Abstracts

These selected abstracts and titles from the world literature are arranged in the following sections:

Syphilis and other treponematoses
(Clinical and therapy; serology and biological false-positive phenomenon; pathology and experimental)

Gonorrhoea
(Clinical; microbiology; therapy)

Non-specific genital infection
Reiter's disease

Syphilis and other treponematoses (Clinical and therapy)

C-reactive protein, C3, C4 and properdin during the Jarisch-Herxheimer reaction in early syphilis
Acta Medica Scandinavica, 204, 287–290

The occurrence of plasma CRP during the febrile response after the first injection of penicillin was followed in 10 patients with early syphilis. An increase in CRP was noted after 12 hours, with a maximum after 24 hours. The appearance of this acute phase protein could not be correlated to cutaneous reaction, increased body temperature, or leucocytosis, nor were baseline values of CRP correlated to clinical or serological activity of the infection. Patients with high levels of CRP before treatment suffered the most intense systemic reactions. No activation of the complement system during the Jarisch-Herxheimer reaction was detected from sequential determinations of C3, C4, and properdin.

Authors' summary

Syphilis (Serology and biological false-positive phenomenon)

Heated versus unheated sera in a microhemagglutination assay for antibodies to Treponema pallidum

Syphilis (Pathology and experimental)

Detection by direct immunofluorescence of antibodies to Treponema pallidum in the cutaneous infiltrates of rabbit syphilomas

By direct immunofluorescence, with use of fluorescein-labelled sonified Treponema pallidum, specific antibodies were detected in the tissue infiltrates of cutaneous syphilomas in rabbits. Specimens from cutaneous and mucosal inflammatory lesions induced by intradermal injection of a keratinous substance from an epidermal cyst served as controls. Granular fluorescence was detected in the dermis of 11 of the 12 syphiloma specimens and corresponded to areas of heavy plasma cell infiltrates, and some fluorescence was found directly on plasma cells identified by subsequent staining with haematoxylin and eosin. This fluorescence could be blocked by preabsorption. Control slides did not show any fluorescence. Immunopathological techniques using labelled antigens may be of diagnostic value in syphilis and other infectious disorders which feature specific infiltrates.

Authors' summary

Gonorrhoea (Clinical)

Gonorrhoea detection in posthysterectomy patients

A retrospective study of women examined at a venereal disease clinic after hysterectomy was made to determine which culture site was most likely to show anogenital Neisseria gonorrhoeae infection when the cervix was absent. Seventeen of 104 such patients were culture-positive for N. gonorrhoeae. Rates of positivity for our culture sites were as follows: urethral, 17/17 (100%); vaginal, 7/17 (41%); and rectal, 2/17 (12%).

Authors' summary

Perihepatitis associated with salpingitis in adolescents

Perihepatitis, one manifestation of complicated gonorrhoea, is infrequently diagnosed and reported. This study was undertaken to examine the incidence of gonococcal perihepatitis in adolescents as well as to study the effect, if any, of this condition on tests of liver function.

Radiolabelling of Treponema pallidum (Nichols virulent strain) in vitro with precursors for protein and RNA biosynthesis
Infection and Immunity, 22, 22–132

Respiration and oxidative phosphorylation in Treponema pallidum
Infection and Immunity, 21, 462–546

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Accordingly, the records of 137 adolescents with salpingitis were evaluated. Right upper quadrant tenderness or hepatic enlargement was noted in 27, while raised aminotransferase levels were observed in 19 of the 59 in whom these tests were performed. All findings resolved promptly following initiation of intravenous penicillin therapy. The observation of hepatic dysfunction in 27% of these adolescents suggests that perihepatitis occurs more frequently than reported in adults and should be considered in the evaluation of the conditions of adolescents with salpingitis or upper abdominal tenderness.

Authors' summary

Asymptomatic gonococcal urethritis in selected males

Gonorrhoea in homosexual men

Neonatal gonococcal orogastric contamination (case report)

Gonorrhoea and non-gonococcal urethritis—recent advances

Gonorrhoea (Microbiology)

Phenotypic and epidemiologic correlates of auxotype in Neisseria gonorrhoeae

Previous studies from Seattle, Washington, suggested that strains of Neisseria gonorrhoeae which require arginine, hypoxanthine, and uracil (Arg-Hyx-Ura-auxotype) are uniformly highly susceptible to penicillin G, are relatively resistant to complement-dependent killing by heated, pooled, human serum, and are associated with disseminated gonococcal infection. For further study of the epidemiology of these strains and for analysis of the susceptibility to penicillin, serum sensitivity, and the nutritional requirements of gonococcal isolates from other cities, a survey was made of urethral and cervical strains isolated in 1972 to 1974 from 50 randomly selected patients with uncomplicated gonorrhoea from each of nine cities. Arg-Hyx-Ura-strains represented >50% of isolates from Seattle and Des Moines, Iowa, 22% of isolates from Denver (Colorado), and Dayton (Ohio) and ≤12% of the isolates from Boston (Massachusetts), Newark (New Jersey), Norfolk (Virginia), Miami (Florida), and Oakland (California). Arg-Hyx-Ura-strains were recovered from 42% of white and 9% of black patients (p<0.001), and clinics with the highest incidences of these strains had the highest proportion of white patients among those with gonorrhoea. Arg-Hyx-Ura-strains were all susceptible to ≤0.125 μg of penicillin G/ml and were more resistant than strains with other auxotypes to killing by heat-activated human serum plus complement (p<0.01).

Effect of a staphylococcal on Neisseria gonorrhoeae

Phage-group 2 staphylococcal strain UTO002 contains a large 56S virulence plasmid with genes that code for both exfoliative toxin and a specific staphylococcin termed Bac R. Four penicillinase-producing strains and three penicillin-resistant strains of Neisseria gonorrhoeae were killed by Bac R. After 30 minutes of growth of the penicillin-resistant TR1 strain in 62.5 arbitrary units of Bac R, per ml, loss of viability was approximately 90%, and, after five hours, an approximately 99-99% loss of viability was observed. Lysis did not accompany cell death, and 84% of the Bac R added to the growth medium was adsorbed to the gonococcal cells. The extracellular supernatant fluid from a strain of staphylococcal strain UT002 cured of the plasmid for Bac R production had no lethal effect on the gonococcal strains. Bac R was also shown to have bactericidal activity against an L-form of Neisseria meningitidis, indicating that the outer envelope of a neisserial cell is not needed for bacteriocin activity. Ten different normal human sera were unable to neutralise Bac R activity. The bacteriocin lacks adsorption specificity. It binds to but does not kill Eschericia coli cells, indicating that the cell envelope of Gram-negative organisms can provide protection against the staphylococcin.

Authors' summary

Effects of iron and culture filtrates on killing of Neisseria gonorrhoeae by normal human serum

Neisseria gonorrhoeae GC9, both colony types T2 and T4, were killed by normal human serum, although populations of colony type T4 were more susceptible. Ferric ammonium citrate prevented the killing of populations of both T2 and T4 colony types. Other iron compounds tested showed no protective effect, nor did ammonium citrate or the divalent cations magnesium or calcium. A filtrate from cultures of a Neisseria gonorrhoeae strain grown in a liquid defined medium showed a similar protective effect in the serum assay. The filtrate appeared to chelate iron, as measured by decreased ability of iron-free transferrin to bind iron in the presence of the filtrate. However, the two effects did not appear to be related. Neither ferric ammonium citrate nor the culture filtrate sufficiently increased complement activity to account for this protection.

Authors' summary

Fluorescent antibody technique in identification of Neisseria gonorrhoeae—microcolonies grown on membrane filters

Identification of Neisseria gonorrhoeae from primary cultures by a slide agglutination test

Antibody-cleaning niessieriae (leading article) New England Journal of Medicine, 1978, 299, 1011
Gonorrhoea (Therapy)

Susceptibility of Neisseria gonorrhoeae to cefoxitin sodium

Minimum inhibitory concentrations (MICs) of cefoxitin sodium and benzylpenicillin for 48 gonococci were compared. Although benzylpenicillin was much more active on sensitive strains, the two agents similarly inhibited less sensitive strains at a concentration of about 1 mg/l. Cefoxitin activity was not affected by the production of \( \beta \)-lactamase by 5 \( \beta \)-lactamase-producing gonococci isolated in the UK and the USA, but cephaloridine, cephalothin, cepalexin, cephradine, cefamandole, cefazolin, and cefuroxime were all less active against large than against small inocula. Despite this, cefuroxime was, weight for weight, more active than cefoxitin on large inocula.

Author’s summary

Antibiotic susceptibility of Neisseria gonorrhoeae isolated in Johannesburg

Non-specific genital infection

Effect of cortisol on the growth of Chlamydia trachomatis in McCoy cells

The number of intracytoplasmic inclusions of Chlamydia trachomatis produced in McCoy cell monolayer cultures infected with a constant inoculum of a recently isolated genital strain was compared in cultures of untreated replicating cells and in monolayers which had been incubated in the presence of cortisol at initial extracellular concentrations between 0·0001 and 100 \( \mu \)g/ml. The effect of adding cortisol was dependent on its concentration, on the time of addition to the tissue culture medium, and on the initial number of McCoy cells seeded to form the monolayer. When a concentration of 1·0 \( \mu \)g/ml was added at the time of infection with C. trachomatis, the number of inclusions detectable after a further 48 hours of incubation was increased by 1-84-fold over those detected in untreated cells. The mean size of inclusions and the ease of their recognition in McCoy cell cultures was also increased by this procedure.

Authors’ summary

Prediction of efficacy of antimicrobial agents in treatment of infections due to Chlamydia trachomatis

Although Chlamydia trachomatis is readily eradicated by systemic therapy in patients with acute urethritis, systemic therapy is less satisfactory in treatment of chronic trachoma. The activities of antimicrobial agents against C. trachomatis (minimum inhibitory concentration [MIC]) predicts efficacy of the drugs in the treatment of urethritis but does not necessarily predict efficacy in the treatment of chronic ocular trachoma. Concentrations of antimicrobial agents required to eradicate C. trachomatis when the agents were added 48 hours after inoculation of the cell cultures with C. trachomatis exceeded the MIC by several logarithms, and minocycline, doxycycline, and rifampin were markedly more active than tetracycline, erythromycin, or several other antimicrobial agents. Of the three most active antimicrobial agents, only doxycycline has been used systemically to treat ocular infections due to C. trachomatis, and it has been reported to be the most effective antimicrobial agent that has been used. In-vitro testing of obligate intracellular pathogens, such as C. trachomatis, presents unique problems. The use of several methods of testing may help to identify antimicrobial agents with improved clinical efficacy, particularly in the treatment of ocular trachoma.

Authors’ summary

In-vitro susceptibility of 30 strains of Chlamydia trachomatis to rosamin

A total of 13 of 30 clinical isolates of Chlamydia trachomatis were susceptible in vitro to 0·01 \( \mu \)g of rosamin per ml. Only two of these strains were susceptible to tetracycline or erythromycin at this level. The results suggest that rosamin may be useful for the treatment of chlamydial urethritis.

Authors’ summary

Rapid serological test for diagnosis of chlamydial ocular infections

A rapid serodiagnostic test for the diagnosis of paratrachoma (TRIC ophthalmia neonatorum, inclusion conjunctivitis, TRIC punctate keratoconjunctivitis, and trachoma of sexually transmitted origin) has been developed. The technique is based on using a modified micro-immuno-fluorescence test for detecting anti-chlamydial IgG and IgM in the blood and IgG and IgA in tears. The blood samples are collected on cellulose sponges after a finger prick, and tears are collected by introducing small sponges into the lower conjunctival fornix of the eye. The blood and tear samples collected in this way could be sent to the diagnostic laboratory by post without special arrangements for cold storage.

In general the presence of antichlamydial IgG at a level of \( > 1/32 \) or IgM at a level of \( > 1/8 \) in blood and antichlamydial IgG or IgA at a level of \( > 1/8 \) in tears was closely associated with ocular paratrachoma. The combined results of the micro-IF test of blood and tears has yielded the highest rate of positivity (80%). In patients with acute, untreated, paratrachoma the sensitivity of this test was similar to that of irradiated McCoy cells. In patients with a milder infection receiving antibiotics the sensitivity of the serodiagnostic test was superior to that of the cultural test. The high sensitivity and specificity of this rapid, simple, and inexpensive serodiagnostic test for the diagnosis of chlamydial ocular infections, coupled with simple and practical methods of collection and transport of blood and tear specimens, offer advantages over cultural tests for routine diagnosis and study of chlamydial ocular infections.

Authors’ summary
Abstracts

Significance of appropriate techniques and media for isolation and identification of Ureaplasma urealyticum from clinical specimens

Controversy over the association of Ureaplasma urealyticum with reproductive failure may be due to methods used to isolate the micro-organism. U. urealyticum isolations from clinical material should be done simultaneously in broth and on Shepard’s differential agar medium (AT) containing manganese sulphate. Urine sediments result in a 9% (p=0.002) higher rate of isolation than vaginal and urethral swabs. Primary isolations may not display standard textbook morphology. Isolated colonies may be present, but brown streaks in vaginal mucus or a coalescent haze around epithelial cells in urine sediment may also be seen in areas of concentrated growth. The broth and agar media used, method of incubation, type of specimen, and method of storing specimens before culture are all factors which influence the recovery of U. urealyticum.

Authors’ summary

Candidosis

Disc agar diffusion susceptibility testing of yeasts

A disc agar diffusion method was developed for testing the susceptibility of recently isolated yeasts in vitro. A totally defined, completely synthetic agar culture medium (synthetic amino acid medium, fungal) and clinical isolates of Candida spp. and Torulopsis glabrata were used. Turbidimetric adjustment of cell suspensions resulted in standard, reproducible inocula, which gave sharp, clear zones of inhibition when applied by an agar overlay method. Optimal disc loads were determined for amphotericin B, amphotericin B methyl ester, 5-fluoro-cytosine, clotrimazole, and miconazole. Disc potencies were stable over a two-month period when stored in a vacuum desiccator at -30°C. Using an error rate-bounded classification, the zones of inhibition were correlated with both broth dilution and agar dilution minimum inhibitory concentrations (MICs). With amphotericin B and amphotericin B methyl ester, all isolates were susceptible, yielding zone diameters which clustered within 5 mm. Overall correlations between zone diameters and broth dilution MICs with 5-fluoro-cytosine, miconazole, and clotrimazole were 97, 96, and 82% (excluding T. glabrata) respectively; correlations of zone diameters with agar dilution MICs were 96, 92, and 88% respectively. Disc diffusion susceptibility testing of yeasts appears to be generally applicable. However, when results are equivocal quantitative test methods should be used.

Authors’ summary

Prevalence of pathogenic yeasts and humoral antibodies to Candida in diabetic patients

Recurrent vaginal Candida infection (leading article) British Medical Journal, 1978, 2, 1735-1736

Genital herpes

Cellular immune response in genital herpes simplex virus infection

We studied the relations between the cellular immune response, pre-existing complement-fixing antibody, and virus type with duration of virus excretion in genital herpes simplex virus (HSV) infection.

Thirty-six patients (seven with HSV-1 and 29 with HSV-2), with genital herpes underwent serological testing, sequential viral cultures, and weekly determination of lymphocyte-transformation stimulation index with inactivated HSV antigen. The duration of virus excretion was shortest in those with pre-existing complement-fixing antibody, was unrelated to virus type, and was inversely correlated with the magnitude of the mean peak stimulation index (r = -0.69, p < 0.001). Prolonged virus excretion occurred in patients with a delayed and diminished peak index. Recurrent episodes had a higher peak index (29.4 compared to 14.5) (p < 0.02), an earlier development of the peak during

Synergism was apparent at four hours with 5 of 5 strains of C. albicans, 8 of 8 strains of C. neoformans, and 1 of 12 strains of non-albicans Candida. Synergism was apparent at 24 hours with the remaining 11 strains of non-albicans Candida and all 5 strains of T. glabrata. C. neoformans was the most susceptible of the yeasts to the minocycline-amphotericin B combination; seven strains showed a 3-log or greater reduction in colony count in four hours and all strains showed this reduction in 24 hours at amphotericin B concentrations of 0.4 µg/ml or less in the presence of minocycline.

Authors’ summary

Antichlamydial antibody in tears and sera, and serotypes of Chlamydia trachomatis isolated from schoolchildren in southern Tunisia

Sensitivity of immunoperoxidase and immunofluorescence staining for detecting chlamydiae in conjunctival scrapings and in cell culture

Antichlamydial antibody in tears and sera, and serotypes of Chlamydia trachomatis isolated from schoolchildren in southern Tunisia

Mycoplasma infection in pregnant rats: low viability of foetuses and newborn offspring

The capacity of minocycline to enhance the activity of amphotericin B against Candida albicans, Torulopsis glabrata, Cryptococcus neoformans, and non-albicans Candida was examined in vitro using a time-killing curve technique.

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Authors’ summary

Combining activity of minocycline and amphotericin B in vitro against medically important yeasts

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recurrences (9.1 versus 25.8 days) \( p < 0.01 \) and a briefer duration of viral shedding than initial episodes. Thus, the temporal course and magnitude of the stimulation index correlate with and may determine the duration of genital HSV infection.

Authors' summary

Sensitivity of the virus isolation and immunofluorescent staining methods in diagnosis of infections with herpes simplex virus


Tissues from marmoset monkeys infected with herpes simplex virus (HSV, herpesvirus hominis) were used to evaluate the relative sensitivity and limitation of the virus isolation technique and the immunofluorescent (fluorescent antibody or FA) staining method for diagnosis of HSV infection. HSV encephalitis or disseminated infection or both in marmosets were established by intracerebral, intramuscular, or intravenous inoculation of the virus. Brain tissues, liver, spleen, kidney, adrenal gland, lymph node, and lung were harvested and prepared for the virus isolation procedure in tissue culture and for direct FA staining. Data from six marmosets infected with HSV type 1 and two infected with type 2 indicated that the virus isolation method was more sensitive and reliable than the FA staining technique. False-negative results by FA staining were found in two situations: (1) presence of focal lesions that were missed by the frozen sections; and (2) presence of low concentrations of virus in tissues \( \leq 3.5 \log_{10} 50 \) tissue culture infective doses/g. FA staining provides a rapid method for detection of viral antigens, but isolation of virus in tissue culture is required for a conclusive diagnosis of active infection.

Authors' summary

Herpesvirus type 2: study of semen in male subjects with recurrent infections


Semen from 30 healthy male subjects with recurrent infections with herpesvirus type 2 was obtained when subjects were free of lesions and surveyed by tissue culture for an infectious virus in an attempt to elucidate the transmission of this disease. Inclusion bodies compatible with herpesvirus were found in tissue cultures of semen from two participants but an infectious virus could not be cultured directly from any sample. The data suggest that herpesvirus type 2 is not ubiquitous in semen of male subjects with recurrent genital infections. The possible role of seminal inhibitors and a defective virus in causing the observed results is discussed, as are the current theories of herpesvirus type 2 transmission.

Authors' summary

Antibody-mediated recovery from subcutaneous herpes simplex virus type 2 infection


Proctitis associated with herpesvirus hominis type 2 infection


Surgical treatment for recurrent herpes simplex


Other sexually transmitted diseases

Genital warts: incidence of associated genital infections


Two hundred and seventy-eight men and 200 women who presented to a special treatment clinic with genital warts were screened for accompanying genital infections. One hundred and twenty-nine (61%) of 212 presentations in women compared to 98 (32%) of 303 presentations in men were accompanied by another genital infection \( p < 0.001 \). Recurrent presentation with warts was commoner in men \( p < 0.001 \). In both sexes recurrences were less likely to be accompanied by another genital infection \( p < 0.002 \).

Yeasts (25%), Corynebacterium vaginalis (21%), Neisseria gonorrhoeae (12%), and Trichomonas vaginalis (12%) were the commonest pathogens in women. Non-specific genital infection (17%) and gonorrhoea (10%) were the commonest accompanying infections in men.

The identification and treatment of these infections, especially in women, is important for the rapid eradication of warts, for, by increasing genital moisture they can create and maintain a favourable environment for wart proliferation. In addition to screening all patients with warts for other sexually transmitted diseases, women should be screened for yeast and \( C. \) vaginale.

Authors' summary

Podophyllin poisoning. Systemic toxicity following cutaneous application


The toxicity of topically applied podophyllin in a 16-year-old girl is presented. Cona requiring respiratory support and major neurological complications as well as haematological and hepatic toxicity was observed. Therapy with a new modality, charcoal haemoperfusion, resulted in resolution of the acute toxicity and a leaving a peripheral neuropathy, which had not completely resolved after four months. The pharmacology and suggested treatment measures for the toxicity of these rarely reported agent are reviewed.

Authors' summary

Condylomata acuminata in an infant and mother: report of a case


Miscellaneous

Genital occurrence of oral microbiota


Recent studies indicate that tonsillar- and gonococcal infection or colonisation is fairly common. Carriage rates of about 8% have been found. These studies also indicate that oro-genital contacts are common. Since very little is known about the amount of oral microbiota transmitted to the genitals, we have studied
Abstracts

the occurrence of oral streptococci and Neisseria species in urethra and cervix. Among 128 patients attending an STD clinic we found 10 carriers of oral streptococci, one Streptococcus mitior, four Streptococcus sanguis, one Streptococcus mutans, and four Streptococcus salivarius and one case of urethritis due to Neisseria meningitidis. Seventy-three of the patients had recently had their genitals exposed to the oral flora of their partners. Despite the heavy contamination with oral microbiota that can be assumed to occur in these cases, there seems to be no colonization of the genitals with oral microbiota.

Authors' summary

Value of examining buffy coats for intragranulocytic micro-organisms in patients with fever

Correction

Management of non-specific urethritis in men
In the paper by O. P. Arya et al. (December, 1978, p. 415) the second sentence of the third paragraph should have read, ‘... (×100 objective ×5 binocular eyepiece)’.

Notice

The 30th General Assembly of the International Union against the Venereal Diseases and the Treponematoses (IUVDT) will be held from 6 to 11 June, 1980, in East Berlin.