Editorials

Female Adolescents With *Chlamydia*

Tomorrow's Candidates for In Vitro Fertilization?

IN THE PAST decade *Chlamydia trachomatis* has been recognized as our most common sexually transmitted pathogen.[1] It is estimated that 3 million chlamydial infections occur each year in the United States.[2,3] Surveys of symptomatic and asymptomatic female populations have identified age and ethnicity as important risk factors for chlamydial infection. For example, a study of seven different family planning clinics in the San Francisco Bay Area found that 16% of adolescent girls seeking birth control advice had chlamydial infection.[4]

The report by Eagar and co-workers in this issue further helps to define the problem. In this study, *C trachomatis* was the most common sexually transmitted disease agent recovered from the screened adolescent girls in all clinic settings, occurring overall at about three times the rate for gonococcal infection. Higher chlamydial infection rates were found for blacks. It is clear that chlamydial infections cross ethnic and socioeconomic boundaries. A higher ratio of chlamydial to gonococcal infection was found in the more economically advantaged white population—as in previous reports.

Chlamydial infection has been reported in as many as 37% of pregnant adolescents.[5] Attack rates for infants with perinatal exposure to *C trachomatis* are about 60% to 70% for any infection, 35% for conjunctivitis and 15% to 20% for the most serious complication, chlamydial pneumonia in infants.[6] Chlamydial infection in infants is preventable. Routine screening of high-risk pregnant women, followed by treatment with erythromycin of those found infected, has been shown to be a cost-effective preventive strategy.[7]

The most important complication of sexually transmitted chlamydial infection is acute salpingitis. Pioneering studies in Sweden, recently confirmed in the United States, have found that approximately one in four patients admitted to hospital with acute salpingitis had upper genital tract infection with *Chlamydia*.[8-10] It is estimated that salpingitis is ten times more likely to develop in a sexually active 15-year-old girl than in her 25-year-old counterpart (1:8 versus 1:80).[9] If one assumes that the infertility rate following a single bout of salpingitis is about 10%, then almost 1% of sexually active teenage girls will become infertile as a result of acute salpingitis each year. Acute salpingitis is a major public health problem, with direct medical costs well in excess of $1 billion each year.[11] Rising rates of ectopic pregnancies and involuntary infertility add to the dreadful toll this disease exacts. The evidence for its role in tubal factor infertility is convincing.[12]

It is imperative that we, as a nation, begin some formal efforts to control this epidemic. The measures suggested by Eagar and colleagues are appropriate: (1) Presumptive therapy is appropriate for conditions where *Chlamydia trachomatis* is known to occur at relatively high rates (endocervicitis, salpingitis, nongonococcal urethritis in men, gonorrhea and other sexually transmitted diseases.[13,14] (2) Routine treatment of sexual contacts is called for. (3) In those settings where high rates of chlamydial infections occur, antibiotics effective against *C trachomatis* should be used whenever possible. (4) High-risk populations should be screened. (5) Greater education concerning the risks and symptoms of chlamydial infection should be provided.

In addition, more effort is needed to educate health care providers as to the importance of chlamydial infections and the guidelines for managing them. The educational efforts must be specifically designed to be appropriate for adolescents and their health care providers. Diagnostic tests must be made more widely available.

Initiation of these steps may help to control chlamydial infection, yet there is an important missing link. Many data have been accumulated on the importance and prevalence of chlamydial infection in women because they routinely have pelvic examinations. Similar data are not available for men unless they are symptomatic or named contacts. If 15% to 20% of sexually active girls have chlamydial infection, what percentage of sexually active adolescent boys must also be carrying this organism? Without noninvasive screening methods for detecting asymptomatic infections in men, we can never hope to generate this type of information. Recent studies have stressed the prevalence of asymptomatic urethral infection in men.[15] Unfortunately, without reducing the youthful male reservoir, we shall never really control chlamydial (or gonococcal) infections. Preliminary studies suggest that evaluation of pyuria in first-catch urine specimens may have a high predictive value for urethral infection in adolescent boys.[16] If a urine specimen could be used for screening and diagnostic tests, a noninvasive tool for identifying the asymptomatic male reservoir may evolve.

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Medicine in the Fabric of Society

IT IS NOW increasingly evident that medicine has become an integral part of modern society, particularly in America. The health care enterprise, taken as a whole, is one of the largest industries in the nation, and within it medicine plays a seminal role. But, in addition, in one way or another medicine has come to influence or be influenced by almost every facet of today's society. In this sense medicine is becoming an increasingly important part of what might be called the fabric of society. Why is this happening, and what is its meaning for physicians and the medical profession as a whole?

There may be at least three reasons why medicine is beginning to be so interwoven with a changing society. First, many of the great advances in medical science and technology not only affect the way physicians practice but have also begun to create significant ethical, social, economic and political problems with which society as a whole must now deal in one way or another. Second, modern society, with its growing social, economic, political and, above all, technologic complexity and interdependence, is itself creating all kinds of new problems for medicine and health care that require new responses by physicians and the medical profession. And third, modern society is after all a human society, made up of humans whose behavior and responses are genetically as well as experientially determined, and who for better or worse are individually unique and must react within the framework of their biologic nature to all the stresses of the increasingly complex world in which we all live. Medicine is the professional discipline that deals with human adjustment or maladjustment to the stresses in the internal and external environments of the individual persons who in the aggregate make up modern society. If the stresses are manageable and adjustment is adequate, then health and well-being prevail, but when this is not the case symptoms of stress or frank ill health appear in individual persons or in groups of people. Physicians and the medical profession, therefore, find themselves promoting health and wellness wherever possible, and where there is unhealth they proceed with the diagnosis, treatment and correction of whatever maladjustment is impairing health whether in the internal or external environment, or both. So, modern society being what it is, medicine is coming to pervade much of its fabric.

What then should medicine be in today's society? Or, put another way, what *is* medicine in today's society?

- Medicine is *personal*—and *biological.* Adjustment and maladjustment in health and illness are very individual and very personal, and the mechanisms of adjustment and maladjustment are fundamentally biological in the broadest sense of human nature and human behavior.
- Medicine is *professional.* Physicians have been set somewhat apart by society, and given special training and special privileges to serve their patients and the public. As professionals, physicians have set their own professional standards for their training and practice. This may be considered by some as elitist, but clearly it can be no other way.
- Medicine is *science and technology.* Its science and technology probe deeply into the nature and causes of illness, injury and emotional disorders, and the findings are applied to the promotion of health and well being, to prevention of ill health, to diagnosis and treatment to repair damage to the mind and body when ill health occurs and to restoring adequate adjustment to stress whether from a person's internal or external environment.
- Medicine is *art.* There is more to medicine than science and technology. The science is not exact and may never be. Furthermore, every person, whether sick or well, is unique, genetically and experientially different from everyone else. Medicine therefore has to be a human, caring relationship between doctor and patient (or the profession and the public, for that matter), with the art being to orchestrate the personal, cultural, scientific, technologic, social and economic factors that must be harmonized if there is to be health or if an unhealthy state is to be corrected in an individual or in the environment (society).
- Medicine is *social.* It is part of every known culture. The modern health-care enterprise is a complex social system, so far only poorly studied or understood. Social issues, growing out of the technical capabilities of modern medicine, are calling into question many of society's ways of doing things. In many ways medicine is actually a social science with much of this science yet to be developed.
- Medicine is *economics.* Medicine has become a significant part of the economics of modern society, and the economics of modern society has become a significant part of medical practice. Health care is a good product but it is costly. Medical economics is presently at center stage in health care and of much concern to both medicine and society.
- Medicine is *politics.* Medicine has been political in this country for more than a century. Its power has been, and still is, rooted in what is recognized as its competence in matters of health and health care. Now there is formidable competition in the political arena of health care. Medicine and health care have become everybody's business. The politics of medicine will not go away, and medicine badly needs a more identifiable constituency and a more positive program if it is to become truly effective politically.

There can be little doubt that the thread of medicine weaves through the fabric of today's society. It is not yet clear how strong this thread will be or just who will weave its pattern in the fabric. Will the pattern be decided by society? Probably so. But who will create the design? There is an enormous opportunity to weave (1) the underlying biology of human nature and human behavior, (2) the science, technology and art of medicine and (3) the social, economic and political realities of health and health care into a creative pattern in the fabric now being woven for the complex and interdependent society that is emerging in America today. An unanswered question is, does American medicine have the interest, the wherewithal or the resolve to be and be recognized as "physician to society," and in this role bring its skills to bear to help diagnose and treat the all-too-evident maladjustments in health and health care in this nation?

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