

Nevertheless, Q fever endocarditis is relatively rare. Like acute Q fever it affects men more than women, but rather surprisingly in view of the world-wide distribution of *C burnetii* most of the cases reported have been in Britain. Recently 16 patients seen in Manchester and Edinburgh were described in detail by Turck *et al.*¹¹

Clinically, the signs and symptoms of Q fever endocarditis are similar to those of subacute bacterial endocarditis and include fever, finger-clubbing, anaemia, heart murmurs, and splenomegaly. Again, it commonly affects those patients whose heart valves have been damaged by rheumatic fever or congenital malformation. Haematuria, however, is less common and enlargement of the liver more common than in the bacterial disease. (All 16 patients in the recent series had evidence of spread to the liver.) The disease is, indeed, a generalised infection, and *C burnetii* can be isolated not only from the vegetations on the heart valves¹²⁻¹⁶ but from the blood,^{13 16} liver,^{17 18} and spleen also.^{12 14 18 19} In other reports the disease was found to affect the aortic valve more often than the mitral valve,^{20 21} but Turck *et al* found that the mitral valve was affected in more than half their patients. Cardiac failure was common and was probably due in some cases to myocarditis—a rare but recognised complication of acute Q fever.^{22 23}

Q fever endocarditis should be suspected in any patient with clinical signs of subacute bacterial endocarditis but in whom blood cultures repeatedly grow no bacteria. The disease is best diagnosed serologically. Complement fixation tests with two antigens are used—the first (phase 1) antigen contains *C burnetii* after only a few passages in the chick embryo, whereas the second (phase 2) antigen contains *C burnetii* adapted by repeated passages.²⁴ In acute Q fever antibody is produced only to phase 2 antigen, but in Q fever endocarditis patients nearly always have antibody to phase 1 antigen as well.^{14 16} Q fever can also be diagnosed during life by isolation of *C burnetii* from the blood stream or from vegetations on heart valves removed at operation. Q fever endocarditis has always been regarded as having a poor prognosis. However, the experience reported by Turck *et al* and another series of 16 patients reported from Queensland, Australia,²⁵ suggest that this may be unduly pessimistic.

The introduction of valve replacement^{20 26} in the management of the disease seems to have been responsible at least partly for the improved outlook. Patients require long-term tetracycline therapy, and encouraging results have been reported in patients maintained on this antibiotic regimen; heart valve replacement is reserved for cases in which the operation is required for haemodynamic reasons. Several of the patients in both series have survived for periods of some years. Even more encouraging is the fact that in the British series it has been possible to stop the antibiotic treatment in a few patients apparently without relapse. Patients like this must, however, be very carefully followed up—reports of cases in which the prosthetic valve became recolonised by *C burnetii*^{10 11 27} emphasise the importance of prolonged surveillance.

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Postcoital contraception

Human societies have regulated their numbers of children by methods ranging from prevention of conception to infanticide. Control may be applied at any point along this path, but the methods chosen are not always either safe or effective. In general, the earlier fertility controls are applied the more satisfactory they are; but there will always be a need for back-up for failed contraception or failure to use a contraceptive. Requests for postcoital contraception, menstrual regulation, and early termination of pregnancy appear to be increasing. Methods at present being used and evaluated include steroidal and non-steroidal drugs to induce menstruation, the insertion of an intrauterine device, and menstrual extraction.

Both diethylstilboestrol (25 mg twice daily for five days) or ethinyl oestradiol (0.1 mg hourly for 10 hours) have been widely used¹ as postcoital contraceptives given within 72 hours of unprotected sexual intercourse. Uterine bleeding generally occurs within two to five days—but this does not always indicate that abortion has occurred. The pregnancy may continue, and in recent years there have been various reports of adverse side effects of such drugs when taken in pregnancy. Herbst *et al*² described vaginal adenosis in the daughters of women who had received stilboestrol in pregnancy, some of whom developed adenocarcinoma of the vagina at an early age. Staffl and Mattingley³ have suggested that the development of squamous cell carcinoma of the vagina in young women may be a problem. Congenital heart defects, particularly transposition of the great vessels, have been found to be commoner in babies of mothers receiving hormones in pregnancy⁴ and similarly Janerich *et al*⁵ observed a higher incidence of limb reduction deformities among the babies of women who had become pregnant as a result of failure of the contraceptive pill. The risks to the fetus at a vulnerable stage in development may well outweigh the dubious value of steroids as post-conceptual abortifacients.

A greater margin of safety and efficacy seemed to be offered by prostaglandins when they were first shown to induce abortion with only minor side effects. In 1971 Karim and Hillier⁶ reported that uterine bleeding could be induced during the secretory phase of the menstrual cycle by administration of prostaglandins of the E and F groups. This finding further encouraged their use as postimplantation antifertility agents. Karim^{7 8} also showed that prostaglandin instilled into the posterior vaginal fornix of women at seven days beyond

¹ Derrick, E H, *Medical Journal of Australia*, 1937, **2**, 281.

² Burnet, F M, and Freeman, M, *Medical Journal of Australia*, 1937, **2**, 299.

³ Stoker, M G P, *Lancet*, 1949, **1**, 178.

⁴ Marmion, B P, *et al*, *Lancet*, 1953, **1**, 503.

⁵ Marmion, B P, and Stoker, M G P, *British Medical Journal*, 1958, **2**, 809.

⁶ Grist, N R, *Veterinary Record*, 1959, **71**, 839.

⁷ Connolly, J H, *British Medical Journal*, 1968, **1**, 547.

⁸ Beck, M D, *et al*, *Public Health Reports*, 1949, **64**, 41.

⁹ Clark, W H, *et al*, *Archives of Internal Medicine*, 1951, **88**, 155.

¹⁰ Public Health Laboratory Service, *Communicable Disease Report*, 76/28 16 July 1976.

¹¹ Turck, W P G, *et al*, *Quarterly Journal of Medicine*, 1976, **45**, 193.

¹² Evans, A D, Powell, D E B, and Burrell, C D, *Lancet*, 1959, **1**, 864.

their expected date of menstruation resulted in increased uterine activity and uterine bleeding within 1-6 hours of treatment. The duration of bleeding increased if menstruation had been delayed beyond 10 days and was heavier than normally experienced. The obvious advantage of an oral or vaginal preparation⁹ to induce menstruation is that it can be self-administered. In practice, however, the value of these routes is diminished by unpredictable absorption and the high incidence of distressing side effects.

Some of these drawbacks can be avoided by the use of prostaglandin analogues. Bygdeman *et al*¹⁰ used 15 (S) 15 methyl PGF_{2α} methyl ester, which they gave to women thought to have very early pregnancy. Uterine bleeding started within 3-6 hours and continued for an average of eight days, again slightly heavier than a normal period. They reported no failures, though this was in direct contrast to other groups, which had reported that pregnancy was not terminated reliably, particularly if the induced uterine bleeding was less than usually experienced at menstruation. Furthermore, Wentz *et al*,¹¹ who used intravenous prostaglandins to induce delayed menses, terminated the pregnancies which persisted and then examined them histologically. Decidual abnormalities were found, possibly the result of hypoxia due to uterine spasm. This finding suggests that there may be an increased risk of fetal abnormality if termination of the pregnancy is unsuccessful.

An alternative approach is the use of an intrauterine device; insertion of an IUD when menstruation is delayed may well result in disrupting implantation of the trophoblast. How the intrauterine device works remains obscure, but there may be some disturbance of ovum migration along the Fallopian tube, possibly by retrograde flow¹²; another factor may be prostaglandin release.¹³ This would partly explain the increased incidence of ectopic pregnancy,¹⁴ particularly in the ovary, tubal infundibulum, and ampulla. Copper-coated devices, which are thought to interfere with implantation of the blastocyst, are frequently used in nulliparous women because of ease of insertion and low incidence of side effects.¹⁵ Nevertheless, possibly as many as 5% of women with intrauterine devices become, or are already, pregnant, and of these nearly one-third progress to term. Steven *et al*¹⁹ described a series of 82 pregnant patients, of whom only 14 came to normal delivery. This suggests that the former belief that pregnancies which did not abort spontaneously would not be complicated by the presence of an IUD was too optimistic, and lends support to the argument that these devices should be inserted only when pregnancy has been excluded. Spontaneous abortion may not be free from danger in such cases: septic abortion has been associated with intrauterine devices, sometimes with a fatal outcome.¹⁷ Nevertheless, Williams *et al*¹⁸ reported intrauterine infection in only four out of 58 such cases, and all of these were mild infections which responded well to antibiotics.

The safety of vacuum aspiration during the first trimester of pregnancy is well established. Both its safety and the relative freedom from emotional problems decrease with each successive week. These considerations, together with the increasing demand for outpatient procedures, have led to use of Karman cannula technique for terminating very early pregnancy and for menstrual extraction. Clinical trials in the USA and elsewhere have shown that vacuum aspiration of uterine contents in women who are 14 days past expected menstruation is a safe and effective method of terminating suspected pregnancy. Reporting a series of 424 patients, Stringer *et al*²⁰ found that the procedure was simple and relatively atraumatic. Nevertheless, almost 3% of pregnancies were not terminated at the first attempt and 5% had retained

products. The risk of haemorrhage was negligible but there was a definite risk of low-grade sepsis. Many patients found the procedure uncomfortable, though pain could be prevented by the use of local cervical anaesthesia. Furthermore, probably about 30% patients requesting menstrual extraction undergo unnecessary operation, for a delayed menstrual period does not necessarily mean pregnancy. This factor, combined with the risks of low grade intrauterine sepsis and the failure rate, suggests that menstrual extraction may be an additional tool in fertility control, but it is not a satisfactory alternative to contraception.

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- ¹⁹ Steven, J D, and Fraser, I S, *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 1974, **81**, 282.
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Children who die through social disadvantage

Caution is needed in interpreting national mortality statistics, especially those relating to children. For example, a detailed necropsy carried out by a specialist often discloses a disease which would otherwise not have been recorded on the death certificate.¹ Attempts to analyse the influence of social factors on mortality patterns introduce further dangers, the greatest of which is the oversimplification of using the father's occupation to define social class, an epidemiological tool fashioned in 1911 but still the best available for the purpose.²

Despite these difficulties, mortality statistics do stimulate more detailed studies of health, and a recent publication from the Office of Population Censuses and Surveys³ analysing the causes of children's deaths by social class therefore deserves attention and comment. Deaths of children aged 1-14 years for the five years 1959-63 in England and Wales were categorised by cause and their social class distribution compared with that of children in the 1961 census. This is the first time that adequate numbers of deaths among children over 1 year old have been analysed by social class. Of 23 418 deaths, accidents (27%), respiratory diseases (17%), neoplasms (16%), and congenital abnormalities (12%) were the main causes. The striking finding was that death rates rose pro-