

Profile of rape victims attending the Karl Bremer Hospital Rape Centre, Tygerberg, Cape Town

^a **Bello M**, MBBS(Ilorin), DOM(Stell), MFamMed(Stell)

^b **Pather M**, MBChB(UCT), MFamMed(Stell); BScHonsMedicalSciences(Stell)

^a Division of Family Medicine and Primary Care, Faculty of Health Sciences, Stellenbosch University and Division of District Health Services, Department of Health, Western Cape Province.

^b Division of Family Medicine and Primary Care, Faculty of Health Sciences, Stellenbosch University

Correspondence to: Dr M Pather, e-mail: mpath@sun.ac.za

Abstract

Background: Given the high prevalence of HIV infection in this country today it is not difficult to observe the risk faced by victims of sexual assault. In addition, there is a lack of available data on the per-episode risk of HIV infection with specific sexual encounters,¹ and in combination with poor follow-up of sexual assault victims,²⁻⁴ this has resulted in few studies assessing the risk of HIV infection after sexual assault. There is a paucity of research conducted in this field particularly at rape centres in the Cape Metropolitan area of the Western Cape.

Methods: *Aim:* To obtain a profile of sexual assault victims and the treatment received at the Karl Bremer Hospital Rape Centre over a period of one year.

Study design: Descriptive cross-sectional survey.

Setting: The study was conducted at the rape centre at the Karl Bremer Hospital, Cape Town, South Africa. To describe the frequency of sexually transmitted infections (STIs) in rape victims, all consecutive patients who presented to the rape centre over the one-year period from 1 April 2006 to 31 March 2007 were included in the sample. A total of 820 patient records were evaluated. The researcher and research assistant examined the victims' folders at the rape centre for information covered in the objectives. A checklist was used as an instrument to obtain relevant information on pregnancy, STIs, pre- and post-test counselling, HIV status, tolerance to anti-retroviral (ARV) treatment post sexual assault and other information covered in the objectives. Informed consent was obtained from all participants.

Results: The age of the victims ranged from six to 70 years (average age 23.3). Most of the victims (76.5%) were aged 10–29, 14.3% were aged 30–39, 2.1% were 50 or older and 0.2% were less than 10 years of age. About 5.5% had completed primary school, 26.8% had completed secondary school and only 1.8% had tertiary education. Most of the victims were not married (91.8%) and had experienced their first episode of sexual assault (88.4%). In addition, about 24.6% presented with STI and 12.1% were HIV positive at presentation. About two-thirds (67.2%) of the victims were offered post-coital contraception. It is, however, disturbing to note that only 6.2% had pre-test counselling and only 6.1% had post-test counselling.

About two-thirds (66.83%) of the victims were offered ARV therapy. Of the 548 patients who received ARV therapy, 64.2% were placed on Combivir® and only 1.5% took zidovudine. There seems to be a positive association between STI and HIV infection at presentation (OR 2.96; 95% CI 1.96–4.56). There was no statistically significant difference between level of education, employment status or marital status and HIV status at presentation. In addition, there was no statistically significant difference between number of episodes of sexual assault and HIV status.

Conclusion: The prevalence of STI in victims of sexual assault attending the Karl Bremer Hospital Rape Centre during the period 1 April 2006 to 31 March 2007 is 24.6% and that of documented HIV infection, 12.1%. The results also seem to confirm a positive association between STI and HIV infection in this study population. Pre-test and post-test counselling occurred very infrequently and this needs to be addressed. Further, attention needs to be focused on proper training of professional staff members with regard to counselling skills to further enhance the quality of care of sexual assault victims at the Karl Bremer Hospital Rape Centre.

Ⓟ This article has been peer reviewed. Full text available at www.safpj.co.za

SA Fam Pract 2008;50(6):46

Research question

What is the profile of sexual assault victims and how are they managed at the Karl Bremer Hospital Rape Centre, Tygerberg, Cape Town?

Study aim

To obtain a profile of sexual assault victims and the treatment received at the Karl Bremer Hospital Rape Centre over a period of one year.

Objectives

- To determine the prevalence of STI in sexual assault victims at the time of the incident.
- To determine the presence of HIV infection in victims of sexual assault at the time of the incident and three months later.
- To assess whether the patients received pre- and post-test counselling with regard to HIV infection at the rape centre following the incident of sexual assault.
- To obtain data regarding the use of newly provided ARV therapy as well as STI prophylaxis and pregnancy prevention management at the centre.

Introduction/background

HIV/AIDS is a topical issue in the country, as in most countries of the world. Sexual intercourse is the most important route through which this deadly virus is transmitted from an infected person to an uninfected individual. This accounted for about 85% of transmission seen in the 28 million people infected worldwide. It is important to know that HIV infection is possible through a single sexual exposure. Even though the chance of infection via a single sexual exposure is small, the fact that it could happen during sexual assault makes it more disturbing. This of course will worsen the psychological trauma experienced by the victims of sexual assault. Given the high prevalence of HIV infection in this country today it is not difficult to see the risk faced by the victims of sexual assault. It is against this background that the researcher sought to determine how many victims of sexual assault actually became HIV positive and developed STI. The study was conducted at the Karl Bremer Hospital Rape Centre, Cape Town. This centre caters for the entire Tygerberg West area, which includes Elsies River Community Health Centre (ERHC) where the researcher is currently employed.

Literature review

HIV/AIDS is a very important public health issue in the world today, and so it is in this country as well as the entire Southern African Developing Countries (SADEC) region. What is disturbing is the rate at which people are being infected by this deadly virus. Presently approximately 1 800 new cases of HIV infection per day are seen in this country.⁵ This is one of the highest infection rates in the world. HIV transmission through sexual contact accounts for about 85% of the 28 million infections seen in the world.⁶ While it is interesting to see sexual intercourse as the main route of transmission, especially among consensual partners, with repeated exposure, it has been documented that infection can also occur in a single sexual act.⁷ This evidence and the study that found HIV transmission in persons whose only known risk factor was sexual assault⁸ lend support to the fact that the risk of becoming infected with HIV as a result of sexual assault is real.⁹ There is no doubt therefore that HIV infection through sexual assault contributes significantly to the growing epidemic in South Africa.

The estimated risk of transmission of HIV for a single episode of penile/vaginal intercourse is about 0.1% and that for a single act of

receptive anal intercourse ranges from 0.5 to 3%.⁹ Rape may increase the risk of HIV transmission compared with consensual sex because trauma is more likely^{10,11} and STI prevalence is high in victims¹² and assailants.^{9,11,13-18} These infections (syphilis, trichomoniasis, gonorrhoea, herpes, etc.) are found to increase susceptibility to HIV infection.^{6,19} In certain sections of this country there is a myth that if an HIV-positive individual engages in sex with a virgin, the individual becomes cured. This kind of belief may encourage people living with HIV/AIDS to indulge in rape and increase the likelihood of HIV transmission through sexual assault.^{20,21} It is therefore easy to see how rape in our environment (with high HIV prevalence) contributes to the growing epidemic compared to developed countries where the prevalence is low.²² Whereas service providers in developed countries use risk assessment and willingness of victims to provide HIV prophylaxis to victims of rape,²³ we tend to make it available to all. Contrary to Centers for Disease Control and Prevention (CDC) guidelines on which post rape HIV prophylaxis is based,^{24,25} some service providers in developed countries only make HIV prophylaxis available to victims of rape who present within 24 hours of the incident. This follows on the results of a case study of a 13-year-old in Denmark who received HIV-infected blood and was treated successfully beginning 50 hours after exposure.²⁶

A lack of available data on the per-episode risk of HIV infection with specific sexual encounters¹ in combination with poor follow-up of sexual assault victims²⁻⁴ has resulted in few studies assessing the risk of HIV infection after sexual assault. In spite of this drawback many service providers across the globe have considered the seriousness of the disease and made available HIV prophylaxis in other populations at risk for transmission of HIV.^{27,28}

Sexual assault remains underreported and its incidence continues to increase.²⁹ In addition, many cases of sexual assault go unreported or are reported long after the incident occurred.³⁰ This means that some victims may have been assaulted in the past and did not report the incident and therefore may not have received counselling. Family physicians should therefore develop increased awareness of sexual assault in their practices and should be adequately skilled to deal with such cases in practice.³¹

Knowledge and skills in sexual assault care can be improved³² and practitioners often require training in counselling and care of sexual assault victims.³³ Appropriate referral and adequate follow-up to prevent long-term sequelae such as depression and post-traumatic stress disorder are important.³⁴ Sympathetic counselling is useful in assisting recovery as psychosocial consequences remain more common than physical injuries.³⁵

Protocols are available to assist clinicians in dealing with the physical and psychological aspects of sexual assault.³⁶ These victims often have to endure a lack of formal standardised HIV-counselling strategies, a lack of post-exposure prophylaxis in some settings and a lack of adequate follow-up programmes.³⁷ Although post-exposure prophylaxis is not completely protective, many international and national guidelines encourage post-exposure prophylaxis in sexual assault victims.³⁸ Despite this, emergency prophylaxis is often inconsistent and insufficient and not routinely offered to sexual assault victims.³⁹ This may add to systems failing already-compromised sexual assault victims.³⁹

Cooperation with local health services and formal follow-up arrangements can improve the care of sexual assault victims.⁴⁰ They

need appropriate medical care and psychological counselling if they are to adjust and reenter society without difficulty.

Research methodology

Study design

- This was a descriptive survey with a prospective analytical component.

Setting

- The study was conducted at the Karl Bremer Hospital Rape Centre, Tygerberg, Cape Town, South Africa.

Definitions

- Frequency (prevalence): The number of existing cases of HIV infection or STI in victims of sexual assault over a one-year period.
- Pre-test counselling: Counselling given to victims of sexual assault before they are subjected to HIV testing.
- Post-test counselling: Counselling given to victims of sexual assault after they have been tested for HIV infection.
- STIs: Infections (viruses, bacteria, fungi, etc.) contracted through sexual intercourse.

Sample

A statistician was approached in order to assist with the calculation of the sample size appropriate to answer the research question. In order to evaluate the frequency (prevalence) of STIs in rape victims it was decided to include all consecutive patients who presented to the rape centre over a one-year period from 1 April 2006 to 31 March 2007.

Selection of patient records

In order to determine the prevalence rates mentioned above, the identified sample of patients was followed up for a minimum period of one year. A consecutive non-probability sample was obtained and included all patient records for the period mentioned in order to determine a more valid estimate of the frequency (prevalence) of STIs and HIV-positive patients. The researcher and research assistant systematically scrutinised the victims' folders at the centre for information covered in the checklist. The HIV status of the victims prior to the assault was unknown. Informed consent was obtained from all patients seen at the hospital over the one-year period. Confidentiality and anonymity of the patient were strictly maintained throughout the research.

In order to determine the three-months-post-incident HIV status, victims were referred to the community health centres (CHCs) nearest to them. Problems with regard to follow-up of such patients were anticipated and a seasoned health promoter had been employed to assist in tracing patients to their respective CHCs and homes. She used telephonic and written reminders to encourage patients to return to the Karl Bremer Hospital or the relevant CHC for the three-months-post-assault review, which dealt with HIV status and general follow-up. The checklist questionnaires obtained relevant information about demographic detail, pregnancy status, STIs, informed consent, pre- and post-test counselling, use of post-coital contraception, compliance with ARV therapy used, tolerance to ARV therapy post sexual assault, referral and other information covered in the objectives.

Ethical consideration

Formal informed consent and permission to conduct the research were obtained from the following persons or committees prior to proceeding with the study:

- The superintendent of the Karl Bremer Hospital
- The superintendent of the Community Health Services Organisation (Metro District Health Service)
- The Ethics Committee of Stellenbosch University

Proper informed consent was obtained from the patients to scrutinise records. Extreme care was taken to ensure confidentiality and the anonymity of rape victims. All information and data obtained remain strictly confidential.

Data management and analysis

Data were analysed using the statistical program of Microsoft Excel (reference) as well as EPI 6. Data were analysed using information from the records of all patients attending the rape centre over a period of one year from 1 April 2006 to 31 March 2007. Data being predominantly descriptive were analysed using descriptive analysis with the calculation of central tendency such as means, modes and medians.

After precoding of the variables, the raw data were entered into the computer using EPI-info version 3.4 for Windows and exported to Stata for Windows version 9.2 statistical package for further analysis. Frequencies, proportions and summary statistics were used to describe the study subjects in relation to relevant variables. Unadjusted logistic regression was used to explore and understand factors related to HIV status on presentation. Results are presented as odds ratios (OR), with 95% confidence intervals (CI). The significance tests were two-tailed and statistical significance was defined at the alpha level of 0.05.

Results

Description of the study population

During the one-year period between 1 April 2006 and 31 March 2007, there were 820 cases of assault (see Figure 1). The reported cases ranged from 47 to 105 per month with a mean of 68 cases, with November 2006 ranking first (105 cases), followed by December 2006 (104 cases). The description of the study population is presented in Table I. The age of the victims ranged from six years to 70 years (average age 23.3). Most of the victims (76.5%) were aged 10–29, 14.9% were 30–39, 2.1% were 50 or older and 0.2% were less than 10 years. About 5.5% had completed primary school, 26.8% had completed secondary school and only 1.8% had tertiary education. Most of the victims were not married (91.8%) and had experienced their first episode of sexual assault (88.4%). In addition about 24.6% presented with STI and 12.1% were HIV positive at presentation.

Figure 1: Trends and number of cases of sexual assaults per month from April 2006 to March 2007

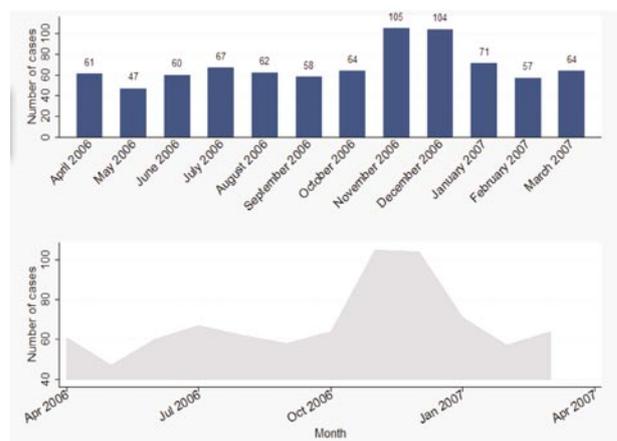


Table 1: Description of the study participants

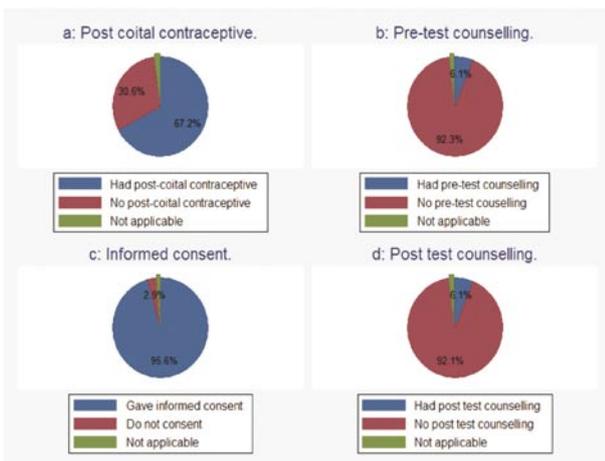
Characteristics	Number (N = 820)	*Percentage (95% CI)
Age (mean +SD)	23.3 + 0.3	
Age group		
10	2	0.2 (-0.1–0.5)
10–29	627	76.5 (73.1–78.9)
30–39	117	14.9 (11.6–16.4)
40–49	52	6.3 (4.6–8.0)
> 50	17	2.1 (1.0–3.0)
Education		
Primary	45	5.5 (3.9–7.0)
Secondary	220	26.8 (23.0–29.0)
Tertiary	15	1.8 (0.9–2.7)
Fixed employment status		
Yes	469	57.2 (53.6–60.4)
No	120	14.6 (11.6–16.4)
Marital status		
Single	753	91.8 (89.0–93.0)
Married	44	5.4 (3.8–6.8)
Divorced	11	1.3 (0.5–2.1)
Undisclosed	12	
Pregnant		
Yes	50	6.1 (4.5–7.7)
No	756	92.2 (90.1–93.9)
Unknown#	14	
First episode of assault		
Yes	736	88.4 (86.7–91.1)
No	84	10.1 (8.0–12.0)
STIs present		
Yes	202	24.6 (21.1–26.9)
No	614	74.9 (71.0–77.0)
Unknown#	4	
HIV infected at presentation		
Yes	99	12.1 (9.8–14.2)
No	721	87.9 (84.7–89.3)

*Values are presented as percentages with 95% confidence interval; # Missing data

Management modalities

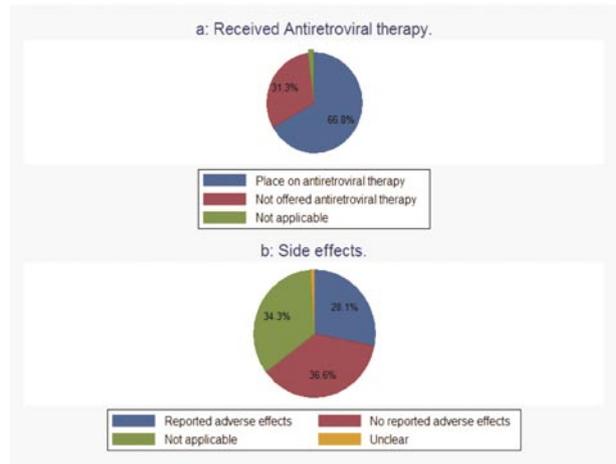
About two-thirds (67.2%) of the victims were offered post-coital contraception and only 6.2% had pre-test counselling. Most of the victims (95.6%) gave informed consent to have their medical records scrutinised and only 6.1% had post-test counselling (see Figure 2).

Figure 2: Percentage of sexual assault victims who a) had post-coital contraception, b) had pre-test counselling, c) gave informed consent and d) had post-test counselling



About two-thirds (66.8%) of the victims were offered antiretroviral prophylaxis. Out of the 548 who were given ARV therapy, 64.2% were placed on Combivir® and only 1.5% took zidovudine. About 27.2% of the patients on ARV therapy reported one or more side effects and 28.9% of the patients on ARV therapy were not compliant with the prophylaxis regimen prescribed (see Figure 3).

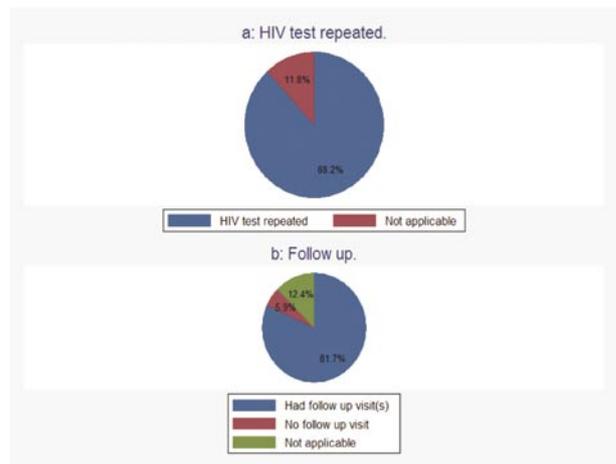
Figure 3: Percentage of sexual assault victims a) who were placed on ARV therapy and b) who reported side effects



Follow-up

About 81.7% of the victims were followed up at one week, six weeks and three months from the time of the incident. HIV tests were repeated for 88.1% of the victims who returned for follow-up and none of the repeated tests were positive (see Figure 4).

Figure 4: Pie chart showing the percentage of sexual assault victims who had repeated HIV tests and follow-up visits

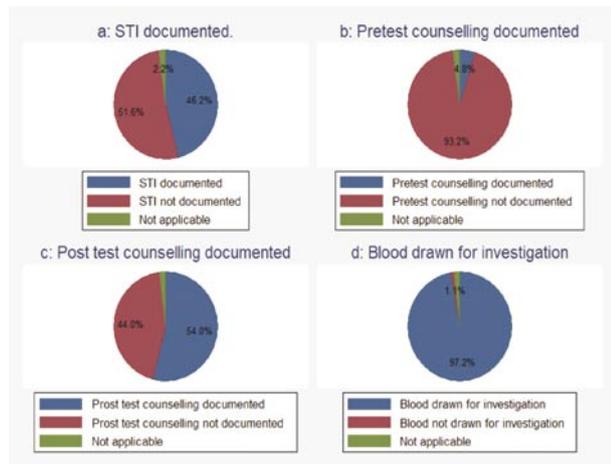


More than half (52.4%) of the sexual assault victims required referral to a gynaecologist, trauma surgeon, psychologist or psychiatrist. Blood drawn was sent for analysis in most (97.2%) of the victims (see Figure 5).

Univariate analysis

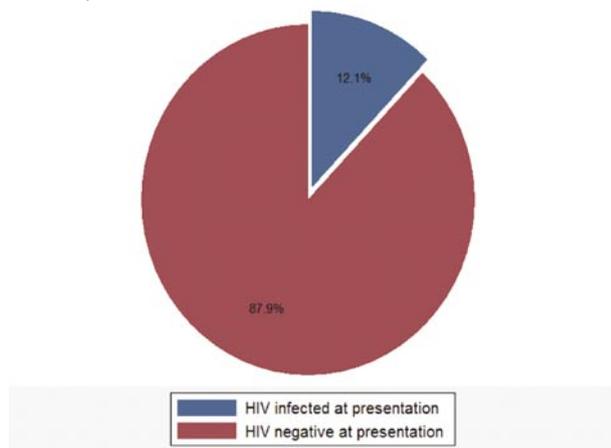
Bivariate association between independent predictors of HIV status of the rape victims is shown in Table II. There is a positive association between STI and HIV infection at presentation (OR 2.96; 95% CI 1.96–4.56). There was no statistically significant difference between level of education, employment status or marital status and HIV status at presentation.

Figure 5: Percentage of sexual assault victims by STI, pre-test counselling and post-test counselling documentation and blood drawn for investigation



It is disturbing to note that 12.1% of sexual assault victims were HIV positive at the time of presentation (see Figure 6). Compared to women aged less than 12 years, women older than 13 years were more likely to be HIV positive at the time of diagnosis (OR 3.10; 95% CI 1.95–4.12).

Figure 6: Percentage of sexual assault victims who were HIV positive at presentation



A total of 6.1% of sexual assault victims were pregnant at the time of presentation (see Figure 7). In addition the results seem to show that pregnant women were more likely to be HIV+ at presentation (OR 2.31; 95% CI 1.14–4.71). However, this subgroup analysis serves for hypothesis generation as it was not part of the objectives of this study.

Figure 7: Percentage of sexual assault victims who were pregnant at presentation

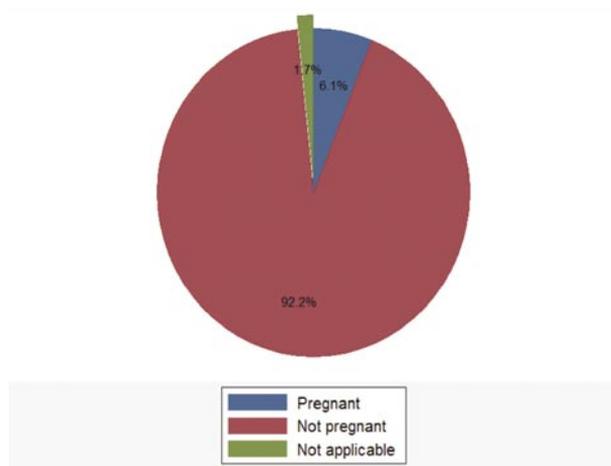


Table II: Unadjusted ORs of the association between selected characteristics and HIV status

Characteristics	^a n	^b OR	95% CI	P-value
Age group				
< 12	431	Referent	Referent	
13 years or more	389	3.10	1.95–4.92	< 0.000
Education				
Primary	45	Referent	Referent	
Secondary or higher	235	1.15	0.33–6.80	0.599
Fixed employment status				
No	469	Referent	Referent	
Yes	120	1.32	0.77–2.26	0.319
Casual	231			
Marital status				
Single	753	Referent	Referent	
Married	44	0.78	0.36–1.66	0.520
Divorced	23			
Pregnant				
No	756	Referent	Referent	
Yes	50	2.31	1.14–4.71	0.020
Unknown ^c	14			
First episode of assault				
No	84	Referent	Referent	
Yes	736	1.11	0.53–2.31	0.765
STIs present				
No	614	Referent	Referent	
Yes	202	2.96	1.91–4.56	< 0.000
Unknown ^c	4			

^aSample size, ^bOdds ratio; ^cMissing data

Discussion

It is an established fact that sexual assault contributes to the growing epidemic of HIV/AIDS in South Africa. This study supports evidence emanating from South African HIV/AIDS statistics in that the victims of sexual assault showed a 24.6% prevalence of STIs and that 12.1% of the victims were infected with HIV at the time of presentation. These prevalence figures are similar to South African HIV/AIDS statistics. The prevalence of STIs and HIV remains disturbingly high and the results demonstrate a clear peak in the frequency of new assault cases during the holiday and summer periods of November and December. The results clearly show a statistically significant positive association between STI, and HIV infection, and patients with STIs are three times more likely to also be HIV positive.

The literature shows that there is a lack of available data on the per-episode risk of HIV infection with specific sexual encounters.¹ In combination with poor follow-up of sexual assault victims,²⁻⁴ this has resulted in few studies assessing the risk of HIV infection after sexual assault. This research contributes to filling this knowledge gap by showing that follow-up occurred in 81.7% of patients. This is attributed to vigorous follow-up measures including phone calls and reminders posted to patients.

Blood was taken from 97% of the victims at the time of presentation and a total of 88.1% of the victims had repeated HIV testing performed at three months following the episode of sexual assault. Despite the high prevalence of HIV infection in the Western Cape, it is, however, encouraging to note that none of the victims followed up and who were HIV negative at the time of presentation had seroconverted at three months following the episode of sexual assault. This result may suggest that the HIV prophylaxis administered immediately post assault could have contributed to the reduction in seroconversion as was found in this study. The author, however, does not wish to infer

that prophylaxis received is 100% efficacious as this needs to be demonstrated in definitive randomised controlled trials (if feasible and appropriate) and is beyond the scope of the methodology engaged with in this study. The risk, however, of contracting HIV infection as a result of sexual assault remains real as sexual assault contributes significantly to the growing epidemic in South Africa.

About two-thirds (67.2%) of the victims in this study were offered emergency contraception, compared to Das and Huengsb⁴¹ finding that emergency contraception was offered to 38.4% of at-risk cases. However, it is disturbing to note that only 6.2% of cases in this study had pre-test counselling and only 6.1% had post-test counselling, compared to formal counselling support offered to 25% of cases in the study by Das and Huengsb⁴¹.

It is also suspected that time constraints might have prevented medical personnel from actually documenting their counselling efforts. However, immediate and serious efforts should be considered in overcoming this shortcoming. Doctors, nurses and, of course, patients are set to benefit from such intervention, which should contribute to improved quality of care of sexual assault victims.

A total of 66.83% of sexual assault victims fulfilled criteria for ARV prophylaxis and a total of 28.9% of patients were not compliant with the ARV prophylaxis offered to them. The main reason for this was the high prevalence of side effects experienced by 27.2% of sexual assault victims.

Recommendations

The following recommendations should be considered in order to improve the quality of care of sexual assault victims presenting at the Karl Bremer Hospital Rape Centre:

- Formal training in pre- and post-test counselling for doctors and nursing staff should be considered in the management of rape victims.
- Compulsory documentation of pre-test and post-test counselling in sexual assault victims' medical records must be encouraged and audited.
- Communication between the rape centre and community health centres regarding referral of patients following sexual assault should be improved.
- Post-coital contraception should routinely be provided to sexual assault victims in the relevant age groups.
- The provision of ARV and STI prophylaxis should be continued in view of the high prevalence of STI and HIV infection.
- Counselling regarding the side effect profile of ARV prophylaxis should be improved in order to encourage compliance.

Limitations of study

This research study did not attempt to evaluate the perspectives of medical personnel such as medical officers and nurses regarding their attitudes, perceptions and knowledge with regard to the management of sexual assault victims. A qualitative component in the form of triangulation would enhance the credibility of data collected and the overall validity of the findings. In addition, the researcher seeks to evaluate the effects of post-traumatic stress in the sample of patients in a follow-up research study.

Conclusions

The prevalence of STI in victims of sexual assault attending the Karl Bremer Hospital Rape Centre during the period 1 April 2006 to 31 March 2007 is 24.6% and that of documented HIV infection, 12.1%. The results also confirm a positive association between STI and HIV infection in this study population. Pre-test and post-test counselling

occurred very infrequently and this needs to be addressed. Further, attention needs to be focused on proper training of professional staff members with regard to counselling skills to further enhance the quality of care of sexual assault victims at the Karl Bremer Hospital Rape Centre.

Declaration

We declare that we have no financial or personal relationship(s) which may have inappropriately influenced us in writing this paper.

References

1. Katz MH, Gerberding JL. The care of persons with recent sexual exposure to HIV. *Ann Intern Med* 1998;128(4):306-12.
2. Holmes MM, Resnick HS, Frampton D. Follow-up of sexual assault victims. *Am J Obstet Gynecol* 1998;179(2):336-42.
3. Ledray LE. The sexual assault examination: overview and lessons learned in one program. *J Emerg Nurs* 1992;18(3):223-30.
4. Putz M, Thomas BK, Cowles KV. Sexual assault victims' compliance with follow-up care at one sexual assault treatment center. *J Emerg Nurs* 1996;22(6):560-5.
5. Baleta A. Journalist's rape adds to rising rape statistics. *Lancet* 1999;353(9161):1340.
6. Royce RA, Seña A, Cates W Jr, Cohen MS. Sexual transmission of HIV. *N Engl J Med* 1997;336(15):1072-8.
7. Vandercam B, Therasse P, Aziz M, Lachapelle JM, Van Cangh PJ. HIV infection and rape. *Acta Urol Belg* 1992;60(2):77-81.
8. Katz MH, Gerberding JL. Postexposure treatment of people exposed to the human immunodeficiency virus through sexual contact or injection-drug use. *N Engl J Med* 1997;336(15):1097-100.
9. Van der Ryst E, Maertens G. HIV and sexual assault. *Aids Bulletin Mar/Apr* 1999.
10. Grant HW. Patterns of presentation of human immunodeficiency virus type 1-infected children to the paediatric surgeon. *J Pediatr Surg* 1999;34(2):251-4.
11. Gostin LO, Lazzarini Z, Alexander D, Brandt AM, Mayer KH, Silverman DC. HIV testing, counseling, and prophylaxis after sexual assault. *JAMA* 1994;271(18):1436-44.
12. Jenny C, Hooton TM, Bowers A, et al. Sexually transmitted diseases in victims of rape. *N Engl J Med* 1990;322(11):713-716.
13. Center for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines MMWR 2002;51(RR-6):1-78.
14. New York State AIDS Institute: <http://www.hivguidelines.org/public-htm/center/clinicalguidelines/pep-guidelines/pep-guidelines.htm> (Accessed July 2006).
15. Center for Disease Control and Prevention. Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV and HIV and Recommendations for Post Exposure Prophylaxis MMWR 2001 Jun 29;50(RR-11):1-52.
16. Bamberger JD, Waldo CR, Gerberding JL, Katz MH. Postexposure prophylaxis for human immunodeficiency virus (HIV) infection following sexual assault. *Am J Med* 1999;106(3):323-6.
17. Merchant RC, Keshavaz R. Human immunodeficiency virus postexposure prophylaxis for adolescents and children. *Pediatrics* 2001;108(2):E38:1-13.
18. Bateman C. If you were raped, would you ask for HIV antiretroviral treatment? *S Afr Med J* 2000;90(12):1168-9.
19. Kapiga SH, Shao JF, Lwihula GK, Hunter DJ. Risk factors for HIV infection among women in Dar-es-Salaam, Tanzania. *J Acquir Immune Defic Syndr* 1994;7(3):301-9.
20. Meel BL. 1. The myth of child rape as a cure for HIV/AIDS in Transkei: a case report. *Med Sci Law* 2003;43(1):85-8.
21. Jewkes R, Martin L, Penn-Kekana L. The virgin cleansing myth: cases of child rape are not exotic. *Lancet* 2002;359(9307):711.
22. Wilken J, Welch J. Management of people who have been raped. *BMJ* 2003;326(7387):458-9.
23. Wiebe ER, Comay SE, McGregor M, Ducceschi S. Offering HIV prophylaxis to people who have been sexually assaulted: 16 months' experience in a sexual assault service. *CMAJ* 2000;162(5):641-5.
24. Merchant RC, Keshavaz R. Emergency prophylaxis following needle-stick injuries and sexual exposures: results from a survey comparing New York Emergency Department practitioners with their national colleagues. *Mt Sinai J Med* 2003;70(5):338-43.
25. Kim JC, Martin LJ, Denny L. Rape and HIV post-exposure prophylaxis: addressing the dual epidemics in South Africa. *Reprod Health Matters* 2003;11(22):101-12.
26. Katzenstein TL, Dickmeiss E, Aladdin H, et al. Failure to develop HIV infection after receipt of HIV-contaminated blood and postexposure prophylaxis. *Ann Intern Med* 2000;133(1):31-4.
27. Centers for Disease Control and Prevention. 1998 Guidelines for treatment of sexually transmitted diseases. *MMWR* 1998;47(RR-1):1-111.
28. Rachlis AR, Zarowny DP. Guidelines for antiretroviral therapy for HIV infection. *Canadian HIV Trials Network Antiretroviral Working Group. CMAJ* 1998;158(4):496-505.
29. Patel M, Minshall L. Management of sexual assault. *Emerg Med Clin North Am* 2001;19(3):817-31.
30. Plumbo MA. Delayed reporting of sexual assault. Implications for counseling. *J Nurse-Midwifery* 1995;40(5):424-7.
31. Beebe DK, Gullede KM, Lee CM, Replogle W. Prevalence of sexual assault among women patients seen in family practice clinics. *Fam Pract Res J* 1994;14(3):223-8.
32. Ferguson C. Providing quality care to the sexual assault survivor: education and training for medical professionals. *J Midwifery Women's Health* 2006;51(6):486-92.
33. Martin SL, Young SK, Billings DL, Bross CC. Health care-based interventions for women who have experienced sexual violence: a review of the literature. *Trauma Violence Abuse* 2007 Jan;8(1):3-18.
34. Goldberg AP, Duffy SJ. Medical care for the sexual assault victim. *Med Health R I* 2003;86(12):390-4.
35. Mein JK, Palmer CM, Shand MC, et al. Management of acute adult sexual assault. *Med J Aust* 2003;178(5):226-30.
36. Linet T, Nizard J. Victims of sexual assault: a routine protocol for better management. *J Gynecol Obstet Biol Reprod (Paris)* 2004;33(2):99-109.
37. Loutfy MR, Macdonald S, Myhr T, et al. Prospective cohort study of HIV post-exposure prophylaxis for sexual assault survivors. *Antivir Ther* 2008;13(1):87-95.
38. Roland ME. Postexposure prophylaxis after sexual exposure to HIV. *Curr Opin Infect Dis* 2007;20(1):39-46.
39. Patel A, Simons R, Piotrowski ZH, Shulman L, Petraitis C. Under-use of emergency contraception for victims of sexual assault. *Int J Fertil Womens Med* 2004;49(6):269-73.
40. Pillai M, Paul S. Facilities for complainants of sexual assault throughout the United Kingdom. *J Clin Forensic Med* 2006;13(4):164-71. Epub 2006 Mar 27.
41. Das S, Huengsb M. An audit on the management of female victims of sexual assault attending a genitourinary medicine clinic. *Int J STD AIDS* 2004;15(7):484-5.