

Genital Herpes in a Sexually-transmitted Infection Clinic in Singapore: A 1-year Retrospective Study

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Abstract

Introduction: This study describes the clinical features of genital herpes seen in a sexually-transmitted infection (STI) clinic in Singapore and the characteristics of the affected population. The distribution of herpes simplex virus (HSV) subtypes within the population, correlation of HSV culture result with duration of disease and prescribing habits of doctors were also examined. **Materials and Methods:** This is a retrospective study of cases of genital herpes seen at the Department of Sexually-transmitted Disease Control (DSC) clinic over a 1-year period. All records of clinically diagnosed HSV genital infections at the DSC clinic in 2001 were retrieved and reviewed and the data collated. **Results:** There were 324 cases of genital herpes, of which 153 (47.2%) were first-episode and 171 (52.8%) were recurrent HSV infections. There were 259 males and 65 females; their mean age was 35.2 years (range, 17 to 75 years). Of the 241 cases with positive culture results, 28 (11.6%) tested positive for herpes simplex virus type 1 (HSV-1) and 213 (88.4%) were positive for herpes simplex virus type 2 (HSV-2). HSV-1 accounted for 19.3% of first-episode and 4.7% of recurrent infections. HSV-2 accounted for 80.7% of first-episode and 95.3% of recurrent infections. Cultures taken from lesions ≤ 4 days, between 5 and 7 days and > 7 days of onset were positive in 79.2%, 75.7% and 75% of cases, respectively. Oral acyclovir was prescribed more commonly in females (53.8%) than in males (21.6%). **Conclusion:** Genital herpes is a common STI seen at the DSC clinic. HSV-2 is the most common cause of genital herpes and accounts for most of the recurrent cases seen.

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Key words: Cultures, Herpes simplex virus, Prescribing habits

Introduction

Genital herpes simplex virus (HSV) infection is a commonly notified sexually transmitted infection (STI). Genital herpes can be caused by both herpes simplex virus type 1 (HSV-1) and herpes simplex virus type 2 (HSV-2), with HSV-2 being the predominant infection in genital herpes. Genital herpes recurs frequently and causes significant morbidity to the individual. The incidence of HSV infections has been increasing in recent years. There is a risk of neonatal transmission of HSV infection in affected women. Genital herpes, especially newly-acquired infection, may be associated with human immunodeficiency virus (HIV) acquisition.¹ It is therefore, a disease of major public health importance.

This study describes the clinical features of genital herpes infection in the Department of Sexually-transmitted

Disease Control (DSC) clinic, the referral STI clinic in Singapore, and the characteristics of the affected population. We analysed the correlation between the results of HSV culture and duration of disease, and determined the distribution of HSV subtypes in the study population. In addition, we examined the prescribing habits of doctors treating genital herpes in the DSC clinic.

Materials and Methods

This is a retrospective study of the cases of genital herpes seen at the DSC clinic in 2001. They were diagnosed based on typical history and clinical features on physical examination. All records of attendance at the clinic for HSV genital infections from January 2001 to December 2001 (excluding sex workers) were retrieved and the casenotes reviewed. The patients' biodata, duration of lesions and treatment were collated. All viral culture results

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were noted.

Viral cultures were obtained through swabs collected in Hanks virus transport media and cultured in Buffalo Green Monkey kidney or African Green Monkey kidney cells. Positive isolates were typed by immunofluorescence using monoclonal antibodies to HSV-1 and HSV-2 (SYVA culture confirmation test).

In patients who had multiple visits to the clinic for recurrent episodes of genital herpes during the year, only the details of the first presentation were recorded.

Results

Biodata

Three hundred and twenty-four patients who attended the DSC clinic between January 2001 and December 2001 were diagnosed to have genital HSV infection. There were 259 (79.9%) males and 65 (20.1%) females. Their mean age was 35.2 years (range, 17 to 75 years). The greatest number of cases was seen in the 26- to 30-year-old group in males and in the 21- to 25-year-old group in females (Fig. 1).

There were 230 (71%) Chinese, 25 (7.7%) Malays, 35 (10.8%) Indians and 34 (10.5%) patients of other races. All were heterosexuals, except for 3 male patients who were homosexuals. The homosexual patients were aged between 23 and 25 years.

Ninety-seven (37.5%) male patients (Table 1) gave a history of exposure with commercial sex workers. None of the females gave a history of similar exposure. More men were also involved with casual partners compared with women. Most of the females had sexual relations with their spouses and/or regular partners; only 5 patients had a history of sexual contact with casual partners.

There were 81 (25%) referred cases from general practitioners and primary healthcare clinics. The rest were walk-in cases. Forty-three of the referrals had listed herpes infection as the diagnosis. Six cases were referred as syphilis, 5 cases as chancroid, 2 cases as genital warts and

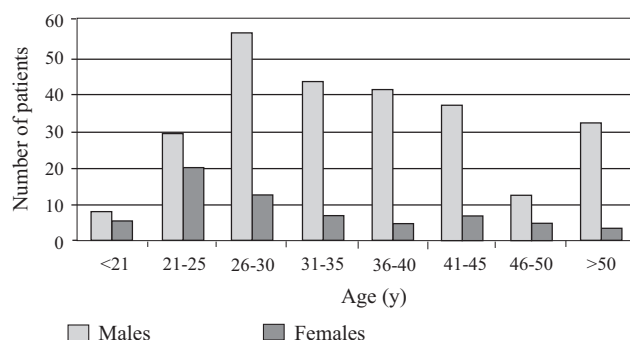


Fig. 1. Age and sex distribution of cases of genital herpes in 2001.

Table 1. Sexual Contacts According to Gender

Gender	Spouse	Regular partner	Casual partner	Commercial sex worker
Male (n = 259)	54 (20.8%)	57 (22.0%)	45 (17.4%)	97 (37.5%)
Female (n = 65)	29 (44.6%)	35 (53.8%)	5 (7.7%)	0 (0.0%)

Table 2. Distribution of First-episode and Recurrent HSV Infections by Gender

Gender	HSV infections	
	First-episode	Recurrent
Male (n = 259)	114 (44%)	145 (56%)
Female (n = 65)	39 (60%)	26 (40%)
Total (n = 324)	153 (47.2%)	171 (52.8%)

HSV: herpes simplex virus

Table 3. Distribution of Culture Positive HSV Infections

Infection	HSV-1	HSV-2
First-episode (n = 114)	22 (19.3%)	92 (80.7%)
Recurrent (n = 127)	6 (4.7%)	121 (95.3%)
Total (n = 241)	28 (11.6%)	213 (88.4%)

HSV-1: herpes simplex virus type 1; HSV-2: herpes simplex virus type 2

1 case as non-gonococcal urethritis. There were 24 referrals without any diagnosis.

Nature of Infection/Culture Results

There were 153 (47.2%) cases of first-episode HSV infection and 171 (52.8%) cases of recurrent HSV infection (Table 2). Swabs for HSV culture were taken from 226 (69.8%) patients; of these, 175 (77.4%) cases yielded positive cultures. Another 66 patients had previous documented positive culture results. These patients, who presented with recurrent genital herpes, had positive cultures from swabs done before 2001 at DSC or from the referring clinic. Of the 241 cases with positive culture results (Table 3), 28 (11.6%) cases were culture-positive for HSV-1 and 213 (88.4%) cases were positive for HSV-2. Among male patients, 19 (10.1%) were positive for HSV-1 and 169 (89.9%) for HSV-2. Among females, 9 (17%) were positive for HSV-1 and 44 (83%) for HSV-2.

Of the 153 cases of first-episode infections, 114 cases were culture positive (Table 3). Twenty-two (19.3%) cases were positive for HSV-1 and 92 (80.7%) cases were positive for HSV-2 infections. Of the 171 recurrent cases, 127 cases had positive culture results, with 6 (4.7%) cases positive for HSV-1 and 121 (95.3%) cases positive for HSV-2.

Of the 120 cultures taken from lesions within the first 4 days of presentation, 95 (79.2%) were positive for either

HSV-1 or HSV-2. Of the 70 cultures taken from lesions between day 5 and day 7, 53 (75.7%) were culture-positive; of the 36 cultures taken from lesions beyond day 7, 27 (75%) were positive for HSV-1 or HSV-2.

Management of Genital Herpes in DSC Clinic

Intermittent courses of oral acyclovir were prescribed in 91 cases. Of the 65 females, 35 (53.8%) received oral acyclovir. Twenty-four (61.5%) first-episode HSV infections and 11 (42.3%) recurrent HSV infections in women were treated with oral acyclovir. Of the 259 men with HSV infection, 56 (21.6%) received oral acyclovir. Seventeen (14.9%) first-episode HSV infections and 39 (26.9%) recurrent HSV infections were treated with oral acyclovir.

Long-term suppressive treatment with acyclovir was prescribed to 16 patients with recurrent herpes: 2 female and 14 male patients. The frequency of recurrence ranged from once a fortnight to once in 2 months. Acyclovir cream was prescribed in 19 cases.

Of 136 patients who presented within the first 3 days of onset of disease, 46 (33.8%) received oral acyclovir. Of the 138 patients who presented between day 4 and 7 of disease onset, 38 (27.5%) received oral acyclovir. Of the 34 who presented after day 7, 7 (20.5%) received oral acyclovir.

The most commonly prescribed treatment was topical antibiotics with normal saline wash. This was prescribed to 206 patients, 109 (52.9%) in first-episode infections and 97 (47.1%) in recurrent infections.

Discussion

In our study, HSV-1 accounted for 11.6% of all cases of genital herpes seen and 19.3% of first-episode infections. In a previous study on genital herpes in Singapore in 1986 to 1987,² the peak incidence was also seen in the 20- to 29-year-old age group. HSV-1 was responsible for 30% of initial genital infections in that study.

In the present study, more males were affected than females in the ratio of 4 to 1. The peak incidence in males and females was in the 26- to 30-year-old and 21- to 25-year-old groups, respectively. These peaks correspond to those in other studies. In a large longitudinal study of 869 New Zealanders,³ seroprevalence of HSV-2 was measured in a cohort of 26-year-olds born between 1 April 1972 and 31 March 1973. Seroprevalence was 3.4% at age 21 and 11% at age 26, indicating a sharp rise in this sexually active cohort.

In recurrent genital HSV infection, HSV-2 accounted for a majority (95.3%) of the cases, with HSV-1 accounting for only 4.7% of cases. This was similar to findings from a recent study⁴ on recurrent genital herpes in 84 patients with recurrent herpes attending a STI clinic in Sweden, which

found 94% of them to be due to HSV-2 infection and 6% to HSV-1 infection. Infection of the genital region with HSV-1 is known to be less severe with fewer recurrences. Our findings confirm this observation. This is useful in our counselling of patients with HSV-1, as it carries a much more favourable prognosis.

Cultures taken from lesions within the first 4 days had a 79.2% yield compared with 75% in cultures taken beyond 7 days. As the duration of viral shedding is 12 days, we had expected a greater decline in yield with age of lesion. New crops of lesions appearing after the initial lesions may possibly account for the small difference. Cultures were ordered more selectively by the doctor for older lesions. This may have led to a selection bias.

HSV-1 infections were more common in females compared with males, accounting for 17% of cases in females and 10% of cases in males. The increased incidence of HSV-1 in females has also been observed in many other studies. In a study in the United States, 41.6% of all cases of genital herpes were caused by HSV-1, with 31.8% in males and 44.8% in females.⁵ A possible reason for this was the decreasing rate of HSV-1 immunity in young adults. Another explanation was the change in sexual practices with increase in oro-genital contact.

This study also highlights the differences in sexual behaviour between the males and females attending the clinic. Two out of 5 men had a history of exposure to commercial sex workers and 1 in 5 men had a history of exposure to casual sex. In contrast, only 5 women admitted to casual sex. A previous study on sexual behaviour in Singaporeans showed that men were more permissive in their attitude towards sex.⁶ This seems to indicate that females were contracting their infection from their regular partners or spouses, whereas males were contracting HSV from casual partners or commercial sex workers.

The diagnoses from referring primary healthcare doctors showed that genital herpes was correctly diagnosed in 53.1% of cases; 29.6% of cases had no diagnosis and 17.3% had an incorrect diagnosis. Genital herpes can be diagnosed clinically in most cases. These findings suggest that there is a need for more training for primary healthcare physicians on the clinical presentation and features of genital herpes.

In examining the prescribing habits of doctors in the DSC clinic, we found that the treatment of choice was topical antibiotics with normal saline wash. A course of oral acyclovir was prescribed in 91 cases. Acyclovir was prescribed more commonly in females than in males. In females, acyclovir was prescribed more often in first-episode infections than in recurrent infections. Treatment of genital herpes reduces the severity of the lesion, time to healing and cessation of viral shedding.⁷ However, acyclovir

was prescribed in less than half of the cases of first-episode infections in men.

The polymerase chain reaction (PCR) has been used as a very sensitive, specific and rapid test for HSV detection. In a study comparing PCR with viral culture for diagnosis of HSV,⁸ 109 of 236 patients tested positive for HSV. In 88 patients, both PCR and HSV culture were positive; in 21 patients, PCR-only was positive. PCR increased the sensitivity in vesicular lesions by 13.3%, in ulcerative lesions by 27.4% and in crusting lesions by 20%. Other studies have also confirmed the increased sensitivity of PCR detection.⁹ The main limitation of PCR in clinical use is the fairly demanding technical requirements. However, with the advent of automated PCR, this is becoming more readily available.

In the DSC clinic, viral culture is the standard method of detection of HSV infections. Although this is the current gold standard, it takes up to 2 weeks for the culture results to be known and is labour-intensive and costly. Though specific, it is less sensitive than PCR detection and may lead to false reassurance in some culture-negative patients.

In conclusion, genital herpes is a common disease seen in our clinic. HSV-2 is the predominant infection seen in our patients and accounts for most of the recurrent cases seen.

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