MATTERS ARISING

STD/HIV control in Malawi

We are interested in the paper by Lule *et al*[1] in which they report the prevalence of *Neisseria gonorrhoeae* in men with urethritis in Malawi to be 80·3%. This comes as no surprise because the dominance of the gonococcus in urethral and other infections in some developing countries in Africa as opposed to the industrialised countries is well recognised. Indeed, the picture contrasts with that, for example, in the United Kingdom where *Chlamydia trachomatis* predominates as a cause of urethritis in men.[2] Lule and colleagues, however, report a prevalence of 5·2% for *C trachomatis* among men with urethral symptoms and we surmise that this might be a considerable underestimate. In the first place, these authors, understandably, used an enzyme immunoassay (EIA) to detect *C trachomatis*, a technique which is far less sensitive than the best available.[3] Furthermore, since chlamydial organisms often exist in small numbers in men with gonorrhoea,[4] we would expect under these circumstances even more false negative EIA results than would otherwise be the case. We feel that we are justified in making these comments by virtue of some published studies from elsewhere in Africa[5-7] and our recent experience in studying goldminers with urethritis in Johannesburg. Of 242 men, 167 had gonorrhoea and on the basis of a cultured urethral swab (considered to be as sensitive as most EIAs) 13 (7%) had a concomitant *C trachomatis* infection. However, examination of the centrifuged deposit from a first-pass urine sample by means of a direct fluorescent antibody test (MicroTrak, Syva) showed that 32 (19%) had a *C trachomatis* infection. Of 75 men with non-gonococcal urethritis, 14 (18·7%) were culture-positive for *C trachomatis* and 18 (24%) were fluorescent antibody positive. It is of interest that more than 50% of specimens from patients with gonorrhoea contained small numbers (<10) of elementary bodies. These observations would suggest that the true prevalence of *C trachomatis* in Malawi might, in fact, be two- to three-times greater than recorded. Indeed, a figure of 10–15% would be little different from the prevalence one might expect in male urethritis patients in the United Kingdom. This similarity is perhaps not surprising since neither African countries nor the United Kingdom have, as yet, effective programmes for the control of *C trachomatis* infection based on accurate diagnosis, treatment and contact tracing. The apparent continued dominance of *N gonorrhoeae* as a cause of urethritis in Africa may reflect the absence of an effective control programme for gonorrhoea in contrast to that existing for this disease in, for example, the United Kingdom, rather than major differences in underlying levels of unsafe sex. The true burden of infection caused by *C trachomatis* in Africa will probably emerge only after application of the most sensitive diagnostic techniques. For these reasons we were pleased to note that the Malawian STD advisory committee[1] decided to advocate the use of combination antibiotic therapy (which includes a seven day course of doxycycline) for the treatment of urethritis. While the study of Lule *et al* apparently did not support the routine use of antichlamydial chemotherapy, we believe that it is important to provide such cover when treating urethritis in Africa, particularly in view of the potential role of *C trachomatis* as a cofactor in the spread of HIV.

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Barrier methods of contraception

The recent article[1] on barrier methods of contraception, spermicides and sexually transmitted diseases by Cavalieri d'Oro *et al* reviews the association and concludes correctly that barrier methods reduce the risk of gonorrhoea and HIV but may be less consistent for other diseases.

The review unfortunately does not include the newest method of barrier contraception, the so called "Female Condom", known in the UK as Femidom. In the laboratory, polyurethane the material of which the device is made, is reported to be impermeable to HIV[2] and cytomegalovirus.[3] Similar permeability studies using bacteriophages smaller than hepatitis and HIV show that the membrane is a complete barrier.

A clinical study attempted to assess the prevention of reinfection by *Trichomonas vaginalis* on 104 women who had been treated and cured and who were then exposed to reinfection from their untreated male partners. The at risk women were separated into a control (no barrier contraception) group and a group using the female condom (54 women). The controls had a reinfection rate of 14% (7 of 50) and of the 54 women who used the female condom 34 failed to use it on each occasion, with 14% of these becoming reinfected (5 of 34). None of those using the female condom with every act of intercourse became reinfected.[4]

The effect on the vaginal mucosa and vulval skin, together with its effect on resident vaginal bacteroflora was determined in another study by Soper *et al*,[5] who randomly assigned 30 patients to use a female condom or a diaphragm during the study period.

Colposcopic examination with photographic record of the vagina, cervix and vulva was performed, together with fungal aerobic and anaerobic culture of the vagina. The two groups were compared with respect to the frequency of abnormal physical findings and changes in vaginal flora. Neither the diaphragm nor the female condom was associated with trauma to the genital tract, but subjects using the diaphragm underwent a significant change in vaginal bacterial flora and were more likely to become colonised with *E coli* and less likely to maintain healthy lactobacilli in the vagina. This may be linked to the previously recognised association between urinary tract infection and diaphragm users.[6]

Leeper and Conrardy[7] compared use of an unnamed male condom with a female condom. The standard ASTM water leak test showed less leakage from pinholes and tears for the female condom (0·6%) compared its male counterpart (3·5%), whereas the risk of failure during actual use (that is, allowing semen, identified by acid phosphatase, into the vagina) was 2·7% for the female condom and 8·1% for the male condom.

Perfect users may expect a probability of failure, as evidenced by pregnancy, of 2·6% in 6 months' use,[8] with the same author suggesting that similar perfect use reduces the annual risk of HIV acquisition by more than 90% among women who have sexual intercourse twice weekly with an infected male.

It is anticipated that polyurethane will be the raw material from which male condoms are made in the future and it is surely time to look more closely at this material as a barrier against STDs.

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