Congenital cytomegalovirus infection: a dilemma

Congenital cytomegalovirus infection is going to be much more difficult to prevent than congenital rubella—and that is not proving easy, cheap, or quick to achieve. The problem is substantial because, except in years when there is an epidemic of rubella, cytomegalovirus infection in pregnancy is considerably more common.

The difficulty is that, unlike rubella, which can usually be detected clinically, cytomegalovirus infection in adults is almost always symptomless—and so must be diagnosed by virological tests. Even in infants infected congenitally many of the infections are silent and are detected only in the laboratory. Around 40% to 45% of women in Britain have no antibody to cytomegalovirus and are therefore non-immune. Various studies have shown that just under 1% of these seronegative women have a primary infection in pregnancy, and some of these—variously reported as a fifth to a half—will transmit the virus to their child. Routine virological testing has shown that overall in Britain about 0.3% to 0.4% of infants are congenitally infected with cytomegalovirus (although recurrent as well as primary infection will contribute to this).

Not all fetal infections result in permanent damage, and fortunately the classic syndrome of severe cytomegalic inclusion disease is rare. Nevertheless, about a fifth of infected infants are damaged, with signs of generalised infection and lesions in the central nervous system. Most survive, but some are left with mental impairment or deafness. Even in infants who appear normal at birth mental retardation, and more commonly deafness, may become manifest later in life. The prognosis is, perhaps not surprisingly, better in asymptomatic infants than in those with the signs and stigmata of infection at birth.

It might be expected that, as with rubella, fetal damage from cytomegalovirus would be both more common and more severe if the infection is contracted in the earlier stages of pregnancy. Too few cases have been reported in various surveys to allow definite conclusions to be drawn. What is certain, however, is that maternal infection in the second and third trimester may be followed not only by spread of virus to the fetus but by fetal damage with sequelae.

Griffiths and Baboonian found that placental infection was (rather surprisingly) more common in the third than in the first trimester. Unlike other workers they detected no transmission of virus in the second trimester but found excess fetal loss from abortion and stillbirth in pregnancies infected at this stage. There was no virological proof that cytomegalovirus had been responsible, but the suspicion remains.

Cytomegalovirus is a herpesvirus and, like other members of that family, shows the property of latency. After primary infection the virus becomes latent (probably in white blood cells) and may later reactivate to cause recurrent infection. Unfortunately (and contrary to earlier reports) congenital infection may follow recurrent maternal infection. Recurrences—presumably due to reactivation of latent virus—are not uncommon in pregnancy. Infants infected as a result of recurrent infection are usually symptomless, but generalised infection and neurological damage have been reported in a few cases. Clearly, therefore, maternal antibody does not prevent infection of the fetus and reactivated maternal virus may occasionally damage it. These observations probably rule out the use of vaccine. Effective cytomegalovirus vaccines have been developed, but they contain live attenuated virus, which may well become latent after vaccination—a point that will be very difficult to disprove.

What, then, can be done to minimise or preferably prevent fetal damage by cytomegalovirus? We have no obvious answer from current knowledge. The virus causes damage both before and after the time at which pregnancy could be terminated, so not all women diagnosed as infected could be offered this. Diagnosis itself is not easy and would require expensive tests in a nationwide screening programme. And even in those cases detected in early pregnancy termination would result in the loss of some babies either not infected or, even if infected, destined to develop normally.

Three groups—Peckham and her coworkers in Britain and Griffiths and Baboonian in Britain, and Ahlfors and colleagues in Sweden—have recently concluded that routine screening of pregnant women for evidence of primary cytomegalovirus infection is not helpful. Termination does not seem to be an
option—indeed, Griffiths and Baboonian state that their results "argue strongly against any therapeutic benefit of advising termination of pregnancy in women with primary CMV infection early in pregnancy." Yet the problem remains. If generally less damaging, congenital cytomegalovirus infection is twice as common as congenital rubella, and the infected children who develop sequelae represent a considerable toll of individual and family distress.

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Diabetes care: Whose responsibility?

Hospital diabetic clinics developed from the need for supervision of insulin treatment in the mid-1920s. Inevitably they also recruited large numbers of non-insulin-requiring patients, and the problem has been compounded by increases in life expectancy. As clinics have enlarged without concomitant expansion of facilities or specialist staff they have become overcrowded and, by many indices of performance, unsuccessful. Specialists in diabetes have therefore begun to examine their role, and that of others—in particular, specialist nurses and general practitioners—in arranging for the efficient care of a group of patients who make up 2% of the population.

To add to the logistic difficulties the diabetic clinic is faced with new treatments and an expansion in the knowledge that allows their effective use. Research has restored the emphasis on effective metabolic control to reduce long term complications, so that more refined methods of insulin delivery, and more educational support for patients to monitor their treatment, have become increasingly important. Meanwhile, effective treatment for diabetic retinopathy and renal failure, together with the success of peripheral and coronary arterial surgery, have made regular clinical review a worthwhile if time consuming process. In older patients education may abolish the need for amputation for neuropathic ulceration of the foot.

Though some of these activities require the knowledge of and resources available to the hospital specialist, many do not, particularly if general practitioners have access to blood glucose monitoring equipment, community dietetic and chiropody services with an interest in diabetes, and nurse based educational services. The impact of such a service does of course depend on general practitioners recognising the importance of these services to their diabetic patients—for example, in the effective prevention of diabetic retinopathy, which is the commonest cause of blindness in middle age.

The need to reappraise the role of the diabetic clinic was recognised over a decade ago,1 when it was also appreciated that only half of patients attended a hospital clinic anyway. The other half have generally not been followed up systematically by anyone, including their general practitioner. It seems clear from the randomised study from Cardiff (p 728) that this was commonly the fate of patients who were simply discharged to their local practitioners with a letter of guidance. Even if only those patients with poor insight into the importance of continuing preventive care allowed themselves to be selected for this study, the standard of follow up and consequent health problems are unacceptable. In Sheffield general practitioners were better prepared, but 42% of patients had not had yearly follow up at three years, and 44% had not been seen at all.2 Nevertheless, 70% of patients were pleased with the arrangement, though we may speculate that with more insight they might have felt less complacent. The Hotel Dieu (Paris) study showed that, in insulin treated patients at least, better metabolic control achieved at the hospital clinic may be associated with increased wellbeing and a more normal social life.3

Two other approaches to community care for diabetic patients in the United Kingdom (there are similar schemes in Sweden4 and on the Danish island of Funen) have been more successful than the Cardiff experience from a clinical and audit standpoint. Thorn and his general practitioner colleagues now report on their experience of practice based miniclinics over 10 years (p 726). The system includes access to specially trained nurses, dietitians, and laboratory services which include an assay for glycosylated haemoglobin. Sadly, restrictions on prescribing are such that blood glucose monitoring equipment has to be provided from charitable funds. Blood glucose control seems little different from that achieved at the hospital (although the patient groups are not strictly comparable), and systematic screening for the complications of diabetes shows encouraging signs of increasing organisation. Nevertheless, it seems paradoxical to recommend moving to a system of independent management by general practitioners when the more enlightened hospital clinics are beginning to use microcomputers to enforce systemised care. Nor is it entirely satisfactory to have visual acuity checked biannually, fundoscopy performed without mydriatics, and only half the patients having estimation of glycosylated haemoglobin concentration in over two years. In a similar scheme, reported by Baks from the Isle of Wight, the clinics are run by clinical assistants.4 A satisfactory audit of this system, however, has not yet been carried out, blood glucose concentrations having only been assessed in the year of referral to the clinic.

In Poole care is shared between general and hospital practice.5 0 Computer records ensure that minimal sur-