



Q/What should you tell pregnant women about exposure to parvovirus?

EVIDENCE-BASED ANSWER

A | TELL PATIENTS that parvovirus infections before 20 weeks' gestation confer a risk of fetal morbidity and mortality as high as 16%, but don't significantly increase long-term developmental sequelae (strength of recommendation [SOR]: **B**, prospective cohort studies).

Parvovirus infection rates are similar in a variety of maternal workplace environments (SOR: **A**, prospective cohort studies);

routinely excluding pregnant women from the workplace is unwarranted (SOR: **C**, expert opinion).

Physicians should order immunologic assays for women who may have been exposed to parvovirus to assess maternal immunity and determine whether evaluation for fetal hydrops is necessary (SOR: **C**, expert opinion).

Evidence summary

Although most parvovirus infections in pregnant women don't harm the fetus, human parvovirus B19 (B19V) may cause severe fetal anemia and cardiac failure, potentially leading to nonimmune fetal hydrops. Transplacental transmission occurs in as many as 33% of cases, with the highest risk of fetal infection occurring between the 9th and 20th weeks of gestation and within 2 to 4 weeks of maternal infection.^{1,2}

A quarter of infections are asymptomatic; the remainder present as a self-limited flu-like syndrome. Infected people may transmit the virus for 5 to 10 days before developing symptoms.¹⁻³

Infection raises risk of death, but not later developmental delay

First- and second-trimester parvovirus infections carry an excess fetal loss risk of 10% above baseline (5%), but a low risk of long-term sequelae during childhood.⁴ A prospective cohort study of 1018 pregnant German women, confirmed to be immunoglobulin

M-positive and followed by targeted ultrasound for 10 weeks, found a 6.3% incidence of fetal death and a 3.9% incidence of hydrops fetalis.³ Fetal death occurred only with B19V infection before 20 weeks' gestation. Although more cases (67.5%) of fetal hydrops occurred before 20 weeks, cases were seen throughout all gestational periods.

A similar prospective cohort study of 427 pregnant women from England and Wales reported 14% and 1.7% incidences of fetal death and hydrops fetalis, respectively.⁴ In following up on 182 infants (1 year of age) and 129 children (7-10.5 years of age), investigators found 3 children (2%) with developmental delays in each cohort—consistent with expected numbers for any unselected group of children. They found no congenital abnormalities attributable to B19V infections.

Occupational exposure doesn't pose significant danger

Few prospective studies have examined prevention of parvovirus infection because of the difficulty of detecting infection during

Matthew Snyder, DO
Family Medicine/Obstetrics,
Nellis Air Force Base
Family Medicine Residency,
Nellis AFB, Nev

Rick Wallace, MSLS, EdD
Medical library, East Tennessee
State University Quillen College
of Medicine, Johnson City, Tenn

ASSISTANT EDITOR

Paul Crawford, MD
Nellis Air Force Base Family
Medicine Residency,
Nellis AFB, Nev

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TABLE

Managing suspected parvovirus B19 infections in pregnancy: Consensus recommendations

Antibody results	Status	Clinical follow-up
IgG-positive, IgM-negative	Immune	Reassurance
IgG-negative, IgM-negative	Susceptible	Repeat immunologic assay in 2-4 wk
IgG-negative, IgM-positive	Infection in previous 7 days	Refer to MFM for consultation and targeted ultrasound every 4 wk for 12 wk to evaluate for fetal hydrops
IgG-positive, IgM-positive	Infection within previous 7-120 days	

IgG, immunoglobulin G; IgM, immunoglobulin M; MFM, maternal-fetal-medicine specialist.

Adapted from: Goff M. *J Midwifery Women's Health*. 2005.²

➤ Parvovirus infections before 20 weeks' gestation carry a risk of fetal morbidity or mortality as high as 16% but don't significantly increase long-term sequelae.

the initial asymptomatic phase. In an effort to determine potential modifiable risk factors, a prospective cohort study of a convenience sample at a referral clinic with no power analysis examined infection rates among 618 pregnant women in various occupations who were exposed to infected children.⁵

Exposure to children in the household produced the highest risk of infection (29.4% vs 16.7% overall incidence; $P<.001$). Primary school teachers and daycare workers had an increased risk of infection that didn't reach statistical significance (23%, $P=.5$).⁵ None of the occupations examined (school teacher, daycare worker, office professional, homemaker, and health care worker) demonstrated significantly increased risk ($P=.5$). Because of the lack of difference in infection rates among studied occupations, the authors recommended against routine workplace exclusion.⁵ Subsequent Danish population-based cohort studies (N=32,300) found that nursery school teachers had an odds ratio of

3.0 for acute infection, but it was reduced to 1.82 after accounting for infections in their own children.⁶

The TABLE summarizes current consensus guidelines for initial evaluation, clinical surveillance, and management of pregnant women potentially exposed to B19V.²

Recommendations

The Centers for Disease Control and Prevention and a 2000 practice bulletin from the American College of Obstetricians and Gynecologists (ACOG) don't recommend routinely excluding pregnant women from the workplace during endemic outbreaks of parvovirus to reduce exposure risk. They do, however, encourage women to discuss their individual risk with their physician.^{7,8}

ACOG and the Society of Obstetricians and Gynaecologists of Canada concur with consensus guidelines for evaluating and managing women suspected of exposure or infection.^{1,7 JFP}

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