South Australian Paediatric Clinical Guidelines

Parvovirus (slapped cheek syndrome) in pregnancy

The 'Management of Perinatal Infections' guideline for Parvovirus B19 infections during pregnancy by the Australasian Society for Infectious Diseases 2002, emendations 2006 has been used to inform this practice guideline.

Parvovirus

- The causal agent is parvovirus B19, a single-stranded DNA virus (Turrentine 2003)
- Parvovirus B19 infection is distinguished by the mild rash illness erythema infectiosum, also known as fifth disease (the fifth pink-red rash to be described by physicians)
- Parvovirus B19 selectively infects and lyses human erythroblasts (Torok 2001)
- In women with haematologic disorders characterised by decreased red blood cell production (thalassaemia) or increased red blood cell destruction (sickle cell disease), parvovirus B19 infection may cause an acute life-threatening red cell aplasia (Torok 2001)
- Parvovirus B19 infection may become persistent and cause chronic anaemia in pregnant women who are immunocompromised (Torok 2001)

Clinical features

- Erythema infectiosum ('slapped cheek' appearance or fifth disease)
- Rubella-like rash
- 30 – 40 % of infection is sub-clinical (Langford 2002)
- Like rubella, can cause arthralgia or arthritis, particularly in adults (the hands are most frequently affected, followed by the knees and wrists)
- Arthralgia may develop a few weeks after infection

Route of transmission

- Person to person through direct contact with respiratory secretions and hand-mouth contact

Period of infectivity

- Communicability is greatest (from about one week after exposure) and before onset of rash. Parvovirus B19 infection is probably not communicable after onset of the rash
- Those who develop aplastic crisis may be infectious up to one week after onset of symptoms. Immunosuppressed people with chronic infection and severe anaemia may be infectious for months to years
- Because cases of erythema infectiosum may occur over a time span of months, this suggests that B19 transmission is relatively inefficient (Torok 2001)

Infection precautions

- Standard precautions
- Susceptible (parvovirus-specific IgG negative) pregnant health care workers should not care for women with known complicated parvovirus B19 infection (aplastic crisis) or chronic parvovirus B19 infection (immunocompromised)

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Literature review

- Parvovirus infections are common in children. By childbearing age, 60 % of women are immune (Palasanthiran et al. 2002)
- The maternal – fetal risk of B19 transmission is 50 %
- Infection in the fetus can lead to severe anaemia and myocarditis that may result in fetal hydrops and death
- The onset of fetal hydrops occurs 2 – 17 weeks (average 5 weeks) after maternal infection

Maternal diagnosis

- Women who have been exposed to parvovirus in early pregnancy should be informed of the possible risks to the fetus and offered serology for parvovirus B19 specific IgG (if possible with booking bloods)

Parvovirus specific IgG positive

- Reassure that pregnancy is not at risk

Parvovirus specific IgG negative

- Serology for IgM (detectable within 1 – 3 weeks and lasts 8 - 12 weeks after infection
- Serology for rising IgG titres (2 - 4 weeks following contact)

Management

- If infection is confirmed during pregnancy, the fetus should be monitored for signs of hydrops by ultrasound examination at 1 – 2 weekly intervals over the next 6 - 12 weeks
- Appropriate referral to specialist experienced in fetal ultrasound, blood sampling and transfusion if signs of fetal hydrops
- Following diagnosis of hydrops, the specialist may consider fetal blood sampling (measure haemoglobin, platelets and reticulocyte count) and intrauterine transfusion
- Polymerase chain reaction (PCR) examination of amniotic fluid is not recommended after proven maternal parvovirus infection, but may be clinically useful during investigation of non-immune hydrops of unknown cause (Gilbert 2002)

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Useful web sites:

Organisation of Teratology Information Specialists (OTIS). Fifth disease (parvovirus B19) and pregnancy.

Available from URL: http://www.otispregnancy.org/pdf/fifthdisease.pdf

SA Health – You've got what. Parvovirus B19 infection (Fifth disease, slapped cheek, slapped face, erythema infectiosum).

Available from URL: http://www.dh.sa.gov.au/pehs/ygw/parvovirusb19-pehs-sahealth-2009.pdf

Abbreviations

ASID	Australasian Society for Infectious Diseases
DNA	Deoxyribonucleic acid
HPA	Health Protection Agency
OTIS	Organisation of Teratology Information Specialists
%	Percent
PCR	Polymerase chain reaction (PCR)

Version control and change history

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1.0	27 April 04	30 Nov 09	Original version
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