Circumcision status and risk of HIV seroconversion in the HIM cohort of homosexual men in Sydney

David Templeton[1,2], Fengyi Jin[1], Garrett Prestage[1], Basil Donovan[1,3], John Imrie[4], Susan Kippax[4], John Kaldor[1], Andrew Grulich[1]

[1]National Centre in HIV Epidemiology and Clinical Research, University of New South Wales
[2]Sexual Health Service, Sydney South West Area Health Service
[3]Sydney Sexual Health Centre
[4]National Centre in HIV Social Research, University of New South Wales

Overview

- Background
- Methods: the HIM study
- Related analyses in HIM
  - Demographic predictors of circumcision
  - Validation of circumcision status
- Circumcision & HIV seroconversion
  - Univariate
  - Multivariate
  - In those reporting no receptive UAI

Background

- Circumcision reduces HIV acquisition among heterosexual African men

- Few data in homosexual men
  - X-sectional studies – conflicting[1,2,3]
  - Prospective cohort [4] - HIV risk in uncircumcised - AOR 2.0 (95% CI 1.1-3.7)

1. Kreiss et al. J Infect Dis 1993:168:1404-8
2. Grulich et al. AIDS 2001;15:1188-9
3. Klausner et al. National STD prevention conference, Florida, May 2006
4. Buchbinder et al. J Acquir Immune Defic Syndr 2005;39:82-9

Methods

- HIM cohort
  - HIV-neg homosexual men recruited 2001-2004
  - Annual face-to-face & annual telephone interviews
- Risk factors for HIV
  - Detailed behavioural data
  - Annual STI testing & self-reported STIs last 12 months
- Circumcision status
  - Self-reported; subgroup validated by examination
- HIV identification
  - Annual HIV testing & match against National HIV Register
- Statistical analysis
  - Association between circumcision & HIV seroconversion assessed using Cox regression

Source of recruitment

	%
Gay community events	55
Word of mouth	13
Gay venues	7
Previous study	5
ACON or other gay organisation	5
Internet	4
Clinics	4
Gay press	3
Sydney periodic surveys	2
Other	4

Demographics

- 1427 men enrolled
  - Retention at two years: 80%
- Median age: 35 yrs (range 18-75)
- Median follow-up time: 3.0 years
- Circumcision rates similar at baseline and 3rd year of follow-up (66% vs. 69%, p=0.15)
- 95% self-identified as gay or homosexual

Demographic predictors of circumcision

- 66% circumcised
  - 92% <1 yr old
  - 6% 1-18 yrs old
  - 3% >18 yrs old

- Independent predictors of circumcision
  - Age (p-trend<0.001)
  - Ethnicity (p<0.001)
  - Country of birth (p<0.001)

Templeton et al. Sex Health 2006;3:191-3

Validation of circumcision status

- Self-reported circumcision status at baseline in HIM
- Examination by trained nurse - blinded to participants' reported circumcision status
- n = 247
- 87% participation rate
- 100% concordance between baseline self-report and examination

Circumcision & HIV: univariate

- 49 HIV seroconversions identified in HIM
- Incidence 0.80 per 100 PY

	n	Incidence (per 100PY)	HR	95% CI	P value
Circumcision					
No (n = 488)	13	0.87	1	---	0.835
Yes (n = 938)	29	0.93	1.07	0.56-2.06	

PY, person-years; HR, hazard ratio; CI: confidence interval

HIV Seroconversion: multivariate

	Adjusted HR	95% CI	P value
Circumcision			0.705
No	1	---	
Yes	0.88	0.44-1.73	
Age			0.653
Per year increase	1.01	0.97-1.04	
UAI according to partners' HIV status			<0.001
No UAI	1	---	
With HIV negative only	2.98	1.07-8.31	
With HIV status unknown	5.07	1.75-14.66	
With HIV positive	20.14	6.98-58.12	
Anal Gonorrhoea (NAAT)			0.007
No	1	---	
Yes	7.52	1.74-32.45	
Anal warts (self-report)			0.016
No	1	---	
Yes	2.97	1.22-7.21	

Circumcision & HIV: stratified analysis

Participants not reporting receptive UAI

	n	Incidence (per 100PY)	Univariate HR	Univariate 95% CI	Univariate p	Age-adjusted HR	Age-adjusted 95% CI	Age-adjusted p
Circumcision					0.989			1.00
No	3	0.36	1	---		1	---	
Yes	6	0.35	0.99	0.25 - 3.96		1.00	0.24 - 4.09	

PY, person-years; HR, hazard ratio; CI: confidence interval

Conclusions

- No association of circumcision with HIV seroconversion among homosexual men in the HIM study
- Strengths
  - Prospective design
  - Validation
  - Adequate control for confounders
- Weakness
  - Lack of power
- Premature to promote circumcision as HIV prevention intervention in homosexual men

Acknowledgements

HIM participants and the HIM study team

Collaborators and colleagues at NCHECR & NCHSR

Dr Catherine O'Connor, SSWAHS

Funding: NCHECR & NCHSR are funded by the Australian government Department of Health and Ageing. HIM project funded by the Australian Government Department of Health and Ageing (Canberra), the New South Wales Health Department (Sydney), the National Institutes of Health, a component of the U.S. Department of Health and Human Services (NIH/NIAID/DAIDS: HVDDT Award N01-AI-05395), the National Health and Medical Research Council (NHMRC) (#400944). Dave Templeton is supported by an NHMRC Public Health Scholarship (#351044). Becton Dickinson provided GC/CT testing materials

***Jin et al. Anal STIs as risk factors for HIV seroconversion: data from the HIM cohort. IAS 2007: Poster TUPEC010**