a time period fully representative of the recent changes introduced in antiretroviral treatment. Our results show some similarities with the findings of Bongain et al., particularly with the data they collected after 1994, with no association with age or ethnic origin, and with a higher risk of VPT associated with previous pregnancies, disease status (expressed in our study by CD4 count), and HIV infection of the partner. In our study, however, the risk of current VPT did not increase in women with a past history of VPT, and was not related to route of transmission. Such discrepancies may be due to different characteristics of the two populations studied, but might also reflect temporal trends in population demographics (progressive substitution of intravenous drug users with heterosexual women) or in decision-making among pregnant women with HIV (increasingly positive attitude towards pregnancy). We also cannot exclude that the discrepancies observed between this study and others are due to the small number of terminations in this study and limited statistical power. It is important to note that the objective of our study was only to define the characteristics associated with VPT, and our data do not allow to estimate precisely the rate of VPT

among women with HIV. Specifically designed studies should assess this rate and possible temporal trends in recent years.

Our analyses suggest that women with more advanced HIV disease and with an HIV-infected partner are more likely to have a VPT. Although we were unable to evaluate the role of marital status, which was significantly associated with VPT in other studies (Bongain et al., 2002; Massad et al, 2004), our data confirm that even in recent years the clinical conditions of the mother and the HIV status of the partner remain two important factors for decision making in pregnant women with HIV. The association found between VPT and previous but recent pregnancies, together with the observed low rate of counselling, might reflect sustained poor pregnancy planning and inadequate preconception care in a subgroup of women that undergo repeated unplanned pregnancies.

In this particular group of women, it could be reasonable to discuss, based on an individual assessment of risks and benefits, the potential use of a long acting reversible contraceptive, even if there is currently uncertainty on the best option available within this category for women with HIV (Stringer et al., 2007, Heikinheimo & Lähteenmäki, 2009).

In summary, although the rate of VPT may currently be lower compared to the pre-HAART era because of the improvements in HIV therapeutics and in prevention of vertical transmission, our data clearly indicate that there is still the need to improve preconception counselling and pregnancy planning among women with HIV. It is reasonable to assume that additional investigations and interventions on the factors associated to unplanned pregnancy might further reduce the occurrence of VPT among these women. Women with low CD4 count and those with an HIV-infected partner represent two groups that should receive particular attention.

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Table 1. Main characteristics of pregnancies with and without voluntary termination (VPT).

	N with available information in each group		median values (and IQR), by group		p value *
	VPT	No VPT	VPT	No VPT	
Age (years) (n: 396)	63	333	32 (29-36)	33 (30-36)	0.154
Time since HIV diagnosis (months) (n: 397)	63	334	74 (37-138)	85 (41-139)	0.580
CD4 cell count at first trimester (cells/mm ³) (n: 316)	15	301	270 (157-435)	420 (293-572)	0.011
HIV-RNA at first trimester (copies/ml) (n: 302)	13	289	200 (50-3400)	1070 (50-14002)	0.172
Characteristic	N with the characteristic in each group		Proportion with the characteristic in each group		p value #
	VPT	No VPT	VPT	No VPT	
- At least one previous pregnancy in the study (n: 397)	16/63	132/313	25.4%	12.0%	0.005
- Preconception counselling § (n: 375)	24/62	132/313	38.7%	42.2%	0.613
- Unplanned pregnancy (n: 368)	60/62	169/306	96.8%	55.2%	<0.001
- Foreign nationality (n: 397)	17/63	74/334	27.0%	22.2%	0.403
- HBV coinfection (n: 375)	6/55	37/320	10.9%	11.6%	0.888
- HCV coinfection (n: 380)	13/58	95/322	22.4%	29.5%	0.271
- Recent substance use (n: 382)	6/60	26/322	10.0%	8.1%	0.621
- Current partner with HIV infection (n: 322)	22/41	107/281	53.7%	38.1%	0.057
- Previous intravenous drug use (n: 349)	13/56	67/293	23.2%	22.9%	0.955
- History of STD (n: 369)	3/55	38/314	5.5%	12.1%	0.148
- At least one VPT in the past (n: 386)	20/60	134/326	33.3%	41.1%	0.259
- Antiretroviral-naïve at start of pregnancy (n: 394)	9/62	48/332	14.5%	14.5%	0.990
- On ARV at conception (n: 396)	37/62	216/334	59.7%	64.7%	0.452

IQR: interquartile range

Tests: * Mann-Whitney; # Chi-square test

ARV: antiretroviral therapy; MTCT: mother to child transmission; STD: sexually transmitted diseases.

§ defined as advice on multiple health issues regarding pregnancy and HIV.