HIV

Is screening for sexually transmitted infections in men who have sex with men who receive non-occupational HIV post-exposure prophylaxis worthwhile?

E Hamlyn, J McAllister, A Winston, B Sinclair, J Amin, A Carr, D A Cooper

Sex Transm Infect 2006;**82**:21–23. doi: 10.1136/sti.2005.014662

Background/aims: Non-occupational HIV post-exposure prophylaxis (NPEP) is routinely prescribed after high risk sexual exposure. This provides an opportunity to screen and treat individuals at risk of concurrent sexually transmitted infections (STI). The aim of this study was to assess the efficacy of an STI screening programme in individuals receiving NPEP.

Methods: STI screens were offered to all individuals receiving NPEP from March 2001 to May 2004. Screen results were compared to type of sexual exposure and baseline patient characteristics.

Results: A total of 253 subjects were screened, representing 85% of the target population. All were men who have sex with men (MSM). Common exposure risks were receptive anal intercourse (RAI) in 61% and insertive anal intercourse (IAI) in 33%. 32 (13%) individuals had one or more STI. The most common STIs were rectal infections with *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) in 11 (4.5%) and six (2.5%) individuals, respectively. Subjects with rectal CT were significantly more likely to be co-infected with rectal NG ($p<0.001$). There was no association between the presence of a rectal STI and age or exposure risk. Only six (19%) individuals with an STI were symptomatic at screening.

Conclusion: In this cohort of MSM receiving NPEP, high rates of concomitant STIs are observed highlighting the importance of STI screening in this setting.

The use of antiretroviral therapy as non-occupational post-exposure prophylaxis (NPEP) against HIV infection has evolved with the development of antiretroviral therapy. Guidelines recommend the use of NPEP after high risk sexual exposures such as unprotected receptive anal intercourse (RAI).[1–3]

By exposure nature, individuals presenting for NPEP following sexual exposure are often at risk of concurrent sexually transmitted infections (STI).

Several reports have described a rising incidence in STI and a rise in high risk sexual behaviour in men having sex with men (MSM).[4–6] Owing to these factors, our unit commenced routine screening for STI in all individuals receiving NPEP. The aim of this study was to assess the number of individuals successfully being screened and whether the screening programme was diagnosing cases of concurrent STI.

METHODS

The HIV, Immunology and Infectious Diseases Clinical Services Unit, St Vincent's Hospital, Sydney, instituted a standard procedure for STI screening in all individuals commencing NPEP in March 2001. The clinic protocol for assessment, treatment, and follow up of individuals presenting for NPEP has been described elsewhere.[7] Further to this, individuals commencing NPEP were offered an STI screen as follows: hepatitis B surface antibody and antigen, hepatitis C antibody and serum syphilis EIA (Murex ICE Syphilis) at baseline; first catch urine samples, throat swabs and rectal swabs for *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) at week 1; and repeat syphilis serology at week 12. Testing for CT and NG were by DNA amplification (BD ProbeTec). All reactive tests for NG were repeated using a second assay to confirm positive results. Individuals with positive test results were treated according to national guidelines.[8]

The clinic protocol for STI screening and data recorded at visits did not change during the study period. Episodes where individuals underwent an STI screen when receiving NPEP on a second or subsequent occasion were excluded from the analysis.

The exposure risk stated is the highest risk activity described by the patient resulting in the need for NPEP. Data were collected from case note review with all patient information de-identified before entry onto the study database.

Patient characteristics were compared by calculation of odds ratios (OR) and associations were formally tested by calculating χ^2 statistics. All p values presented are two tailed with values less than 0.05 considered significant. Data were analysed using Stata statistical software.

RESULTS

A total of 299 individuals received NPEP on 354 occasions between March 2001 and May 2004. Of these, 253 individuals consented to STI screening (85%). This represents 286 STI screens, with 221, 31, and one individual undergoing one, two, or three STI screens respectively. A total of 253 screens were included in the analysis.

Patient characteristics are shown in table 1. Of note, all were MSM and commonest exposure risks were RAI and insertive anal intercourse (IAI) in 154 (61%) and 84 (33%) individuals, respectively. A total of 30 (12%) men had one STI and two (1%) men had two STIs (table 1). Rectal STI were the most common, observed in 15 (7%) individuals. The two individuals with two STIs had co-infection with rectal CT and rectal NG. No individuals had CT or NG at more than one site.

Of interest, only six (19%) of the 32 individuals with an STI were symptomatic at screening. These six individuals comprised three with urethral CT or NG and dysuria, one

Abbreviations: CT, *Chlamydia trachomatis*; IAI, insertive anal intercourse; MSM, men who have sex with men; NG, *Neisseria gonorrhoeae*; NPEP, non-occupational HIV post-exposure prophylaxis; RAI, receptive anal intercourse; RPR, rapid plasma reagent; STI, sexually transmitted infections

Table 1 Patient characteristics and positive STI results for 253 subjects completing STI screening

Patient characteristics	
Male, number (%)	253 (100)
Age, years (range)	33 (18 to 62)
Exposure risk*, number (%)	
RAI	154 (61)
IAI	84 (33)
ROI	9 (4)
Other	6 (2)
STI screen results	
Total STI, numbers (%, 95% CI)	
STI screen negative	221 (88)
1 STI	30 (12, 7.9 to 15.8)
2 STI	2 (1, 0.1 to 2.8)
STI by site†, numbers (%)	
Throat NG	6 (2)
Throat CT	2 (1)
Rectal NG	6 (2.5)
Rectal CT	11 (4.5)
Urethral NG	4 (1.5)
Urethral CT	1 (0.5)
Syphilis	4 (1.5)

*RAI, receptive anal intercourse; IAI, insertive anal intercourse; ROI, receptive oral intercourse; other, mucous membrane exposure and insertive oral intercourse.
†NG, *Neisseria gonorrhoeae*; CT, *Chlamydia trachomatis*.

with rectal NG and rectal discharge, and two with a positive syphilis rapid plasma reagent (RPR) and a rash consistent with secondary syphilis. The other two individuals with positive syphilis serology were asymptomatic with a negative RPR and were treated as late latent syphilis.

A total of 183 (77%) individuals had a reactive hepatitis B surface antibody at baseline; those who were negative were offered vaccination against hepatitis B. One individual had a positive hepatitis B surface antigen at baseline and one individual had a positive hepatitis C antibody. No newly positive syphilis serology was observed at 3 months.

No associations between age and type of STI were observed (p value greater than 0.10 for all STIs). Individuals with rectal CT were significantly more likely to have rectal NG ($p<0.01$, OR 13.2, 95% CI 2 to 86). No significant associations were observed between positive CT and NG results for other sites ($p = 0.899$ and 0.825 for urethra and throat respectively).

Individuals with an exposure risk of IAI or ROI (receptive oral intercourse) were significantly more likely to have a urethral STI ($p = 0.015$) than those with all other exposure risks. No significant associations were observed for other exposure risks and the presence of STI including RAI ($p = 0.584$).

DISCUSSION

In this cohort of MSM receiving NPEP after high risk sexual exposures, high rates of concomitant STI are observed. In 81% of these cases, the concomitant STI was asymptomatic highlighting the importance of providing STI screens to all individuals after such exposures. The fact that this screening programme was implemented demonstrates that routine screening for STI in individuals receiving NPEP is feasible and acceptable.

Recent data have shown a rise in STI in MSM. The prevalence of STI in MSM presenting for NPEP has not been reported previously. Our observed rates of STI (13%) are similar to other reported cohorts of MSM.[4 9]

Our cohort is composed of only MSM with high rates of rectal STI and syphilis which may be expected. Further work to assess the use of STI screening in individuals presenting for NPEP with other risk exposures is warranted.

In this study nucleic acid amplification testing (NAAT) assays were used for the diagnosis of CT and GC. Although these assays are not validated for pharyngeal and rectal specimens, several studies indicate a high sensitivity of polymerase chain reaction and ligase chain reaction for diagnosing extragenital CT and GC.[10–13] Contamination by other *Neisseria* subspecies can give rise to false positive GC results, particularly for pharyngeal specimens.[14] However, as all positive NG samples were confirmed by a supplementary assay, it is unlikely that this would have had an impact on the results of this study.

Effective STI prevention programmes, by shortening the duration of infectiousness of an STI, drive up the rate of partner change needed to maintain a reproductive rate above one.[15] The infectious period of the STI screened for by the implementation of this programme is reduced.

STI facilitates the spread of HIV infection.[16] For individuals presenting after high risk sexual exposure, the prompt diagnosis and treatment of curable STI may have an important role in preventing the future transmission of HIV infection even when individuals continue to have unprotected sex.

Key messages

- Screening for concomitant STI is recommended for individuals receiving non-occupational post-exposure prophylaxis against HIV
- High rates of STI in MSM receiving PEP highlight the importance of screening in this setting
- STI in individuals presenting for NPEP are frequently asymptomatic.

ACKNOWLEDGEMENTS

The National Centre in HIV Epidemiology and Clinical Research is funded by the Australian Government Department of Health and Ageing, and is affiliated with the Faculty of Medicine, The University of New South Wales.

CONTRIBUTORS

EH, proposal of study, wrote manuscript, data collection, data analysis; JMcA, data collection from case notes; AW, substantially helped in writing manuscript, statistical analysis; BS, helped data collection from case notes; JA, statistical analysis; AC, proposal of study, helped in writing manuscript; DC, helped in writing manuscript.

Authors' affiliations

E Hamlyn, J McAllister, A Winston, B Sinclair, A Carr, D A Cooper, HIV, Immunology and Infectious Diseases Clinical Services Unit, St Vincent's Hospital, Sydney, 2010, Australia
A Winston, J Amin, D A Cooper, National Centre for HIV Epidemiology and Clinical Research, University for New South Wales, Sydney, 2010, Australia

Conflict of interest: None declared.

Correspondence to: Dr Elizabeth Hamlyn, HIV, Immunology and Infectious Diseases Clinical Services Unit, St Vincent's Hospital, Victoria Street, Sydney, 2010, Australia; liz_hamlyn@yahoo.com

Accepted for publication 14 June 2005

REFERENCES

1 **Almeda J**, Casabona J, Allepuz A, *et al*. Recommendations for non-occupational postexposure HIV prophylaxis. Spanish Working Group on Non-Occupational Postexposure HIV Prophylaxis of the Catalonian Center for Epidemiological Studies on AIDS and the AIDS Study Group. *Enferm Infecc Microbiol Clin* 2002;**20**:391–400.
2 **Flexner C**. Post-exposure prophylaxis revisited: new CDC guidelines. Centers for Disease Control and Prevention. *Hopkins HIV Rep* 1998;**10**:2–3.

3 **Giele CM**, Maw R, Carne CA, *et al*. Post-exposure prophylaxis for non-occupational exposure to HIV: current clinical practice and opinions in the UK. *Sex Transm Infect* 2002;**78**:130–2.
4 **Macdonald N**, Dougan S, McGarrigle CA, *et al*. Recent trends in diagnoses of HIV and other sexually transmitted infections in England and Wales among men who have sex with men. *Sex Transm Infect* 2004;**80**:492–7.
5 **Van de Ven P**, Prestage G, French J, *et al*. Increase in unprotected anal intercourse with casual partners among Sydney gay men in 1996–98. *Aust N Z J Public Health* 1998;**22**:814–18.
6 **Grulich AE**, de Visser RO, Smith AM, *et al*. Sex in Australia: homosexual experience and recent homosexual encounters. *Aust N Z J Public Health* 2003;**27**:155–63.
7 **Winston A**, McAllister J, Amin J, *et al*. The use of a triple nucleoside-nucleotide regimen for non-occupational HIV post exposure prophylaxis. *HIV Medicine* 2005;**6**:191–7.
8 **Venerology Society of Victoria Incorporated**. *National management guidelines for sexually transmissible diseases and genital infection*, Carlton, Australia, 2002.
9 **Whittington WL**, Collis T, Dithmer-Schreck D, *et al*. Sexually transmitted diseases and human immunodeficiency virus-discordant partnerships among men who have sex with men. *Clin Infect Dis* 2002;**35**:1010–17.
10 **Manavi M**, McMillan A, Young H. The prevalence of rectal chlamydial infection amongst men who have sex with men attending the genitourinary medicine clinic in Edinburgh. *Int J STD AIDS* 2004;**15**:162–4.
11 **Page-Shafer K**, Graves A, Kent C, *et al*. Increased sensitivity of DNA amplification testing for the detection of pharyngeal gonrrhoea in men who have sex with men. *Clin Infect Dis* 2002;**34**:173–6.
12 **Lister NA**, Tabrizi SN, Fairley CK, *et al*. Validation of Roche Cobas Amplicor assay for detection of Chlamydia trachomatis in rectal and pharyngeal specimens by an omp1 PCR assay. *J Clin Microbiol* 2004;**42**:239–41.
13 **Young H**, Manavi K, McMillan A. Evaluation of ligase chain reaction for the non-cultural detection of rectal and pharyngeal gonorrhoea in men who have sex with men. *Sex Transm Infect* 2003;**79**:484–6.
14 **Palmer H**, Mallinson H, Wood RL, *et al*. Evaluation of the specificities of five DNA amplification methods for the detection of Neisseria gonorrhoeae. *J Clin Microbiol* 2003;**41**:835–7.
15 **Wasserheit JN**, Aral SO. The dynamic topology of sexually transmitted disease epidemics: implications for prevention strategies. *J Infect Dis* 1996;**174**(Suppl 2):S201–13.
16 **Fleming DT**, Wasserheit JN. From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection. *Sex Transm Infect* 1999;**75**:3–17.