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Infectious disease in pregnancy

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Summary Despite the advent of antibiotics and improved diagnostic facilities, infectious diseases in pregnancy continue to be significant contributors to maternal and fetal morbidity and mortality. These are more common in the developing than the developed nations, where poverty, a lack of hygiene, a lack of medical resources and a lack of trained health-care workers are common. Although infectious diseases in pregnancy are not so common in the UK, there has been an increase in the incidence of syphilis, tuberculosis and HIV in pregnancy in inner-city areas. This has implications for health-care professionals, who require a knowledge of these conditions along with the other infectious diseases that are likely to influence maternal and/or fetal and neonatal health. This article discusses some of the significant infections encountered in practice and others that are not as common but require a higher index of suspicion and appropriate investigations to improve maternal and fetal outcomes.

Introduction

Infectious diseases in pregnancy are uncommon in the developed world but are a leading cause maternal morbidity and mortality in the developing nations. They also have a major impact on the transmission of infections to the fetus, with a risk of adverse outcome such as spontaneous miscarriage, prematurity, stillbirth, fetal growth restriction, congenital anomalies, neonatal infection and long-term consequences such as varying degrees of mental and physical handicap. Although most infections may present with non-specific symptoms, vigilance and a low threshold for investigations in pregnant women are likely to influence the outcome of pregnancy in some infections. The increased foreign travel of pregnant women and the increase in immigrants from the developing countries pose new challenges to obstetricians and neonatologists in terms of managing infectious diseases such as human immune deficiency virus (HIV), malaria and tuberculosis in the UK. Early recognition and prompt management with a multidisciplinary approach is likely to benefit these women.

Maternal infections

Maternal infections may impact on maternal as well as fetal health. Maternal infections can occur

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antepartum, intrapartum or postpartum, and the implications for management will depend on the type of infection, incubation period and infectivity, clinical features of the disease, availability of rapid diagnostic tests, risks of fetal or neonatal infection and availability of specific drug therapy. The UK Department of Health currently recommends universal antenatal screening for four infectious diseases: rubella, syphilis, hepatitis B and HIV.

Prevention of infection in the pregnant women

Preventive measures that can be taken by pregnant women include an avoidance of unprotected intercourse if their partners are known to have herpes simplex virus lesions, HIV, hepatitis B or other sexually transmitted infections. In addition, pregnant women should avoid contact with cat faeces and avoid eating unpasteurised dairy products, to reduce the risk of listeriosis, and avoid eating raw or undercooked lamb, beef and pork to reduce the risk of infection with *Toxoplasma gondii*. Immunisation programmes in childhood for rubella should provide protection against these infections throughout the child-bearing years. Immunoglobulins for varicella may be of benefit in preventing chickenpox in susceptible women.

Intrapartum and postpartum infections

Intrapartum pyrexia should be treated with broad-spectrum antibiotics after taking blood cultures. High-grade temperatures in labour may be caused by prolonged rupture of the membranes with chorioamnionitis, urinary tract infections, listeriosis and causes related to regional analgesia. The purpose of aggressive treatment is twofold: first, to prevent intrauterine infection, and second, to prevent postpartum endometritis. There is a causal link between chorioamnionitis, the fetal inflammatory response and brain injury in preterm and term infants.

Infection of the genital tract, mastitis, pelvic thrombophlebitis, wound infections (following caesarean section, episiotomy or perineal tears), urinary tract infections and complications related to anaesthesia and/or regional analgesia in labour may be seen in the puerperium. Although acute infections will present during the hospital stay, others will present later in the community. Early recognition and prompt treatment are key elements in management. Early postpartum endometritis is more commonly seen with emergency caesarean sections, whereas late endometritis is more often seen in women who have delivered vaginally. These are usually caused by a mixture of aerobic and anaerobic bacteria. Chlamydial infection can cause late endometritis.

Genital tract sepsis

Thirteen direct deaths from genital tract sepsis were reported in the last triennium (2000–2002) in the Confidential Enquiry into Maternal Deaths, six of which were associated with haemolytic streptococcal infections. Although the number of maternal deaths as a direct cause of maternal infection has decreased compared with the last triennium (1997–1999), genital tract sepsis still remains a significant cause of maternal mortality in the UK.

The Confidential Enquiry into Maternal Deaths has made some key recommendations regarding the provision of antibiotics in all units for cases of sepsis to avoid any delay in the control of infection and prevent the development of serious complications such as disseminated intravascular coagulation and organ failure. They have also emphasised the need for urgent and repeated bacteriological specimens, including blood cultures, to be taken in women who are systemically unwell following infection. Active management with parenteral broad-spectrum antibiotics, intravenous fluids and oxygen is an important measure in women with suspected severe sepsis. The onset of life-threatening sepsis in pregnancy or the puerperium can be insidious, with sudden clinical deterioration. Vomiting, diarrhoea, abdominal pain, tachycardia, tachypnoea and pyrexia greater than 38 °C may be symptoms and signs of pelvic sepsis. The education of doctors, midwives and medical students in the risk factors, symptoms, signs, investigation and treatment of sepsis and the recognition of critical illness is recommended.

Urinary tract infections

Urinary tract infections are common during pregnancy. All pregnant women should be screened for bacteriuria. It is important to treat asymptomatic bacteriuria as about 40% of these women will develop pyelonephritis or cystitis if untreated.

Pyelonephritis complicates 1–2% of pregnancies. The typical presenting symptoms are high-grade fever, back pain, chills, nausea and vomiting. Urine culture helps to identify the pathogen and antibiotic sensitivity. Ampicillin should no longer be used because of high rates of resistance. Recurrent infections are common during pregnancy and require prophylactic treatment. Pregnant women with urinary group B streptococcal infection should be treated and should receive intrapartum prophylactic therapy.