

HPV and HIV: HPV-DNA identification of colposcytologic smears in HIV positive females through «in situ» hybridization technique

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Summary: Test statistics show a progressive increase of AIDS cases which can be attributed to heterosexual intercourse.

Cervicovaginal withdrawals were carried out on 18 HIV positive women for identification of HPV-DNA through "In Situ" hybridization with three probes 6-11 (A); 16-18 (B); 31-33-51 (C).

61% of patients tested positive at DNA Probe as follows: A = 27.27%; B = 18.18%; C = 72.72%. HIV could act as cofactor in increasing HPV manifestations.

In future, the number of AIDS cases in Italy will depend on its prevalence among the sexually active population.

Therefore, the most useful intervention, will be the prevention of transmission through heterosexual intercourse.

Key words: HPV-DNA; HIV.

INTRODUCTION

In Italy, AIDS is more widespread among drug addicts than among other categories at risk.

An increase of AIDS cases has been recorded among females especially during their reproductive age.

The test statistics show a progressive increase of AIDS cases which can be attributed to heterosexual transmission.

At present, the AIDS cases which can be attributed to heterosexual transmission amount to 7.1%, (other cases are described as "uncertain cases") half of which, due to sexual intercourse with drug addicts. The present male/female ratio is 4-3/1.

Even though HIV positives are more widespread among drug users, further infections is foreseen among women and, consequently, an increase of AIDS among babies.

HIV positive women constitute 0.4% of the whole Italian population.

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Table 1. – AIDS risk factors in Italy.

	30-09-1989	30-09-1992
Homosexuality	16.6%	15%
Drug addiction	68.2%	66.8%
Homosexuality and drug addiction	3.0%	2.5%
Haemophilia	1.8%	1.1%
Transfusion	1.5%	1.4%
Heterosexual intercourse	5.9%	7.1%
Unknown factors	3.0%	6.1%
Total	100%	100%
	3382	14783

Furthermore, it must be pointed out that sperm is much more infective than vaginal secretions and that the mucosal surface, which is exposed to HIV aggressions, is larger in women.

Women suffer from a more acute form of the disease than men.

In fact, HIV positive women, frequently suffer from cancerous and pre-cancerous lesions of the uterine cervix, which are often caused by another virus: HPV (Human Papillomavirus).

A higher incidence of "in situ" and invasive carcinoma has also been recorded in patients suffering from AIDS and infected by HPV virus.

In recent years the incidence of HPV condylomas has increased and there is a higher possibility of a neoplastic progression among HIV positive women.

While florid verrucas are easily identifiable, colposcopic examinations or molecular biology techniques are necessary to identify "introfex" or at the first stage forms.

These techniques are ideal for identifying and typing HPV-DNA.

MATERIALS AND METHODS

A cervicovaginal withdrawal of HPV-DNA was carried out on 18 HIV positive females from 1 to 8 years, aged between 18 and 37;

"In Situ" hybridization through Enz Pathogene DNA Probe Assay was used.

This technique uses three probes: 6-11 (A); 16-18 (B) and 31-33-51 (C) bound covalently to biotin.

RESULTS

Five patients were suffering from hepatitis B, 7 patients had been drug addicts for 1 to 14 years, 3 patients suffered from vulvocondylomas and one of them suffered from vulvocondylomas associated to VIN III (Bowen's disease) one suffered from CIN II, four patients were pregnant and one patient preferred to abort voluntarily, while three patients delivered through cesarian section.

Parity was 0 to 5.

The number of spontaneous abortions was 0 to 3. Three patients delivered through cesarian section (Table 3).

Eleven patients out of 18, (i.e. 61%) tested positive at all three probes.

One pregnant patient, in her first trimester, did not test positive at probe C.

Table 2. – Distribution of AIDS cases among heterosexuals on 30-09-1992.

Drug addicts partners	58.4%
Partners coming from zones at risk	15.5%
Unknown partners	21.4%
Others	4.0%
Prostitution	0.7%
Total	100%
	1029

Table 3. – Anamnesis of examined patients.

HIV positive women	18
Age Range	18 - 37
Vulvocondylomas	3
CIN 1-2	1
V.C.E.	2
Pregnant women	4

One patient, initially tested negative tested positive successively at probe A+B.

The successive check-ups have been confirmed.

A vulvar withdrawal was also carried out on 3 patients suffering from vulvodynomas: two of them tested negative and one tested positive at probe A.

CONSIDERATIONS AND CONCLUSIONS

The risk factors for the above mentioned patients are: drug use per intravenous injections, heterosexual intercourse with infected partners.

The prevalence $C > A > B$.

4 patients tested positive to more than one probe (Table 4) HIV might act as a cofactor in increasing HPV manifestation.

HIV positive women show a higher incidence of cervical diseases and a higher prevalence of HPV, if their sexual habits are the same; a local immunodeficiency can be decisive.

It would be useful to examine the role of immunocompetence transformation in CIN pathogenesis among HIV positive women.

Table 4. - Results at DNA probe.

1 patient tested positive at	"A" probe
No patients tested positive at	"B" probe
6 patients tested positive at	"C" probe
2 patients tested positive at	"A" + "B" probes
2 patients tested positive at	"A" + "C" probes

Table 5. - Distribution of HIV positive women.

HIV positive	Pregnants	Menopausal patients
A = 27.27%	A = 54.54%	A = 39.28%
B = 18.18%	B = 30.30%	B = 28.57%
C = 72.72%	C = 54.54%	C = 64.28%

In future, the number of AIDS cases in Italy, will be strictly related to the spreading of the virus among sexually active people through hererosexual transmission, considering that women are exposed to higher risks and to more serious prognoses.

It is also essential to examine other sexually transmitted diseases, which are strictly related to HIV-1 transmission.

HIV positives are mostly spread among drug users, but it is foreseen that the male/female ratio will be equalized.

However, it is "easier" to modify drug addicts "habits" than to modify "human beings' habits".

In future, epidemic diffusion in Italy will depend on the spreading of infection among the sexually active population.

Therefore the main aim in reducing the number of AIDS cases should be the prevention of the heterosexual transmission of the virus.

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