ERYTHROVIRUS B19 (PARVOVIRUS) GUIDELINE

TARGET AUDIENCE	All Midwifery and Medical Staff providing maternity care in NHS Lanarkshire.
PATIENT GROUP	All pregnant women booked for maternity care within NHS Lanarkshire

Clinical Guidelines Summary

This Guideline describes Parvovirus B19 infection pregnancy and its investigation and management in pregnancy

It describes the epidemiology, signs and symptoms in pregnancy

It describes the potentially adverse effects in pregnancy

It describes prevention in pregnancy, interpretation of serology and Obstetric care

Introduction

Parvovirus B19 is a member of the Parvoviridae family of DNA viruses. It is a single stranded DNA virus which is typically spread through respiratory secretions (i.e. close contact) of an infected host, however infection can occur by transplacental transmission if a pregnant woman is acutely infected. It has an incubation period of 14-21 days and an infectivity period of 10 days prior to the day of onset of the characteristic rash.

Infection with parvovirus B19 is common in developed countries; up to 15% of preschool children and 50% of adults have serological evidence of past infection. In most cases infection with the virus is a mild, self limiting illness. There is currently no licensed vaccine for parvovirus, and management of active infection is through symptomatic relief.

In children, prodromal symptoms of viremia occur 2-5 days prior to the classic facial rash appears ('slapped cheek syndrome'). A second stage rash affecting the trunk and arms may appear but usually resolves within days. In adults, parvovirus may be asymptomatic or may present with a minor febrile illness, malaise, a non-vesicular maculopapular rash and rarely arthropathy. The virus affects red blood cell production which can result in a transient anaemia or rarely an aplastic crisis.

http://www.dermnetnz.org/topics/erythema-infectiosum-fifth-disease-images

Parvovirus and Pregnancy

Parvovirus affects 1 in 512 pregnancies per year. Vertical transmission can have significant consequences, particularly if infection occurs in the first 20 weeks. Most fetal consequences occur between 3 and 5 weeks after maternal infection. Transplacental infection occurs on average in 30% of cases, with the risk of transmission varying with gestation. Asymptomatic maternal infection is as likely to impact on the fetus, therefore serological screening should not be delayed by the absence of maternal symptoms. Fetal complications include:

- Hydrops fetalis (risk 3-11% if infection occurs between 9-20 weeks with 40-50% fatality rate). There may be associated myocarditis and hepatitis
- Fetal loss if infection occurs in first 20 weeks (7%), this usually occurs in the second trimester and is rare in the first trimester
- Maternal infection after 20 weeks is rarely associated with hydrops or fetal loss (<1%)
- Babies who are born at full term are usually healthy with no evidence of congenital malformations or developmental problems secondary to infection.

Prevention

There is no vaccine or medicine that can prevent parvovirus B19 infection. You can reduce your chance of being infected with parvovirus B19 or infecting others by:

- washing your hands often with soap and water
- covering your mouth and nose when you cough or sneeze
- not touching your eyes, nose, or mouth
- avoiding close contact with people who are sick
- staying home when you are sick

Management of Suspected Parvovirus in Pregnancy

Screening of pregnant woman for past infection with parvovirus B19 is not recommended as neither a vaccine nor prophylaxis are available. In the scenario of possible parvovirus exposure, a detailed history should be acquired to determine if a significant contact has occurred.

Erythrovirus B19 (Parvovirus) Guideline

A significant contact is defined as being in the same room for 15 minutes or direct face to face contact within the previous three weeks.

In patients presenting with a history of significant exposure, or symptoms suggestive of parvovirus B19 then immunity status should be determined through testing serum for parvovirus B19 specific IgM and IgG.

The patients booking bloods can be used to test for past exposure; contact the lab in the first instance for IgG testing. Microbiology lab at Wishaw - 01698 366406

Parvovirus B19 IgM may be detected within 2 to 3 days of an acute infection and persists in the circulation for up to 4 weeks. Parvovirus B19 IgG usually appears a few days after the IgM and usually remains present for life. Re-infection is rare but can occur in immunocompromised women.

The diagnosis can be difficult to make on clinical grounds in healthy adults, as up to 50% are asymptomatic. Infection should be suspected if there is a history of significant contact with an infected child. The infectivity period is 7–10 days before a rash develops, to the day after the onset of rash, in a contact.

Symptoms include:

- Mild fever, malaise, myalgia and headache (during this time the woman is contagious)
- The characteristic facial rash is rare in adults however, a maculopapular rash may occur on the trunk back and limbs 2-3 weeks after prodromal symptoms.
- symmetrical polyarthropathy following the appearance of the rash (typically affects PIP and MCP joints of hands)

Advice should be provided on self-management strategies for symptoms relief, including rest, adequate fluids and paracetamol. If the patient is unwell and requiring clinical assessment, she should not be seen in clinical areas where contact with other pregnant women can occur. If parvovirus B19 infection is suspected at any stage of pregnancy, be aware that the clinical features may be indistinguishable from rubella infection. Susceptibility to rubella should be tested by the laboratory at the same time as testing for parvovirus B19 serology.

On diagnosis of parvovirus B19 infection, specialist advice should be sought from the patient's responsible consultant. When infection in pregnancy is confirmed, refer to maternity ultrasound after the woman is no longer infectious. Serial ultrasound and MCA Doppler assessment may be appropriate to monitor for signs of fetal anaemia or hydrops fetalis. This should be under the supervision of an obstetrician, although scans including MCA Doppler can be performed by qualified sonographers.
These scans should continue until 10 weeks post infection

Interpretation of Serology

- IgG +ve and IgM –ve

Suggestive of immunity to parvovirus through previous exposure. The woman should be reassured and re-testing is not necessary.

- IgG -ve and IgM –ve

The woman is susceptible to parvovirus B19 and further serum is required one month after last contact even if she remains asymptomatic. If she develops symptoms, re-testing should be performed sooner. If repeat sample remains negative, the woman should be reassured that there is no evidence of recent infection, however counselled that she is susceptible to parvovirus and reminded about prevention advice. If the sample becomes positive for IgM, this suggests recent infection. The test should be repeated, microbiology laboratory contacted to discuss confirmatory testing and the responsible consultant should be informed.

- IgG -/+ and IgM +

Suggestive of recent parvovirus infection. Send further sample for confirmation of results, contact microbiology laboratory and refer care to consultant for ongoing management as above.

If any doubt, contact the Microbiology lab at WGH - 01698 366406

ERYTHROVIRUS(PARVOVIRUS B19,SLAPPED CHEEK SYNDROME)

ESTABLISH

- GESTATIONAL AGE of PREGNANCY
- WHEN CONTACT OCCURRED
- WHAT TYPE CONTACT/HOW CLOSE AND LENGTH OF CONTACT

SIGNIFICANT CONTACT- (DEFINED AS BEING IN SAME ROOM FOR 15 MINS OR FACE TO FACE CONTACT)

CONTACT MICROBIOLOGY LAB WHO CAN PROCESS BOOKING BLOOD FOR EVIDENCE OF PAST INFECTION

IF NO BOOKING BLOOD: SEND VENOUS BLOOD FOR PARVOVIRUS SPECIFIC IgG and IgM

PARVOVIRUS B19 IgG+

PARVOVIRUS B19 IgM –

PAST EXPOSURE

REASSURE PATIENT

PARVOVIRUS B19 IgG –

PARVOVIRUS B19 IgM –

SUSCEPTIBLE

REPEAT SAMPLE IN 4 WEEKS OR SOONER IF ILLNESS DEVELOPS

IgG –ve and IgM -ve

COUNSEL PATIENT THAT THEY REMAIN SUSCEPTIBLE BUT DO NOT HAVE ACTIVE INFECTION

PARVOVIRUS B19 IgG+/-

PARVOVIRUS B19 IgM +

URGENT REPEAT SAMPLE FOR CONFIRMATION OF RECENT INFECTION

IgM +

REFER TO CONSULTANT ANC FOR COUNSELLING AND CONSIDERATION OF SERIAL BIOMETRY AND MCA DOPPLER

References/Evidence

1. Guidance of Viral Rash Illness in Pregnancy, Health Protection Agency, 2019:https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/821550/viral_rash_in_pregnancy_guidance.pdf

2. Parvovirus B19 Clinical Knowledge Summery, National Institute for Clinical Excellence, 2017: https://cks.nice.org.uk/parvovirus-b19-infection

3. Crane J, Mundle W, Boucoiran I, Parvovirus B19 in Pregnancy, J Obstet Gynaecol Can 2014;36(12):1107–1116

Appendices

1. Governance information for Guidance document

Lead Author(s):	Dr S Maharaj
Endorsing Body:	Maternity Clinical Effectiveness Subgroup
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Responsible Person (if different from lead author)	

CONSULTATION AND DISTRIBUTION RECORD	
Contributing Author / Authors	Original authors Dr D Smith Dr S Maharaj Reviewed: Dr C Malcolm/ Dr A Duncan (2020)
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CHANGE RECORD			
Date	**Lead Author**	**Change**	**Version No.**
May 2017	D Smith S Maharaj	*Original*	1
October 2020	A Duncan C Malcolm	Update	2
May 2024	S Maharaj	Update	3
March 2025	S Maharaj	Update	4
			5

2.You can include additional appendices with complimentary information that doesn't fit into the main text of your guideline, but is crucial and supports its understanding.

e.g. supporting documents for implementation of guideline, patient information, specific monitoring requirements for secondary and primary care clinicians, dosing regimen/considerations according to weight and/or creatinine clearance