APPENDIX

ADDITIONAL TABLES

Table S2a. High-risk HPV Genotype classification, by study

Genotype	16	18	26	31	33	35	39	45	51	52	53	56	58	59	66	68	73	82v	IS39
Chin-Hong et al. 2009	HR	HR		HR	HR	HR	HR	HR	HR	HR		HR	HR	HR		HR	HR		
Smith et al. 2010	HR	HR		HR	HR	HR	HR	HR	HR	HR	**LR**	HR	HR	HR	HR	HR	**LR**		
Smith-McCune et al. 2010	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	HR	
Veldhuijzen et al. 2010	HR	HR		HR	HR	HR	HR	HR	HR	HR		HR	HR	HR		HR	HR	HR	HR
Auvert et al. 2011	HR	HR		HR	HR	HR	HR	HR	HR	HR		HR	HR	HR		HR			
Averbach et al. 2010	HR	HR		HR	HR	HR	HR	HR	HR	HR		HR	HR	HR	HR	HR			

Table S2b. Low-risk HPV Genotype classification, by study

Genotype	6	11	26	30	32	34	40	42	43	44	53	54	55	57	61	62	64	66	67	68	69	70	71	72	73	81	IS39/82	83	84	CP6108
Chin-Hong et al. 2009	LR	LR									LR	LR	LR					LR										LR		
Smith et al. 2010	LR	LR	LR	LR	LR	LR	LR	LR	LR	LR	LR	LR	LR	LR	LR		LR	**HR**	LR	LR	LR	LR	LR	LR	LR	LR	LR	LR	LR	LR
Smith-McCune et al. 2010	LR	LR	**HR**		LR		LR				**HR**	LR	LR		LR			**HR**		**HR**	LR	LR			**HR**			LR	LR	
Auvert et al. 2011	LR	LR	LR				LR	LR			LR	LR	LR	LR				LR							LR		LR	LR	LR	
Averbach et al. 2010	LR	LR	LR				LR	LR			LR	LR	LR		LR	LR	LR		LR		LR	LR	LR	LR	LR	LR	LR	LR	LR	LR

Smith: cand85, 86, jc9710

Table S3. Variables included in multivariate models to compute adjusted estimates, by study.

	Age	Ethnic group/ race	Education	Employment	Marital status or cohabitating status	HSV-2 status	STI Status	Circumcision status	Sexual partners characteristics	Condom use	Sexual behaviour	Other
Men												
Chin-Hong et al. 2009[a]	x	x				x	x		x		x	x
Smith et al. 2010[b]	x			x		x		x				
Women												
Smith-McCune et al. 2010[c]	x				x	x	x	x[d]		x	x	
Auvert et al. 2011[e]	x		x							x	x	
Averbach et al. 2010[f]	[g]				x	x	x		x	x	x	

HSV-2: Herpes Simplex virus-2; STI: sexually transmitted infections (see below for study-specific details)

a. HSV-2 status: self reported; STI status: *Neisseria Gonorrhoea, Chlamydia Trachomatis*, statuses are self-reported; Sexual partners characteristics: "HIV-negative and HIV-unknown-status partners", "Primary partner HIV status"; Sexual behaviour: "Unprotected receptive and insertive anal sex with HIV-positive partners", "Oral sex with HIV-positive or HIV-unknown status-partners", "Drug use before sex"; Other: Drug use, Alcohol use, Depression.
b. HSV-2 status: at inclusion
c. STI status: Any positive test for *Neisseria Gonorrhoea, Chlamydia Trachomatis, Trichomonas vaginalis* or syphilis; Circumcision status: of regular partner; Sexual partners characteristics: "HIV-positive sexual partner", "known or suspected concurrent sexual partnerships of main partner", "Vaginal sex while partner under the influence of alcohol/drugs", "Regular partner away from home for one month or more"; Sexual behaviour: "Any exchange of sex for money/food:/drugs/shelter", "2 or more sexual partners within the last 3 months", "Ever had vaginal sex while under the influence of alcohol/drugs", "Injectable drug use", "Anal sex".
d. Of their regular sexual partners
e. STI status: Status for *Neisseria Gonorrhoea, Chlamydia Trachomatis, Trichomonas vaginalis, Candida albicans* and syphilis; Sexual behaviour: "Anal sex", "Length of sex work", "Number of clients per week".
f. STI status: Status for *Neisseria Gonorrhoea, Chlamydia Trachomatis, Trichomonas vaginalis*, candidiasis and bacterial vaginosis; Sexual behaviour: "Hormonal contraceptive use"; Sexual partners characteristics: "Primary partner with HIV infection", "Primary partner with urethral discharge", "Primary partner experiencing weight loss", "Primary partner spending nights away for home" and/or "Primary partner having had sex with a female sex worker".
g. Cases and controls matched on age.

ADDITIONAL RESULTS

Sensitivity analyses with alternative assessments

The summary ORs computed with the alternative assessments [1] for both main and sub-group analyses yielded baseline estimates tending to be slightly lower than those of the main analysis. For baseline and current assessments, calculated ORs were respectively 1.94 (95%CI, 1.55−2.44) and 1.96 (95%CI, 1.55−2.48) for HPV, 1.78 (95%CI, 1.39−2.27) and 1.91 (95%CI, 1.49−2.46) for HR-HPV, and 1.47 (95%CI, 0.89−2.45) and 1.59 (95%CI, 0.97−2.61) for LR-HPV. There was no evidence of between-study heterogeneity for HPV (I-squared P=0.463 and P=0.481, for both assessments, respectively) and HR-HPV (I-squared P=0.420 and P=0.511, for both assessments, respectively). For LR-HPV, between-study heterogeneity was significant for both baseline and current assessments (P=0.037 and P=0.022, respectively). The data are however too limited to make any inferences concerning the influence of the timing of HPV assessment in regards to HIV incidence.

EXTENDED DISCUSSION

HPV acquisition and persistence and clearance of HPV infection

The lack of evidence supporting an association of HIV acquisition and persistent HPV infection is surprising. Indeed, the lesions associated with persistent HPV infection are frequently infiltrated with T-lymphocytes and macrophages which could be target cells for HIV [2]. However, two of the reviewed studies [1, 3] found an association between non-persistent HPV and HIV acquisition, which could be explained by the host' tenuous immune response to HPV. HPV replication occurs within epithelial cells, and does not induce cytolysis, necrosis, or viraemia, which all tend to activate the immune response [4]. On the other hand, clearance of non-persisting HPV may induce an in-situ recruitment of potential target cells for HIV, and create a cytokinic and an upregulated interferon microenvironment favourable to HIV acquisition [5] . This mechanism could explain the conclusions of a recent study which found an significant association between HIV seroconversion and clearance of HR-HPV and LR-HPV infections [6].

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