

PostScript

LETTERS

Hepatitis B and C viral infections among STD clinic patients in India

While many studies from other countries^{1,2} document hepatitis B virus (HBV) and hepatitis C virus (HCV) infection rates in STD clinic patients, very few data are available from India. In the present report, we have analysed the rate of HBV and HCV infections in STD patients by using serological and molecular methods of diagnosis.

The study subjects were symptomatic STD patients (n = 143), who attended the STD clinic, Government General Hospital, Chennai, between September 1998 and August 2000, randomly included for a study on STDs after obtaining informed consent. Blood samples were evaluated for hepatitis and HIV markers by ELISA kits; HBsAg, HBeAg/anti-HBe (Biorad laboratories, USA), anti-HCV (Murex Diagnostics, UK), anti-HIV 1 and 2 (Xyton Diagnostics, India). Anti-HIV positivity was confirmed by another EIA kit (Sanofi Pasteur, France). Detection of HBV DNA and HCV RNA was performed by polymerase chain reaction (PCR)³ and RT-PCR⁴ methods.

The serological and molecular marker profile for HBV and HCV is shown in table 1. HBsAg was positive in 37 (25.9%) patients, while HBV DNA was detected in 25 (67.6%) of them. HBV DNA was detected in 23 of 28 HBeAg positives and two of nine anti-HBe positive cases. The overall HBV positivity rate was significantly higher in females than in males (33.7% v 15.9%; p<0.05). Anti-HCV was positive in six (4.2%) patients and five of them showed HCV-RNA positivity. RT-PCR additionally detected HCV-RNA in two anti-HCV negative patients. The overall HCV prevalence was 5.6%. Anti-HIV positivity was seen in 24 (16.8%) patients. Men had a significantly higher HIV positivity rate compared to women (27% (17/63) v 8.8% (7/80); p<0.05). HIV co-infection was observed in five (13.5%) of the HBV infected patients and in two (25%) of the HCV positive patients in whom HCV RNA alone was positive.

There was a low prevalence of injection drug use (7.7%), history of blood transfusion (5.6%), and homosexual contact (2.9%) and these risk factors showed no correlation with

HBV and HCV positivity. Having multiple sexual partners was a risk factor significantly associated with HBV and HCV positivity in men. Men who had multiple sexual partners (n = 35) had 14.3% HCV positivity and 17.1% HBsAg positivity, while in those who did not report multiple sexual contact, 3.8% had HBsAg positivity and none had HCV positivity.

The results of the present study suggest that STD clinic patients may be considered as a targeted high risk group for routine screening for HBV and HCV to control the high infection rates. HIV co-infection in HBV/HCV infected patients is a matter of concern to evolve better clinical management strategies. Our data emphasise the need for molecular diagnosis to prevent underdiagnosis of HCV infection in STD/HIV patients. The HBV positivity rate (26%) observed in the present series of STD patients is high compared to previous Indian reports.^{5,6} HBV vaccination in STD patients may be a much needed intervention to strengthen STD control programmes in India. Further large studies are required to assess the magnitude of HBV and HCV infections, role of sexual transmission, and associated risk factors in the STD population.

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Female sex workers and fear of stigmatisation

Female sex workers are often forced to work underground and away from their local communities. Historical records show that female sex workers have been frequently singled out for social control and treated as a distinct section of the community. This social rejection and isolation has serious repercussions on the health provisions to them and on their willingness to seek medical care.

In some countries, including Iran, presence of prostitution and sexually transmitted infections (STIs) is systematically denied, being considered a taboo by the government and the majority of the society. There is no official record of the prevalence of prostitution in Iran. Sex workers in Iran are suffering from unavailability of medical services and knowledge about STIs. Social stigmatisation stops these resource deprived women from seeking proper medical care and treatment.

In a follow up study in 2002 in Kermanshah, Iran on 100 men with gonorrhoea most of whom had met a female sex worker before the infection, Zargooshi¹ reported an average 84% failure rate of standard therapies. This was much higher than the 12-25% resistance rate in the study by Zirak-Zadah *et al* in 1977 of sex workers of Shahre-Now (a brothel in Tehran before 1979), whose infection and resistance rate were similar to their American counterparts of that era.² In those days sex workers had health coverage, something totally ignored these days. Fear of stigmatisation and prosecution, and high rate of self treatment seem to be responsible for the high rate of resistance to standard therapies.

The increasing rate of STIs and HIV/AIDS is alarming! Young girls and boys are among the high risk populations.³ The ministry of education has taken some steps forward and is now working hard on preventive education against STIs with special focus on HIV/AIDS,⁴ though there is no definite programme for the out of school children.

According to the ministry of health, injecting drug use (62.78%) and sexual contact (7.27%) are the two main routes of transmission of HIV/AIDS in Iran, and 26.12% of the cases are grouped under "unspecified route of transmission" according to the report.⁵ Lack of any reliable records of the underground sex industry makes the data shaky.

Though in Iran commercial sex is not so widespread as in many other countries, sex workers should be considered as patients and efforts should be made to provide appropriate health coverage and preventive education on

Table 1 Serological and molecular markers for HBV and HCV in STD clinic patients in relation to sex

HBV and HCV markers	Males (n=63)	Females (n=80)	Both (n=143)
	No positive (%)	No positive (%)	No positive (%)
HBsAg	10 (15.9)	27 (33.7)	37 (25.9)
HBe Ag	7 (11.1)	21 (26.3)	28 (20.0)
Anti-HBe	3 (4.8)	6 (7.5)	9 (6.3)
HBV DNA	6 (9.5)	19 (23.7)	25 (17.5)
Overall HBV positivity	10 (15.9)	27 (33.7)	37 (25.9)
Anti-HCV	3 (4.8)	3 (3.6)	6 (4.2)
HCV RNA	5 (7.9)	2 (2.5)	7 (4.9)
Overall HCV positivity	5 (7.9)	3 (3.7)	8 (5.6)

STIs and HIV/AIDS with no prejudice. Adhering to unfounded propaganda and denial of the social realities propagates the social ills with catastrophic public health consequences.

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Clinically resistant trichomoniasis

We read with interest the recent review on trichomoniasis and would like to share our experience of a patient with clinically resistant infection, in whom various therapies were tried until we achieved a successful response.¹

A 39 year old Irish female factory worker presented in April 2001, complaining of a copious malodorous vaginal discharge associated with vulval soreness following unprotected sexual intercourse with a casual male partner 4 months previously. On examination the vulva and groin were erythematous and there was a profuse frothy yellow vaginal discharge with a pH >4.5. Microscopy revealed *Trichomonas vaginalis* and she was treated with a 5 day course of oral metronidazole 400 mg twice daily as per the UK national guidelines.² Screening for chlamydia and gonorrhoea was negative.

Over the next 10 months, she re-attended a further eight times with persistent symptoms and on each occasion denied any sexual contact or non-compliance with treatment. After her third visit, a management strategy was implemented on the basis of a literature review with a named clinician. In total, she received two courses of oral metronidazole (one preceded by oral amoxicillin³), three courses of metronidazole suppositories (used as pessaries), a single dose of tinidazole, and a course of acetarsol and nonoxynol-9 pessaries. However, despite the planned treatments microscopy was repeatedly positive. She even had her intrauterine device removed in case this contributed to the problem.

Finally, in February 2002, she was treated with oral metronidazole 400 mg three times

daily and metronidazole pessaries 1 g daily for 2 weeks following the recommendations of another consultant colleague in the region. Her symptoms had resolved and microscopy was negative when reviewed 3 weeks later. She did not experience side effects secondary to the high dose metronidazole and continued 1 g pessaries once every 2 weeks for 2 months as maintenance therapy. The frequency was then reduced to every 4 weeks for 2 months and, reassuringly, microscopy remained negative. Treatment was then stopped and she has not re-attended subsequently.

Management of patients with treatment failure is challenging as sensitivity testing is currently unavailable. A key factor in this woman was her frustration with multiple therapies, which resulted in erratic attendance. Acetarsol and nonoxynol-9 pessaries have been used with varying results but in our patient both were unsuccessful.^{3–5} In persistent infection it is important to ascertain a patient's compliance with therapy and any possibility of re-infection, both of which were excluded. The use of extended courses of treatment has also been suggested in the management of other vaginal infections such as candidiasis and bacterial vaginosis.^{2,6} Certainly, in our patient this approach was required.

The distressing symptoms associated with clinically resistant trichomoniasis cannot be underestimated, thus sharing anecdotal management experience is essential. Devising a treatment schedule and providing a named clinician to ensure continuity of care is invaluable for such patients. We would suggest that re-treating with a prolonged course of oral and vaginal metronidazole at an early stage can result in a favourable outcome and should be considered.

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A video mobile phone and herpes simplex

The use of mobile phones in today's society is pervasive, and for genitourinary medicine (GUM) attendees mobile phones as a common form of communication have been documented.¹ However, as far as we are aware, the use of a mobile phone as a diagnostic aid has not been reported.

A 35 year old black Caribbean man presented to our clinic and gave a history of having developed a collection of "small lumps" on his prepuce, 1 week previously. However, he had been unable to attend at that time. He reported that the lumps had improved and had crusted over. He reported no systemic symptoms. On examination there were crusted lesions consistent with healing genital herpes and no palpable lymphadenopathy. Fortunately, the patient had taken a video clip using his mobile phone when the lesions had first appeared (he had taken both a still and a video of his penis). The images were very clear and there was no doubt that this man had had an outbreak of genital herpes. As a result of the images from his video mobile phone we were able to make a confident diagnosis of genital herpes and then have an appropriate discussion with increased certainty.

A second case involved a 41 year old man who presented to the clinic because his long term partner had had an episodic rash affecting the natal cleft for the past 3 years. She had been seen by her GP and had also been referred to a local dermatology department. According to the patient the episodic rash had remained undiagnosed despite a skin biopsy having been performed by the dermatologist. He had taken a picture of the rash during an episode with his video mobile phone. This revealed the characteristic vesicles of herpes simplex infection. He himself had a distant history of genital herpes infection but had no recent recurrences. He was advised to encourage his partner to attend the clinic for further management (along with his mobile phone).

These two consultations illustrate how video mobile phones have been used in our clinic to facilitate and aid diagnosis. Dentists often send photographs via email of suspicious oral lesions to oral medicine specialists. Dermatologists are performing telemedicine consultations with GPs for the diagnosis and subsequent investigation of skin complaints.² The use of mobile phones within GUM services is increasing, with some clinics texting results to patients.³ However, as far as we are aware this is the first time that patients have utilised similar technology to facilitate the diagnosis of genital lesions.

Who knows, maybe in the future, patients will phone up and use their video phones to do distant consultations with GUM physicians. And the complaint: "It has always gone by the time a patient gets to see a doctor" will be a thing of the past.

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Non-disclosure of previously known HIV seropositivity in patients "newly" diagnosed with HIV infection

We read with interest the letter from Natarajan *et al* regarding extensive unexpected antiretroviral resistance in an African immigrant patient.¹ The failure of HIV positive patients to disclose their status to healthcare workers has previously been documented with adverse clinical outcomes.²

Case reports

In this case series, we present five individuals who had previously been diagnosed with HIV, who then re-presented for HIV antibody testing and subsequent treatment without disclosing their HIV positive status. All cases were of African origin and diagnosed between October 2002 and February 2003.

Case 1

We were alerted to the possibility of a previously known HIV diagnosis in this woman as her mean corpuscular volume (MCV) was raised at 118 fl and she had features suggestive of the lipodystrophy syndrome. This patient finally revealed her previously known HIV diagnosis after a period of discussion with both physician and health adviser. She had extensive antiretroviral

resistance and required optimisation of her antiretroviral treatment regimen.

Case 2

This patient revealed her previous diagnosis and antiretroviral treatment history after a period of discussion regarding treatment initiation. She realised that she may have antiretroviral resistance from previous sub-optimal drug treatment.

Case 3

This patient revealed her known HIV diagnosis after a prolonged period of discussion. A decision to observe her immunological status was made in view of her apparently "low" viral load and reasonable CD4 count. She had not expected this decision and eventually ran out of drugs. She then revealed her previous history as she was becoming symptomatic and therefore keen to recommence therapy and. Her nadir CD4 count was <100 cells $\times 10^6/l$.

Case 4

Clinic staff at this centre recognised her from her previous attendances. In addition, her self reported demographics and signature from her previous attendance and most recent attendance matched completely. This patient subsequently transferred her care to a different HIV treatment centre where she subsequently revealed she had taken AZT while in Uganda but still insisted that she had never formally been tested.

Case 5

This patient was diagnosed in the antenatal clinic and was on antiretroviral therapy. She did not disclose this to us and alleged that she was given the medication by her husband for malaria.

Comment

Patients may fail to disclose their HIV diagnosis for a variety of reasons. These include fear of discrimination, fear that disclosure may jeopardise their asylum application and also concerns as to how they may

be treated. In most cases the reasons are complex and involve many different factors.

Non-disclosure can result in numerous adverse outcomes for the individual.

Possible consequences for the patients include inappropriate clinical decisions owing to failure to recognise pre-existing antiretroviral drug resistance and toxicities, failure to recognise and address relevant social problems, the risk of inappropriate treatment when diagnosed antenatally, and the increased risk of mother to child transmission.

The number of programmes providing antiretroviral therapy in resource poor settings is increasing. Resistance to antiretroviral drugs in sub-Saharan Africa has been documented in several countries.³

Clinical clues to previous HIV diagnoses and antiretroviral drug exposure include haematological (raised MCV) and biochemical (raised lipids). Patients may also have morphological changes such as lipodystrophy and pigmentation. In addition, patients with an inappropriately low viral load and low CD4 count may have been previously thought to have a non-B clade viral subtype. This supposition may not always be accurate. Clinicians meeting such patients should look for other signs of antiretroviral drug exposure.

Therapeutic drug monitoring (TDM) and genotypic resistance testing may also be useful in selected cases. All five of these cases have undergone genotypic resistance testing, three of whom showed extensive multi-class resistance.

In all cases, disclosure occurred after multiple clinic attendances. It is highly probable that other cases of non-disclosure have occurred within this service. Clinicians should consider the possibility of HIV status non-disclosure and previous exposure to antiretrovirals when seeing "newly diagnosed" patients with HIV.

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Table 1 Details of cases with HIV*

	Case 1	Case 2	Case 3	Case 4	Case 5
Sex	F	F	F	F	F
Age	46	32	37	31	33
Ethnicity	White	Black African	Black African	Black African	Black African
Place of original HIV diagnosis	Congo	Kenya	Uganda	UK	Cameroon
Time from original HIV diagnosis to presentation for HIV testing	14 years	6 years	5 months	15 months	15 months
Route of HIV acquisition	Heterosexual sex	Heterosexual sex	Heterosexual sex	Heterosexual sex	Heterosexual sex
CD4 count at first presentation ($\times 10^6/l$)	354 (32%)	130(7%)	258(25%)	227 (12%)	294 (20%)
Viral load at first presentation (copies/ml)	1989	90 607	<50	424	<50
MCV at initial presentation (fl)	118		78.3	101.9	96.9
Exposure to antiretroviral therapy	• Multiple ARV exposure since 1989 outside UK • On failing regimen	• DDI • AZT+3TC • Last exposure 3 years ago	• Ran out of and discontinued d4T/3TC/EFV shortly after baseline bloods	• AZT monotherapy between initial and subsequent diagnosis	• Ddl/d4T/HU May 00–Feb 01 • Trizivir Jul 02–Apr 03
Number of consultations before disclosure	5	4	6	9	3
Time to disclosure	8 weeks	8 weeks	6 weeks	16 months	4 months
Reason for non-disclosure	Believed that treatment would be denied	Concerned about disclosure to current partner of 3 years	Concerned about impact of knowledge of diagnosis on asylum application	Unknown	Thought she was being treated for malaria by husband

*See case reports.

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Atypical presentation of lobar nephronia in an adult co-infected with HIV and hepatitis C

Lobar nephronia or acute focal bacterial nephritis is an acute, non-suppurative, focal, renal infection.¹ It usually presents with fevers and flank pain. In the general population it is well described in children. We report an adult co-infected with HIV and hepatitis C, who presented with meningism and bilateral lobar nephronia.

Case report

A 37 year old man was admitted with a 4 day history of headaches, fevers, and vomiting with a 2 week background of dysuria. On presentation with a seroconversion illness 3 years previously he received combination antiretroviral therapy (ARV) for 9 months. Four months before the current admission ARV was re-introduced for symptomatic HIV infection. The most recent CD4 count was 250 cells×10⁶/l, and HIV viral load was 107 000 copies/ml. Hepatitis C infection had recently been diagnosed and the patient was receiving weekly interferon alfa. His symptoms began the day after the fifth injection. On examination he was pyrexial, temperature 39°C, had meningism and abdominal tenderness in both right upper quadrant and left iliac fossa. Investigations showed C reactive

protein (CRP) 265 (normal = 0-4) IU/l, neutrophils 11×10⁹/l, and normal urea and creatinine. Cranial computed tomography (CT) and cerebrospinal fluid analysis were normal. Urinalysis showed protein++ and blood+; urine culture was negative. Blood cultures grew *Escherichia coli*, which was treated with cefuroxime. Abdominal CT scan showed multiple low attenuation solid lesions with peripheral enhancement in both kidneys (fig 1A). The patient's symptoms rapidly settled. He completed a 4 week course of oral cephadroxyll. As *E coli* was cultured from blood and a repeat scan after completion of treatment was normal (fig 1B) the renal CT appearances were ascribed to lobar nephronia.

The CT appearance of lobar nephronia is of either a single, or more uncommonly, multiple lesions in either one or both kidneys. The appearances are of either inflammatory (hypodense wedge-shaped) areas, or mass-like lesions.^{2,3} A radiological differential diagnosis for single lesions includes intrarenal abscess, renal carcinoma, and simple cyst. For multiple lesions, it includes microabscesses, lymphoma, hamartomata, and metastases.

The clinical severity lies between that of pyelonephritis and renal abscess and it is important to differentiate lobar nephronia from these pathologies as management differs both in duration of antibiotics and the need for drainage of renal abscess. Histologically, the conditions differ. By contrast with the tissue necrosis and liquefaction seen in an abscess, in lobar nephronia there is localised hyperaemia, interstitial oedema, and leucocyte infiltration. These features are less severe and are diffuse in acute pyelonephritis.² *E coli* is the most common causative organism. Other pathogens include *Proteus mirabilis*, *Staphylococcus aureus*, *Klebsiella* spp, *Pseudomonas aeruginosa*, and enterococci. Antibiotics are given for up to 6 weeks and relapse may occur.

The majority of reports of lobar nephronia in the general population are in children, probably reflecting the higher incidence of urinary tract infections in children. Although lobar nephronia has been described previously in adult HIV infected patients,⁴ our patient had an unusual presentation with meningism. Response to antibiotics was good and it is unclear to what extent immunosuppression due to HIV or hepatitis C infection, or interferon alfa may have contributed to the development of lobar nephronia. This case describes an uncommon presentation of

renal infection in HIV infected adults and highlights the need to exclude differential diagnoses, especially lymphoma and metastases.

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Molluscum contagiosum presenting as penile horn in an HIV positive patient

Dermatologists have the advantage of visualising the skin lesions and making the diagnosis. In immunocompetent patients most of the skin conditions have the characteristic clinical presentation and hence the diagnosis is made clinically by good visual impression. But the human immunodeficiency virus (HIV) has taken away this advantage. Owing to its profound effect on the immune system, the natural course and clinical features of most of the dermatological diseases have been altered. In this report we describe the unusual presentation of molluscum contagiosum as penile horn, in an HIV positive patient.

Case report

A 34 year old man presented with asymptomatic rapidly enlarging papular lesions on the penis and scrotum present for the past 6 months. He also had a significant weight loss and loss of appetite for the past month. On examination he was emaciated and had yellowish greasy scaling on the scalp, eyebrows, nasolabial folds, and chest. Examination of the lymphoreticular system did not reveal any abnormality. Genital examination revealed three well defined flesh coloured papules, two on the mucosal aspect on prepuccial skin (one each at the 10 o'clock and 2 o'clock position) and the other one on scrotal skin near the root of the penis (fig 1). The size varied from 3 mm to 7 mm. All the lesions were non-tender and had keratotic projection in the centre, the height of which was more than its diameter. The scrotal lesion was fleshy and had a verrucous surface, and on pressing the lesion cheesy material could be expressed. Routine haemogram, liver, and renal function tests were within normal limits. Stool examination showed occasional *Cryptosporidium*. ELISA for HIV was positive. The CD4 count was just

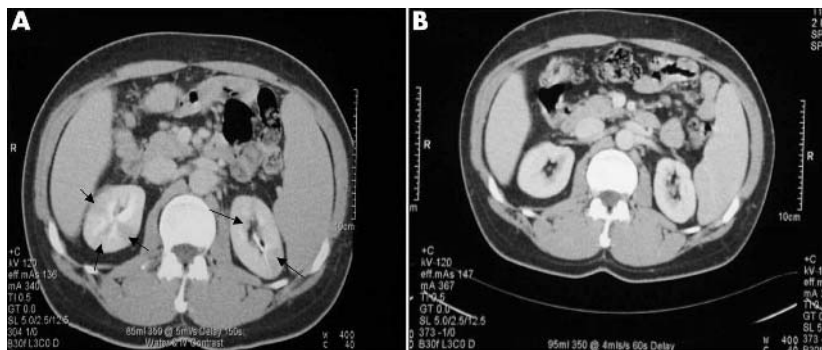


Figure 1 (A) CT scan of the abdomen showing multiple low attenuation solid lesions (arrows) with enhancing rims in both kidneys. There is associated splenomegaly, but no intra-abdominal lymphadenopathy and no ascites. (B) CT scan on completion of treatment. The appearance of the kidneys is normal.



Figure 1 Showing penile horn.

38×10⁶/l and lipid profile was within normal limits. Histopathological examination showed an acanthotic epidermis with craters filled with eosinophilic hyaline intracytoplasmic inclusion bodies, which are the hallmarks of molluscum contagiosum. After doing other baseline investigations the patient was started on HAART (stavudine + lamivudine + nevirapine) and was also started on prophylactic drugs for *Pneumocystis carinii* pneumonia and *Mycobacterium avium* complex infection in the recommended dosages. The molluscum lesions were treated with electrocautery.

Comment

Cutaneous horn (cornu cutaneum) is a clinical entity used for protruding dense, white or yellowish, short or curved hyperkeratotic structure resembling the horn of an animal. This term was proposed for lesions in which the height of the keratotic mass amounts to at least half of its diameter.¹ It is an uncommon lesion which usually occurs over the exposed parts of the skin.² It can develop over a wide array of benign, precancerous and malignant lesions.³ The occurrence of horn over the penis was first reported in 1827.² Cutaneous horn of the penis is a rare condition with less than 100 cases reported in the world.³ The various predisposing factors for the development of penile horn are chronic prepuccial inflammation, phimotic foreskin, trauma, poor hygiene, relapsing balanoposthitis, viral infection, and tumour, especially squamous cell carcinoma.³ Recently, verrucous carcinoma presenting as penile horn has been reported.²

Among the viral infections, human papillomavirus is commonly implicated. Molluscum contagiosum presenting as penile horn even in HIV infection is extremely rare. So far only one case has been reported in the literature.⁴ To the best of our knowledge our patient is the second report in the literature.

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Contraception's proved potential to fight HIV

Mitchell and Stephens¹ bring attention to an issue we believe warrants much more emphasis, contraception for HIV infected women. A World Health Organization meeting identified prevention of unintended pregnancies to HIV infected women as a key strategy in preventing mother to child transmission (MTCT).² To date, three different models have shown the potential impact of family planning services on preventing HIV sequelae. Firstly, a simulation model demonstrated that just moderate reductions in unintended pregnancies to HIV infected women would yield equivalent reductions in infant HIV infections as nevirapine for pregnant, HIV infected women.³ Secondly, another model showed adding family planning to MTCT programmes produced major reductions in infant HIV infections and orphans with this strategy.⁴ Finally, a third model found that increasing contraceptive use among non-users of contraception who do not want to get pregnant is at least as cost effective as an equivalent investment in prenatal care programmes that provide and promote nevirapine to HIV infected mothers.⁵

To strengthen the case for contraception, we underscore the contribution family planning programmes are currently making to prevent infant HIV infections. Take sub-Saharan Africa where the HIV epidemic has hit hardest and the impact of contraceptive use in averting HIV positive births is greatest. In 2002, 13% of married African women aged 15–49 used modern methods of family planning: pill 4%, intrauterine device 1%, injection 4%, condom 1%, female sterilisation 2%, and other (for example, implants) 1%.⁶ Taking into account contraceptive failure rates,⁷ pregnancies averted are calculated by subtracting the number of pregnancies occurring among current users of modern contraceptives and the number that would occur if they used no method; for no method use, a conservative initial annual pregnancy rate of 40% was assumed.⁸

Given the 7.8 million births prevented by contraceptive use in sub-Saharan Africa in 2002 and an HIV prevalence of 7.4%,⁹ current contraceptive use in sub-Saharan Africa prevents an estimated 577 200 unplanned births to HIV infected mothers. Assuming a 30% vertical transmission rate in the absence of antiretroviral prophylaxis, we estimate that current contraceptive use prevents over 173 000 unintended HIV infected infants each year in sub-Saharan Africa, or 474 HIV infected infants per day. Current coverage of MTCT programmes would have a minimal effect on this estimated number of infant HIV infections since the weighted coverage of MTCT programmes for Africa is 5%,¹⁰ and less than one sixth of HIV positive women with access to MTCT programmes take antiretrovirals.

Approximately 640 000 children were newly infected with HIV in sub-Saharan Africa during 2003.⁹ Without any contraceptive use, this number would be 813 000 children. Thus, current contraceptive use is already averting approximately 22% HIV positive births annually. However, given the relatively low contraceptive prevalence in sub-Saharan Africa, increasing contraceptive use has great potential for additional impact in averting HIV positive births. The proportion of unintended births is 25% in sub-Saharan Africa¹¹; and assuming that 25% of HIV positive births are also unintended, the potential for contraception to avert even more HIV infections is profound—an addition of over 160 000 HIV positive births averted annually.

As resources are rapidly shifting to focus on providing antiretroviral therapy for HIV infected people, the negative consequences associated with unintended childbearing are likely to worsen for women if funding for contraception does not keep pace with increasing demand.^{12, 13} Across all developing countries, current family planning spending levels are estimated to prevent 187 million unintended pregnancies.⁵ In turn, more than 100 million induced abortions are prevented annually and 60 million unplanned births are avoided. We already know that contraceptive use has numerous health benefits for women and families; our calculations suggest that contraceptive use to prevent unintended pregnancies can also have a significant effect on reducing infant HIV infections. We urge funders to refocus on family planning, not only to prevent unintended pregnancies but also HIV infections.

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the study. Another 196 females gave written informed consent. All individuals were asked about potential risk factors of blood borne virus' acquisition in a voluntary interview. Then all were screened for anti-HCV antibody, HBsAg, and anti-HIV antibody.

Their mean age was 29.3 (SE 0.7) years. There was a history of prostitution in 79.0%, non-injecting drug use (IDU) in 15.3% and IDU in 2.0%. A total of six HCV positive cases (3.1%) and three HBsAg positive cases (1.5%) were found. There were no HIV positive cases. HCV prevalence was significantly higher in individuals with history of non-IDU and IDU ($p = 0.01$ and $p = 0.005$, respectively). Out of 149 sex workers, with the mean period of prostitution was 11.3 (SE 1.7) months; four cases (2.7%, 95% CI: 0.7 to 3.4) were HCV positive and one case (0.7%, 95% CI: 0 to 1.7) was HBsAg positive. There was no sexual contact related variable significantly associated with HCV seropositivity in the sex worker population (table 1). Only one of these four cases who were anti-HCV Ab positive had a history of non-IDU, and none of them had a history of IDU.

Although we have been unable to ascertain the source of the HCV positivity in these women with multiple sexual exposures, it seems that promiscuity is not an important risk factor for hepatitis C because of the low HCV prevalence rate in general population in Iran (0.12%),² the low rate of promiscuity in Iran because of religion (Islamic) and social culture, the low mean period of prostituting in our study sample, or the regular use of condoms in almost all of the study population. However, it may be also because of the low infectivity of HCV in heterosexual intercourse. Moreover, in our study, none of HCV positive cases in the sex worker population study had a history of IDU while many of the studies failed to carefully exclude HCV acquisition from non-sexual sources.⁴⁻⁶ However, IDU is a much more significant risk factor for HCV infection than extramarital sexual contact in Iran. Therefore, screening for HCV infection is advocated in injecting drug users in order to prevent the spread of HCV.

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Distribution and risk factors of hepatitis B, hepatitis C, and HIV infection in a female population with "illegal social behaviour"

Parenteral exposure is a well established risk factor for hepatitis C virus (HCV) infection.^{1,2} However, the role of the sexual route in the transmission of hepatitis C has remained controversial.³ There are few studies carried out to evaluate these high risk groups in Iran. We conducted this study to survey the distribution of HCV infection as well as HBV and HIV infection in a female population with "illegal social behaviour."

We surveyed 196 females arrested by the police force in an analytical cross sectional study during the summer of 2002. They were mostly suspected of drug addiction, drug dealing, prostitution, and vagrancy. It was emphatically stated that there would be no additional penalty if anyone among the study population was not cooperative. Ten cases out of 206 females who had been initially selected for the study refused to partake in

Collecting the essence of man: semen collection for HIV transmission studies in sub-Saharan Africa

Efforts to understand male to female sexual transmission of HIV must include semen analysis. Estimating sexual infectiousness using blood HIV RNA concentrations as a surrogate marker may be biased.¹ Semen is routinely collected in Europe and the United States for HIV research² and has recently been collected in clinical trials in sub-Saharan Africa³; however, there are no published data about issues associated with semen collection.

We conducted a study at the Central Hospital in Lilongwe, Malawi, from January 2000 to June 2001 to better understand the relation between trichomonas and HIV-1 viral load.⁴ Men attending STI and dermatology clinics consented and were enrolled. All men with *Trichomonas vaginalis* and a comparison group of HIV positive men attending the dermatology clinic without trichomonas or STI symptoms were asked to provide semen. Both male and female clinic staff asked men to donate semen at the baseline visit. If subjects agreed to provide semen they were given a wide mouthed specimen container, escorted to a designated toilet near the examination rooms, and asked to provide semen by masturbation. To determine independent predictors of collection, a multivariate logistic regression model was created utilising those factors associated ($p \leq 0.10$) with semen collection on bivariate analyses. Eight randomly selected subjects who had been asked to donate semen were invited to participate in a focus group about semen collection.

In all, 212 men were asked to provide semen and 145 succeeded (table 1). The table shows the adjusted results controlling for factors associated with collection. Having a

Table 1 Comparison of different factors between HCV positive and HCV negative cases of prostitute groups to determine risk factors associated with HCV infection

	HCV positive (n = 4)	HCV negative (n = 145)	p Value
Age (years)	19.5 (SE 1.5)	28.3 (0.7)	NS
Literacy level			NS
Illiterate or elementary	1 (25.0%)	41 (29.5%)	
Secondary	3 (75.0%)	90 (64.7%)	
Advanced	0	8 (5.8%)	
Homosexuality (yes/no)	2/2 (50.0%)	61/79 (43.6%)	NS
History of STD (yes/no)	0/4 (0%)	22/118 (15.7%)	NS
Average number of weekly partners			NS
One or less	2 (50.0%)	47 (35.1%)	
Two to four	2 (50.0%)	73 (54.5%)	
More than four	0	14 (10.4%)	
Duration of prostituting (month)	10.7 (SE 4.8)	11.3 (SE 1.8)	NS
Regular use of condom (yes/no)	4/0 (100%)	120/23 (83.9%)	NS

Table 1 Results controlling for factors associated with semen collection

	Semen requested	Semen provided	Semen success rate (%)	POR* (95% CI)	p Value
Total	212	145	68		
Client age (years)					
18–21	33	23	70	Not significant	
22–29	104	70	67		
≥30	75	52	69		
Marital status					
Single	67	46	69	1.0 (referent)	
Married	117	75	64	2.56 (1.10 to 5.94)	0.03
Divorced/widowed	28	24	86	0.45 (0.08 to 2.39)	0.35
Educational status					
Up to primary school	135	89	66	Not significant	
More than primary school	77	56	73		
Religion					
Muslim	16	14	88	Not significant	
Christian	164	112	68		
Other/none	32	19	59		
Sex of clinician					
Sex data unavailable	27	8	30		
Male	81	72	89	1.0 (referent)	
Female	104	65	63	1.99 (0.68 to 5.82)	0.21†
STI status					
Dermatology clinic	84	73	87	1.0 (referent)	
Urethritis alone	38	28	74	2.43 (0.62 to 9.63)	0.21
Genital ulcers (GU) alone	41	21	51	5.55 (1.52 to 20.34)	0.01
Both GU and urethritis	49	23	47	9.55 (2.65 to 34.36)	<0.001
HIV status					
HIV positive	162	112	70	Not significant	
HIV negative	50	33	64		

*POR, prevalence odds ratio, the odds that the specified factor is associated with failure to collect semen among those men asked for a sample (n = 185) adjusting for marital status, clinician sex, and STI status.

†Sex, while no longer a statistically significant predictor of semen producing success, confounds the relation between STI status and successful production of semen.

genital ulcer or being married were both associated with failure to successfully masturbate and produce a semen sample; 87% of men without symptomatic STIs successfully produced semen.

The Chichewa word for semen, *umuna*, is derived from the word for man, *amuna*, and can be translated as “the essence of man.” Reflecting this linguistic point, the focus group reported that semen was seen as a powerful, supernatural substance that could be used to inflict harm upon the donor if it were misused. However, seven of eight focus group members understood the importance of collecting semen for research purposes. The focus group also revealed additional barriers to successful semen collection beyond having an STD including time pressure and perceived privacy. The focus group did not reach a consensus about why married men may be less successful at donating semen, but there was the suggestion that single men are more likely to masturbate as part of their daily lives so they are more comfortable doing it when asked to donate semen.

We found that the collection of semen for HIV and STI research is possible in a sub-Saharan African setting. To optimise the semen collection success rate we recommend minimising semen requests for men with acute genital symptoms and creating a quiet, non-urgent climate for sample donation. The techniques we have used to improve our success rate are (1) to give subjects the option of providing the semen sample at home as long as they agree to comply with the specimen collection requirements, specifically to deliver the sample no more than 2 hours after collection, and (2) to provide a

semen collection space away from busy clinic corridors and allow ample time for collection.

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This study has been approved by the UNC Chapel Hill School of Medicine ethics board (Chapel Hill, NC, USA), and the Malawi Health Sciences Research Committee (Lilongwe, Malawi).

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First case of spectinomycin resistant *Neisseria gonorrhoeae* isolate in New Delhi, India

Spectinomycin is recommended as an alternative antimicrobial in CDC treatment guidelines of uncomplicated gonococcal infection.¹ There are reports available on spectinomycin resistant *Neisseria gonorrhoeae* isolates from China, Philippines, and Sri Lanka but no resistance has been reported from India and other South East Asia Region countries such as Bangladesh, Thailand, and Indonesia.² To our knowledge, this is the first report of spectinomycin resistant *N gonorrhoeae* from India.

A 21 year old female patient with a history of vaginal discharge for the past month, attended the gynaecology outpatient department of Safdarjung Hospital in August 2002. On speculum examination purulent cervical discharge was noticed. Investigations were carried out for demonstration and isolation of *N gonorrhoeae*, *Candida albicans*, *Trichomonas vaginalis*, and pyogenic organisms using standard techniques. Endocervical curettings were collected for *Chlamydia trachomatis* antigen detection. Blood specimen was taken for VDRL, TPHA, HIV (after pretest counselling), and HBs Ag. All the tests proved negative, but on microscopy of the endocervical smear, Gram negative intracellular diplococci were observed. *N gonorrhoeae* was isolated on chocolate agar and saponin lysed blood agar with VCNT inhibitors. Standard methods³ were utilised for confirmation of the isolate. Antimicrobial susceptibility testing towards penicillin, tetracycline, ciprofloxacin, ceftriaxone, and spectinomycin was carried out by the Australian Gonococcal Surveillance Programme method based on the calibrated dichotomous sensitivity technique.³ The isolate was observed to be sensitive to penicillin, tetracycline, ciprofloxacin, and ceftriaxone but resistant to spectinomycin. Minimum inhibitory concentration by agar dilution technique was observed to be 128 µg/ml (cut-off value for spectinomycin resistance ≥128 µg/ml).

The patient was treated with ciprofloxacin 500 mg, single dose. Test of cure was performed after 2 weeks.

The regional STD Teaching, Training and Research Centre has been monitoring antimicrobial susceptibility of *N gonorrhoeae* for penicillin, tetracycline, ciprofloxacin, and ceftriaxone since 1995 and has been acting as the WHO regional reference laboratory for the Gonococcal Antimicrobial Susceptibility Programme (GASP) in South East Asia Region since 1999. Antimicrobial susceptibility testing for spectinomycin started in 2000 under GASP.

From 2000 to 2003 antimicrobial susceptibility testing has been carried out in 449 consecutive isolates of *N gonorrhoeae*. Out of 449 isolates, 413 were from male patients with acute gonococcal urethritis and 36 from females with cervicitis. All the isolates were

found to be sensitive to spectinomycin except this isolate.

This centre is also collecting and analysing data from focal point laboratories in India under GASP (Chennai, Delhi, Hyderabad, Kolkata) and 100% isolates were reported to be sensitive to spectinomycin in India.

Detection of a spectinomycin resistant isolate is a cause for concern as there are reports of resistance from other countries—as high as 11.1% from China.⁴ Spectinomycin is the best alternative for patients allergic to cephalosporins.

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Are all genital *Chlamydia trachomatis* infections pathogenic?

The relation between non-gonococcal urethritis (NGU) and *Chlamydia trachomatis* infection continues to arouse interest.¹ The recent study by Haddow *et al* confirms the findings we published earlier²—that is, that 34–37% of men who are chlamydia positive do not show NGU on microscopy. However, they found that 20% of men with NGU had chlamydia. In our study this was 66%, perhaps reflecting the higher prevalence of chlamydia in our department—that is, 13% compared with 8%. Our rate for chlamydia negative, non-NGU was 78% and for NGU 22%, results we have confirmed in data collected between December 2002 and December 2003.

In our study we speculate that not all serovars are pathogenic with some not causing inflammation. We too feel that of the 22% of men who had non-chlamydia NGU it is

highly likely that the organism is *Mycoplasma genitalium*.

We are disappointed our earlier study was not cited by Haddow *et al*, particularly as the senior author had had sight of our original manuscript.

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High HIV risk profile among female commercial sex workers in Vinnitsa, Ukraine

In many countries significantly higher rates of HIV infection have been documented among sex workers compared to most other population groups.¹ We have analysed HIV risk behaviour among the female commercial sex workers in Vinnitsa, Ukraine, because this issue is still unstudied in the country.

The study protocol was approved by the ethics committee of Vinnitsa Pirogov Medical University. Data collection was carried out in May to July, 2003 using a cross sectional design with a self reported questionnaire method and was linked to the programme “Network of mobile and information support

for female sex workers” operated by the non-government organisation (NGO) “Stalist.” This programme provides informational support, medical service, and condoms for female sex workers in Vinnitsa region. Trained outreach workers of NGO “Stalist” performed recruitment of subjects on the major roads of the city. Oral informed consent in all cases was obtained.

Altogether, 58 sex workers were involved into the study. The age of the participating women ranged from 15 to 34 years, with a mean age of 23.1 years. Around 25 (44.8%) respondents provided financial support from others (parents, children, husband, etc). Even though nine (15.5%) women had said that they were married, only four (6.9%) were living with their husbands, and 46 (79.3%) did not have a husband or a regular sexual partner. In spite of the fact that 46 (79.3%) female sex workers believe that they are not at risk, our results show a high HIV risk profile in this group (table 1).

It is well known that use of injecting drugs is a powerful factor for HIV transmission, and our findings highlight considerable prevalence of injecting drug use among sex workers in Vinnitsa. High rates of sharing injecting paraphernalia were registered as well, which, in our opinion, is the consequence of being “injection dependent.” In Canada it was identified that needing help injecting was a strong risk factor for syringe sharing,² and it is troubling that this risk factor has now been identified as a predictor of HIV seroconversion.³

Our data showed that permanent use of condoms was low, in spite of the fact that most of the respondents accepted that having sex without condoms increases the risk of HIV. Being on the margin of society, the ability of commercial sex workers to negotiate safer working conditions is limited. Their financial position can make them vulnerable to customers willing to pay more

Table 1 HIV risk profile among female commercial sex workers (n = 58)

Variable	No	%	95% CI*
Injecting drug use at least once	41	71	57.3 to 81.9
Regular injecting drug use	34	59	44.9 to 71.4
Injecting drug practice†			
Borrow used syringes	8	24	10.7 to 41.2
Lend used syringes	3	9	1.9 to 23.7
Require assistance injecting	13	38	22.2 to 56.4
Inject drugs in a group	11	32	17.4 to 50.5
Number of clients per average day			
One or two	8	14	6.1 to 25.4
Three or four	21	36	24.0 to 49.9
Five and more	29	50	36.6 to 63.4
Condom use during the last sexual contact	38	66	51.9 to 77.5
Condom use during the past month			
Always	29	50	36.6 to 63.4
More than in the half of cases (>50%)	16	28	16.7 to 40.9
In the half of cases (50%)	8	14	6.1 to 25.4
Less than in the half of cases (<50%)	5	9	2.9 to 19.0
Reasons for occasionally not using condoms during sex trade			
Client refusal	32	55	41.5 to 68.3
Higher payment	23	40	27.0 to 53.4
Permanent client	24	41	28.6 to 55.1
Use of psychoactive substances before a sexual contact during the past month			
Always	12	21	11.2 to 33.4
More than in the half of cases (>50%)	16	28	16.7 to 40.9
In the half of cases (50%)	24	41	28.6 to 55.1
Less than in the half of cases (<50%)	4	7	1.9 to 16.7
Never	2	3	0.4 to 11.9

*Confidential interval.
†Among regular injecting drug users.

money for unprotected sex and other high risk practices.⁴ In addition, if a sex worker is under the influence of drugs while working, her judgment is impaired and it is less likely that safer sex methods will be used.

Thus, results of our study emphasise that providing informational support, medical service and condoms cannot entirely solve the HIV preventive problem among female sex workers in Vinnitsa, Ukraine. Sex workers' vulnerability and dependence on clients, injecting drug use, significant rates of sharing injecting paraphernalia, and use of psychoactive substances before sexual contacts contribute significantly to the high HIV risk profile of this group.

Contributors

PK designed the study, carried out statistical treatment and analysis of the data; VP

supervised all procedures concerning data collection and editing, assisted in data analysis and drawing conclusions from the paper.

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