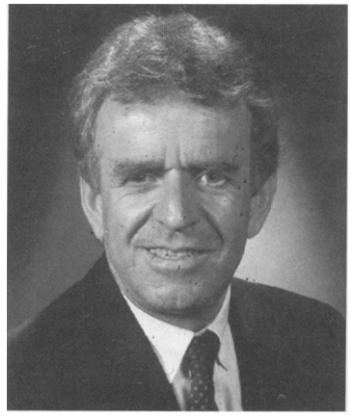

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The control of pelvic inflammatory disease (PID) depends on case finding, treatment, and the prevention of re-exposure to Chlamydia trachomatis infections. We have the means to accomplish these ends: sensitive diagnostic tests are available; treatment with Azithromycin (one g as a single dose) is effective and simple; contact tracing is feasible. Yet despite all efforts the disease continues to spread.

The crux of case finding is patient screening. It is not clear who should be screened with which test. Present recommendations for Chlamydia screening are so inclusive that they have become meaningless. As examples, screening has been suggested for any sexually active woman under 25 years of age, for anyone who does not use a barrier contraceptive, who changes her partner, who requests termination of pregnancy or has a mucopurulent cervicitis.

The diagnostic gold standard is microscopic identification of Chlamydia in tissue cultures but the sensitivity of the test is discouragingly low. We do not have access to the enzyme-linked immunosorbent assay (ELISA) tests. It would appear that DNA amplification techniques are the most feasible means of diagnosis.

In this month's highlights the organism's natural history is reviewed and the means of preventing the spread of the infection are discussed. The final paper, written by Stephen and Shelagh Genuis of Edmonton, makes a persuasive argument that something other than technology is needed if we hope to reduce the prevalence of PID.

Chlamydia infection: a natural history.

Storey C, Hajia M.
(Contemp Rev Obstet Gynecol 1996;8:143-7).

Chlamydia were first thought to be viruses, then something between a virus and a bacterium (a relative of Rickettsia). They are now recognized to be bacteria. However they are classified, they are "smart little bugs."

Chlamydia is an intracellular parasite which changes its appearance according to its needs. Its first need is to multiply which it does by binary fission until it occupies all of the cell's cytoplasm. The organism, which is called a reticulate body, is very small because it contains little genetic material. All complex functions are undertaken by the host.

In order to spread to other cells it must survive a hostile environment until it can gain entry into a new cell. Protection from the outside world comes from rigid envelopes which develop around each separate organism. When the development of the envelope is complete, the organism bursts outside the cell as the infectious elementary body. It now attaches to the mucosal surface of a different cell in the same individual or her male partner, enters the cell and changes back to a reticulate body. The cycle is then repeated.

The first part of this infection is reasonably well known and understood. The same cannot be said for the second part. In women, the organism is presumably able to ascend to the endometrium and the Fallopian tubes. The initial infection does not cause extensive damage, indeed the number of Chlamydiae that can be found on the cervix soon decreases. It appears that the host has rid itself of the infection.

The real problem comes with re-infection and the resultant delayed hypersensitivity response to a Chlamydia protein. The reaction causes extensive tubal damage. The pathogenesis of Chlamydia-induced lesions is similar, in this way, to the destructive hypersensitivity reaction of tuberculosis which causes caseous necrosis.

Chlamydia trachomatis infections in women may cause mucopurulent endocervicitis but most women and all men have no symptoms. The asymptomatic host continues to have coitus, giving a further opportunity for the infection to spread.

Diagnosis of urogenital Chlamydia trachomatis infection in women based on mailed samples obtained at home: multipractice comparative study.

Østergaard L, Møller JK, Andersen B, Olesen F.
(Br Med J 1996;313:1186-9).

The DNA amplification methods are a means of increasing the amount of a specific nucleic acid. The essence of the process is to break the double DNA strand into two single strands. Markers are then put on each side of the gene sequence of interest. An enzyme copies that sequence into a new double strand. The process is repeated within minutes. In a short period of time, the numbers have become astronomical and large amounts of genetic material are available for testing. This paper is concerned with the best means of collecting the original specimen.

The authors compared the diagnostic efficacy of two urine samples (first void and midstream) and a sample of vaginal secretions collected by the patient, with a urethra and cervical sample collected by a physician.

The urine and vaginal samples collected by the patient had a sensitivity of 100 percent and a specificity of 99.5 percent. The combination of urethra and cervical smears collected by the physician had a sensitivity of 91 percent and a specificity of 100 percent. The prevalence of Chlamydia infection was found to be 11.2 percent; the majority (74%) of the women had regular sexual partners.

Prevention of recurrent pelvic infection by contact tracing: a commonsense approach.

Robinson AJ, Greenhouse P.
(Br J Obstet Gynaecol 1996;103:859-61).

The failure to check the male partner is a major shortcoming in the management of PID and can negate all other diagnostic and therapeutic efforts.

The majority of the partners of women with acute pelvic infection have asymptomatic Chlamydia infections. Women should be advised to avoid intercourse until their partners are checked and treated. The implication which stems from this advice is that the woman's partner has not been faithful. The physician should emphasize that the infection is asymptomatic and that there is a good possibility that it pre-dated the present relationship. Furthermore, diagnostic tests are uncertain and it is safest to treat both partners.

Knowledge that a male partner has Chlamydia gives one a diagnostic advantage. A questionable diagnosis of pelvic pain in the female is qualified. The reverse is also true; if the male partner is disease-free, the diagnosis of PID can be questioned. This would be the case especially if diagnostic laparoscopy were normal and the patient continued to have pelvic pain.

Prevention of pelvic inflammatory disease by screening for cervical Chlamydia infection.

Scholes D, Stergaghis A, Heidrich FE, Andrilla H, Holmes KK, Stamm WE.
(N Engl J Med 1996;334:1362-6).

This is a randomized controlled trial to evaluate whether screening for and treating Chlamydia in high-risk women[1] reduces the incidence of PID.

The high-risk women were assigned to the screening (1,009) and the usual care groups (1,598) and were then followed for 12 months. The end point of the study was hospital admission for the treatment of PID, positive laboratory tests for an STD or outpatient treatment with tetracycline for 10 days.

Only 13 percent of the population were eligible for the study and only 645/1,009 of the screened group were tested for Chlamydia; seven percent tested positive.

At the end of the 12-month period there were nine confirmed cases of PID in the study group and 33 among the usual care group. The relative risk of PID in the screened group was 0.44 (0.20–0.90) i.e. the incidence of PID was lowered by 56 percent.

The study had methodological problems. The 364 study women who were not screened were kept in the study group. If they are included in the control group or removed from analysis the results do not achieve statistical significance.

Adolescent sexual involvement: time for primary prevention.

Genuis SJ, Genuis SK.
(Lancet 1995;345:240-1).

The root cause of the world-wide epidemic of sexually transmitted diseases (STDs) among adolescent and young adult women is their increased sexual activity. Women who commence sexual activity at an early age are likely to have more sexual partners and are put at greater risk for STDs.

Prevention strategies have focused/focus on technological interventions to prevent the consequences of

[1] The following risk factors were assigned: Age ≤ 24–1, Black race–2, Nulligravidity–1, Douching in the preceding 12 month–1. Those with scores of 3 or more were considered to be high risk.

sexual behaviour. The technologies that are available are highly developed. We have accurate means of diagnosing, effective treatment, and innovative educational strategies. None has been effective in reducing the prevalence of PID. For example, in Switzerland, a sex education programme focused on safer sex. The result was that the percentage of teenagers who had sexual intercourse increased.

The authors do not negate technology but suggest that more attention should be paid to individual behaviour. Adolescents are receptive, and programmes which encourage them to postpone their sexual activity are remarkably successful. In one programme, the unintended pregnancy rate was lowered by fifteen-fold. In a similar way, the postponement of adolescent sexual involvement decreases the risk for STDs.