
GENITOURINARY MEDICINE

Early warning
From 1998 the title of
Genitourinary Medicine
will become
Sexually Transmitted Infections

Editorial

Syndromic management of sexually transmitted diseases in developing countries: what role in the control of the STD and HIV epidemics?

The burden of sexually transmitted diseases in developing countries is enormous. The World Health Organisation (WHO) estimates that, in 1995, 333 million new cases of syphilis, gonorrhoea, chlamydial infection, and trichomoniasis occurred.¹ Disease burden is highest in sub-Saharan Africa, where the combined incidence of these four infections is estimated at 254 per 1000 population at risk.¹ Similarly, the HIV epidemic is of greatest magnitude in developing countries, it being estimated that 93% of the 27.9 million people infected with HIV by mid 1996 lived in developing countries.² Sub-Saharan Africa again suffers disproportionately, comprising 68% of the people infected with HIV worldwide. These two epidemics have substantial impact. Globally, STDs collectively rank second in importance among diseases for which intervention is possible among women aged 15-44 years.³ It is projected that, in Zambia, HIV infection may increase child mortality threefold early in the next century.²

The STD and HIV epidemics are interdependent. Similar behaviours, such as frequent unprotected intercourse with different partners, place people at high risk of both infections, and it is becoming clearer that conventional STDs increase the probability of HIV transmission. Several cross sectional surveys have demonstrated a strong association between STDs and HIV infection,^{4,5} a randomised intervention study has demonstrated a substantial reduction in HIV incidence consequent upon improved STD treatment,⁶ and there is compelling biological evidence that STDs increase shedding of HIV and that STD treatment reduces this shedding.⁷ Thus, the publication of the report of an international workshop on issues around randomised trials of STD treatment for HIV prevention in this issue of *Genitourinary Medicine* (p 432) is particularly timely and important.

The report by Hayes and his colleagues stands out as an insightful summary of many of the issues that surround community randomised trials and will be of immense interest and value to those researching STD interventions in developing countries. It discusses the important role that community randomised trials have in studying STD control strategies, outlines the different strategies that exist and that might be

considered, provides a very useful section that discusses in depth some of the key epidemiological and statistical issues in the design and analysis of such trials, and closes by outlining diagnostic methods, treatment regimens, and ethical issues of relevance to such trials.

Only one of the trials that is discussed has been published to date. The Mwanza (Tanzania) trial⁶ created a huge stir when its findings were published in 1995 and considerable hope for effective HIV prevention in developing countries was generated. In a very pragmatic way the investigators tested the impact of syndromic management for STDs delivered in primary care clinics on HIV incidence. They showed a 42% reduction in HIV incidence, but without any substantial impact on STD prevalence. Unfortunately, implementation of this apparently simple and cost effective intervention has been slow and difficult in many settings. The Rakai (Uganda) study, which is much more complex, is a trial of mass treatment of entire communities with modern, expensive STD drugs. Prevalence of STDs is reported to have fallen, following on the initial treatment rounds, and results of the impact on HIV incidence are eagerly awaited. The Masaka (Uganda) study is comparing syndromic management with information and education campaigns.

As two of these large and expensive trials are testing the impact of STD syndromic management on HIV incidence, and as their results are likely to have a significant impact on public health policy and, hopefully, practice, it is timely to reconsider the place and likely impact of syndromic management for STDs in control of the STD and HIV epidemics in developing countries.

Syndromic management is the only feasible way to treat patients in developing countries who present to a health facility with an STD.⁸ The key principles behind the strategy are (1) it is not possible to make an accurate aetiological diagnosis in patients with STDs in developing countries, and (2) many patients with an STD have multiple infections. Thus, based on local studies of prevalence of aetiological agents and drug susceptibility patterns, health departments recommend particular combinations of drugs for each STD

syndrome. For example, in parts of South Africa, both ciprofloxacin and doxycycline are recommended for men presenting with a urethral discharge, in order presumptively to treat gonorrhoea and chlamydial infection. Although widely recommended and used, there is surprisingly little evidence that syndromic treatment actually cures most patients when used under programmatic conditions.⁹⁻¹¹

When syndromic management is written and talked about, the emphasis is often on drug therapy. This is but one aspect of syndromic management. Other important components include promoting adherence to therapy, promoting condom use, providing counselling to patients, and promoting partner notification and treatment. None of these components is necessarily easy to implement, and assessing quality of care in a service may reveal gross deficiencies. For example, in the Hlabisa health district of South Africa we have shown that only around 5% of patients treated for an STD are the asymptomatic contact of an index case.¹² We have also observed that none of the private practitioners in the district treat according to provincial health department guidelines and that only 9% of a series of prescriptions written for STD patients provided adequate treatment (in preparation); this is important because private doctors treat half of the patients with an STD.¹² Syndromic management, although an apparently simple concept, is not at all easy to implement. STD control in these settings is a substantial challenge.¹³

Hayes *et al* refer to the Piot-Fransen model. This model is frequently used when training primary care health workers in STD treatment, and the iconoclast would conclude that it illustrates most clearly the futility of syndromic management as a disease control strategy. Data from a series of studies done in Hlabisa have been applied to the model in an attempt to develop a snapshot of the burden of STDs in a rural South African health district (submitted). Of 55 974 women in Hlabisa district aged 15-49 years, it is estimated that on any given day 13 943 (25%) are infected with at least one of *Trichomonas vaginalis*, *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, or *Treponema pallidum*. Many of these women (6697; 48%) are asymptomatic, and most of the rest (6994; 50%) are symptomatic and are not actively seeking care. Few (238; 1.7%) are symptomatic and seeking care for their STD, and fewer still (14; 0.3%) seek care on that particular day. Even fewer (9, 14%) are thought to be adequately treated.

It is clear then that syndromic management has inherent limitations as it relies on symptomatic patients presenting for care. Asymptomatic patients will not present and no feasible screening strategies to identify asymptomatic patients exist in developing countries. Many patients while being symptomatic fail to seek care, or delay in doing so, for a multitude of reasons. As in Hlabisa, in many other settings in developing countries it seems likely that most patients infected with an STD are inadequately treated, or are never treated at all. Thus, while syndromic management is the only option for treating those patients who do present with an STD in developing countries, as a tool for STD (and HIV) control it is inherently limited. What other options are there?

Firstly, high quality comprehensive syndromic management made available wherever patients seek care for an STD (including the private sector) that is combined with mass media campaigns to raise awareness about STDs, and to promote positive treatment seeking behaviour, could attract substantial numbers of symptomatic patients to the service.

Secondly, as Hayes *et al* discuss, and as has been outlined comprehensively elsewhere,¹⁴ the need for some form of "mass treatment" is compelling. Mass treatment could conceivably act to reduce STD prevalence to a level that enhanced, quality services could then maintain. Mass treat-

ment will inevitably be very expensive. In Hlabisa, 52% of women attending the public sector antenatal service have at least one STD (submitted): treating all women who attend the antenatal clinics in 1 year, and treating one partner per woman, with azithromycin and metronidazole, would consume the entire annual district pharmacy budget. Although immediately unaffordable, how effective might such a strategy be? And thus, how cost effective might it be, especially if it reduces HIV infections? We simply do not know, and while we await the results of the Rakai trial, surely we should be encouraging the design of other mass treatment trials to study this question.

What is driving the very high prevalence of STDs in developing countries? There are many factors, but ineffective treatment as described here and elsewhere must be one important contributor to a large, circulating pool of infection. Migration is also likely to be an important mechanism for maintaining a high prevalence of infection, and molecular typing of STD organisms combined with conventional epidemiology and contact tracing could provide useful insights into transmission dynamics. The sexual networks that people maintain clearly go a long way to explaining the epidemic of STDs in developing countries.¹⁵ These factors and others that contribute to the STD epidemic are clearly inter-related: they are founded in poverty, inadequate resources, inequality, and discrimination. Thus, while large and expensive community randomised trials are important and to be encouraged, a broader range of public health research is also needed, as well as a much broader social inquiry. Combined, the results of such studies are likely to provide useful guidance to those working to reduce the magnitude and the impact of the STD and HIV epidemics in developing countries.

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