

## A paradoxical reduction in upper genital tract infection despite the massive HIV epidemic

Nomonde Gumata, Robert Pattinson

**To the Editor:** Upper genital tract infection (UGTI), which is also referred to as pelvic inflammatory disease (PID), is one of the most common serious gynaecological disorders that affect women in their reproductive years, with very serious long-term consequences such as chronic pelvic pain, ectopic pregnancy and infertility.<sup>1</sup> It is a sexually transmitted infection (STI) caused by many micro-organisms such as *Nisseria gonorrhoeae*, *Chlamydia trachomatis* and anaerobes. It can be clinically classified into uncomplicated (absence of tubo-ovarian abscess (TOA)) or complicated (presence of TOA).<sup>1</sup>

Complicated UGTI occurs in 15 - 33% of women with STI.<sup>1</sup> It may result from co-infections with HIV, delay in seeking medical attention (which is seen less because of increased accessibility and utilisation of local primary health care facilities) or unresponsiveness to syndromic management.<sup>1</sup> HIV infection role in UGTI has been extensively studied over the past decade.<sup>2</sup> HIV-infected patients tend to have more frequent episodes of complicated UGTI; good clinical response to conventional medical therapy (with the recommendation of antibiotics with strong anaerobic coverage); a trend towards prolonged time to reach clinical improvement, which has recently been proven not to be related to CD4 cell count as was initially thought; and an approximately 15% probability of requiring surgical intervention.<sup>2</sup>

Over the past 5 years (2004 - 2008), Kalafong Hospital had a low but fairly constant number of admissions for complicated UGTI (between 3% and 4.6%) (Table I) compared with the 22% average stated in the American literature.<sup>3</sup> This low complicated UGTI rate seen at Kalafong Hospital is also contrary to what was expected in the 1990s during the occurrence of the sub-Saharan HIV epidemic, when it was expected that high HIV infection rates (with HIV infection being a STI) would lead to large number of patients presenting with complicated UGTIs. Kalafong Hospital has a low rate of complicated UGTI admissions despite the relatively high HIV epidemic. The estimated South African national HIV prevalence was 16.9% among adults (15 - 49 years) in both 2005 and 2008,<sup>4</sup> and HIV incidence was 33.1% in 2004 and 29.8% in 2008 (Table I) among pregnant women attending public sector health services in Gauteng Province.<sup>5</sup>

The low rate of patients admitted with complicated UGTI seen at Kalafong Hospital is, however, consistent with the low prevalence of syphilis (which is an STI) seen among pregnant women attending antenatal visits in public sector clinics in

Gauteng province over the past 5 years, which has ranged between 0.9% and 4.3% (Table I).<sup>5</sup>

Kalafong Hospital, over the same 5-year period (2004 - 2008), also experienced a significant reduction in the number of women failing to respond to treatment ( $p=0.00021$ ) and necessitating surgical intervention in the form of laparotomy, from 19.5% in 2004 to 2.5% in 2008 ( $p=0.0000396$ ) (Table I). This rate is lower than the 25% average rate stated in the American literature.<sup>6</sup>

These observations led to questions, speculations and postulations on possible causes for this drastic decline in surgical interventions for complicated UGTIs seen at Kalafong Hospital and an interest as to whether such a decline was seen in other provinces.

The postulations could be related mainly to strategies that target the risk factors associated with UGTI, such as young age, multiple sexual partners and poor socio-economic circumstances.<sup>7</sup> The decline could be attributed to improved knowledge regarding STIs and HIV and AIDS; behavioural changes; maintained susceptibility of local STI pathogens and effective response to syndromic treatment in primary health care centres; appropriate referral of unresponsive patients to relevant institutions; and good in-patient antibiotic regimens used locally.<sup>7,8</sup>

Strategies targeting the youth have an effect on reducing STI rates.<sup>7</sup> A greater level of sexual education has contributed to STI reductions through a decline in sexual activity by adolescent girls.<sup>7</sup> South African youth are less likely to debut sexually before the age of 15 years.<sup>7</sup> The decline in sexual debut is also evident in the age range of 15 - 24 years among males, from 13.1% in 2002 to 11.3% in 2008, and among females from 8.9% in 2002 to 8.5% in 2008.<sup>7</sup>

An emerging awareness of the HIV/AIDS epidemic has been shown to lead to behavioural change.<sup>7</sup> However, although HIV status awareness in SA among males and females has doubled from 2005 to 2008, HIV/AIDS knowledge has declined among the population at high risk, especially African females aged 20 - 34 years, from 43.8% in 2002 to 26.1% in 2008, and among males aged 25 - 49 years from 40.6% in 2002 to 28.0% in 2008.<sup>7</sup>

Behavioural changes such as reducing the number of sexual partners have been reported to reduce STI prevalence.<sup>7</sup> However, there was an increase in SA of the number of sexual partners, to 10.6% in 2008, from 9.4% in 2002, among people aged 15 - 49 years who reported having two or more partners in the past year.<sup>7</sup> Therefore, for high-risk populations in which no change in sexual behaviour has yet occurred, improved syndromic STI management can contribute considerably to lowering the burden of STIs.<sup>8,9</sup>

Appropriate syndromic management comprises the provision of antibiotics, condoms, partner notification cards and written information.<sup>9</sup> Syndromic management of STIs was

Department of Obstetrics and Gynaecology, Kalafong Hospital and University of Pretoria

Nomonde Gumata, MB ChB, FCOG (SA)

Robert Pattinson, MD, FRCOG, FCOG (SA)

Corresponding author: R Pattinson (robert.pattinson@up.ac.za)

**Table I. Gauteng Province syphilis and HIV prevalence among pregnant women attending antenatal clinic in the public sector<sup>2</sup> together with Kalafong Hospital gynaecological ward admissions and those with complicated UGTI and who underwent laparotomy from 2004 - 2008**

| Year                            | Gauteng, syphilis prevalence (%) | Gauteng, HIV prevalence (%) | Kalafong gynae. ward admissions (N) | Complicated UGTI (N (%)) | Laparotomy for complicated UGTI (N (%)) |
|---------------------------------|----------------------------------|-----------------------------|-------------------------------------|--------------------------|---|
| 2004                            | 0.9                              | 33.1                        | 1 834                               | 84 (4.58)                | 16 (19.05)                              |
| 2005                            | 4.3                              | 32.4                        | 1 976                               | 88 (4.45)                | 14 (15.91)                              |
| 2006                            | 2.3                              | 30.8                        | 1 890                               | 85 (4.49)                | 9 (10.59)                               |
| 2007                            | 3.8                              | 30.3                        | 2 418                               | 79 (3.27)                | 4 (5.06)                                |
| 2008                            | 2.7                              | 29.8                        | 2 632                               | 79 (3.00)                | 2 (2.53)                                |
| $\chi^2$ (chi-square) for trend |                                  |                             |                                     | $p=0.00021$              | $p=0.0000396$                           |

introduced in South African primary health care centres in 1995.<sup>5</sup> The decline in the prevalence of syphilis among pregnant women in SA has been established, and is an indication of the effective implementation of the syndromic management of STIs.<sup>5</sup> However, the South African Department of Health highlights the management of 'partners' as the main hurdles in STI control.<sup>5</sup> Syndromic management is also effective in the treatment of high-risk patients.<sup>9</sup> Availability and easy access to primary health care facilities allows many patient to be treated, so reducing the numbers of those who delay treatment and in turn reducing the number of patients presenting with complicated UGTI.

Condom use has a proven efficacy in STI prevention.<sup>7</sup> In SA, there has been a marked change in condom use from 2002 to 2008.<sup>7</sup> The level of condom use at last sex among males was 67.4% in 2008 compared with 36.1% in 2002; the equivalent figures among females was 62.5% in 2008 compared with 27.6% in 2002.<sup>7</sup> The increase was also significant among people aged 15 - 49 years: 64.8% in 2008 from 21.3% in 2002.<sup>7</sup> Condom use was also very high among the youth, with 87.4% of males and 73.1% of females reporting their use at last sex.<sup>7</sup> Condom use might therefore have also contributed extensively to the reduction in rates of complicated UGTIs.

## Conclusion

Comprehensive syndromic management of STIs (mainly antibiotics and condom use) might have contributed to

a reduction in complicated UGTI warranting surgical intervention seen at Kalafong Hospital. It would be interesting to establish whether other units in the country have experienced similar effects, and especially units in KwaZulu-Natal, which has the highest HIV prevalence and the second-lowest syphilis prevalence in the country.<sup>2</sup>

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