Increasing proportion of Herpes Simplex Type 1 in first episode anogenital herpes in Australian women and men: A retrospective observational study over 13 years

D Durukan^{1,2} CK Fairley^{1,2} CS Bradshaw^{1,2} T Read^{1,2} L Caly³ J Druce³ M Catton³ EP Chow^{1,2}

¹Melbourne Sexual Health Centre, Alfred Health, Melbourne, Victoria, Australia ²Central Clinical School, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Victoria, Australia ³Victorian Infectious Diseases Reference Laboratory, 792 Elizabeth Street, Melbourne, 3000, Victoria, Australia

Background

Globally, anogenital herpes has been predominantly caused by herpes simplex virus type 2 (HSV-2), however since the 1990s there has been an increase in genital HSV-1 in developed countries including Australia (1-3). HSV-1 was more prominent in younger people, women and men who have sex with men (MSM) (3). Australian data is over 10 years old and more recent data is needed. In this study we describe the proportions of HSV-1/HSV-2 between 2004 and 2017 in Melbourne, Australia.

Aims

- To describe recent trends of first episode anogenital herpes by serotype between 2004 and 2017
- To examine the risk factors associated with HSV-1 in women, heterosexual men and MSM

Methods

- 4517 Patients who were diagnosed with first episode genital HSV that was serotyped at MSHC between 2004 and 2017 were included. Serotype was confirmed with TaqMan real time polymerase chain reaction assay.
- Patients were categorised into women, heterosexual men or MSM and analysed by gender and within men by sexual orientation
- We tested the trends in the proportions of HSV-1 and HSV-2 for each population using χ^2 trend test.
- Associations of various risk factors with HSV-1 were examined using a logistic regression model.

Results

Trends of first episode anogenital HSV-1/HSV-2

The proportion of anogenital herpes due to HSV-1 increased by 35% in women (45% in 2004 to 61% 2017; $P_{\text{trend}} < 0.001$, $N=1926$) and 8% in heterosexual men over 13 years (38% in 2004 to 41% in 2017; $P_{\text{trend}} = 0.01$, $N=1501$)

Figure 1: Changes in the proportion of anogenital herpes due to HSV-1 between 2004 and 2017

While there was no significant trend in MSM ($P_{\text{trend}} = 0.21$, $N=1090$), where site was recorded ($n=689$), the proportion of first episode anal HSV-1 and HSV-2 increased significantly (38% in 2004 to 68% in 2017, $P_{\text{trend}} < 0.001$, $n=411$), compared to penile herpes.

Table 1: Multivariate logistic regression of variables predicting the proportion of first episode anogenital HSV-1

Variable	Crude OR (95% CI)	p Value	Adjusted OR (95% CI)	p Value
Year of diagnosis	1.09 (1.06-1.13)	<0.001	1.07 (1.03-1.10)	0.001
Age				
≥28	1	<0.001	1	
<28	2.25 (2.00-2.54)	<0.001	2.24 (1.98-2.54)	<0.001
Sexual Orientation				
Heterosexual men	1		1	
Women	1.51 (1.32-1.73)	<0.001	1.34 (1.16-1.55)	<0.001
MSM	2.04 (1.74-2.39)	<0.001	2.18 (1.83-2.59)	<0.001
Condom use				
Always	1		1	
Not Always	1 (1.00-1.01)	0.03	0.83 (0.69-1.01)	0.06
Number of Partners				
1 partner	1		1	
2-5 partners	1.15 (1.00-1.33)	0.05	0.99 (0.85-1.15)	0.90
6-9 partners	0.93 (0.66-1.31)	0.66	0.68 (0.47-0.97)	0.04
10+ Partners	0.74 (0.52-1.06)	0.10	0.53 (0.36-0.77)	<0.001
Site				
Anal	1			
Genital	1.60 (1.32-1.95)	<0.001		

Conclusion

- HSV-1 is now the main cause of anogenital herpes in Australian women.
- Younger people, MSM and women are more likely to have anogenital HSV-1 compared to older people and heterosexual men
- In MSM, increases in anal herpes compared to penile herpes may be due to increasing condomless anal intercourse in this group (4)

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