

found in tissues, and a very resistant and infectious oocyst found in the stools of cats. Each can play a different rôle in the spread of infection. It is a unique protozoan parasite in that it is not host-specific and affects virtually all species of mammal and birds. The prevalence of toxoplasma antibody varies not only between town and country but also in different regions of the world. In town dwellers in Lincolnshire the incidence is about 22%, whereas it is about 36% in the rural areas. In urban Hong Kong, it is 6% whereas in urban Paris it is 90%. In rural Sudan it is 22% whereas in rural Tristan Da Cunha it is 80%.

There are still many unsolved problems on how man and animals become infected. Man is surrounded by animals which may transfer infection to him. In towns they will be mainly cats and dogs but in the country man is in contact with a much wider variety of animals. Another factor is raw meat which may contain the toxoplasma parasite but little is known to what extent this can cause infection. In France it has been shown that the ingestion of raw meat can cause infection, and the high incidence of toxoplasma antibodies in Parisiens could be due to their eating habits.

In Birmingham owners of either a cat or dog have been shown to be associated with a higher incidence of toxoplasma antibody, and these animals probably play a significant part in the transfer of infection.

Much more research is needed into the epidemiology of toxoplasmosis.

Mycoplasma, Doxycycline, and Human Infertility

M. BLADES, J. DE LOUVOIS, R. F. HARRISON, AND ROSALINDE HURLEY (*Queen Charlotte's Hospital for Women, London*) *Mycoplasma hominis* was isolated from the genital tracts of 13.2% of 38 fertile and 14.7% of 109 infertile couples and *T. mycoplasmas* from 52.6% of fertile and 57.2% of infertile couples.

Minimum inhibitory concentrations of doxycycline for *T. mycoplasmas* (0.16-0.32 µg/ml) and *M. hominis* (<0.08 µg/ml) were determined.

A double-blind controlled trial of doxycycline was carried out on 88 fertile couples. Levels in seminal fluid (0.22-0.95 µg/ml), cervical mucus (0.06-3.02 µg/ml), and serum (0.43-3.98 µg/ml) were measured. Twenty-eight days' treatment with doxycycline (100 mg/day) eradicated

mycoplasmas from the genital tract but there was no difference in the rates of conception of the treated or control groups.

We are unable to confirm the suggestion of Gnarpe and Friberg (1972) that doxycycline is of benefit in the treatment of primary infertility.

Reference

- Gnarpe, H. and Friberg, J. (1972). Mycoplasma and human reproductive failure. I. The occurrence of different mycoplasmas in couples with reproductive failure. *Amer. J. Obstet. Gynaec.*, **114**, 727-731.
 II. Concentrations of doxycycline in serum and seminal fluid and the effect on the growth of *T. mycoplasmas*. *Amer. J. Obstet. Gynaec.*, **114**, 963-966.

Micrococcal Urinary Infections in Young Women

MARGARET A. SELLIN, W. A. GILLESPIE, AND J. D. ANDERSON (*Department of Bacteriology, University of Bristol and Department of Pathology, County Hospital, York*) Prospective surveys of acute urinary infections in females aged 17 to 25 showed that most, perhaps the great majority, of the infections followed sexual intercourse. Nearly all were caused by either *Escherichia coli* or micrococci. The micrococcal infections were about half as common as the coliform ones. Micrococcal infection often produced more pyuria than coliform infection, and symptoms were at least as severe.

All the infecting micrococci belonged to Baird-Parker type 3 and all were novobiocin-resistant. Most were sensitive to sulphonamide. Sulphonamide treatment was usually satisfactory.

The *Micrococcaceae* present in the urethra and introitus of healthy young women were investigated in forestream urine specimens and peri-urethral swabs. Forestream urine from healthy young men was also investigated. Staphylococci (all of which were coagulase-negative) outnumbered micrococci in the urethra of both sexes. Most micrococci belonged to types 1, 2 or 3, but very few of the type 3 strains were novobiocin-resistant. Thus the novobiocin-resistant type 3 strains were responsible for urinary infection were rarely found in the normal urethra. These findings point to an exceptional virulence of the micrococcal biotype responsible for urinary infection. So far there has been little evidence to suggest that the infecting micrococci were transmitted from males to females.

Aspects of Rubella Immunity in Wales

JULIA A. MUNRO (*Public Health Laboratory, University Hospital of Wales, Cardiff*) Although rubella is usually a mild illness of childhood, virological confirmation of rubella is most frequently required when pregnancy is involved. The relationship between rubella infection in pregnancy and fetal damage is widely known, and because of the need to prevent pregnant women contracting the disease, immunization programmes have been introduced. Live attenuated vaccine is offered to girls between their 11th and 12th birthdays, also to any woman found to be seronegative antenatally when it is given early in the post-partum period. To assess the extent of the problem, results of rubella haemagglutination inhibition titres at various ages and of different populations were studied. It was found that prior to the introduction of the immunization programme, 30% of children aged 10 to 15 years were still susceptible to rubella and 12% of the antenatal population. Rubella vaccine has had little effect upon the antenatal population results. This means that there is still a need for rapid serological diagnosis of suspected rubella in pregnancy. One year's results of haemagglutination inhibition and complement fixation titres supplemented by sucrose density gradient centrifugation and 2 mercapto-ethanol reduction for the detection of rubella IgM antibodies are presented.

Measurement of Plasma Volume using Human Serum Albumin labelled with Technetium

A. M. HOLROYD, A. C. LAWRENCE, J. PARKER, AND M. DAVIES (*Haematology Department, Northern General Hospital and Medical Physics Department, Western Park Hospital, Sheffield*) A standard technique for measurement of plasma volume using radio-iodine-labelled human serum albumin (^{125}I HSA) has been compared with the same method using human serum albumin labelled with technetium ($^{99\text{m}}\text{Tc}$ HSA) Beazley *et al.*, 1968).

The plasma volume has been measured simultaneously using two isotopes and differential counting in five normal subjects and eight patients with polycythaemia, myelofibrosis with splenomegaly, chronic granulocytic leukaemia with splenomegaly, or chronic renal