



Information for Patients

From Toxoplasmosis to Chickenpox: Infections during Pregnancy



Toxoplasmosis

Frequency

Toxoplasmosis is prevalent worldwide and is a so-called zoonosis. In other words: the disease is transmitted from animals to humans. It is among the most common infections during pregnancy. Roughly one in 200 expectant mothers contracts the condition. Only 26 to 54 percent of pregnant women in Germany have contracted the infection at an earlier date and therefore possess antibodies to protect against the pathogen, the parasite *Toxoplasma gondii*. So-called prevalence in the population is age-dependent: for adults aged 18 and over, it rises by around 1 percent for each year and reaches over 70 percent for people above the age of 70.

Consequences

In most cases the infection will remain undetected among expectant mothers, as they do not experience symptoms. Only rarely will they manifest signs of the condition, including swollen lymph nodes (usually around the neck), fever, headaches and fatigue.

But toxoplasmosis can have serious consequences for the child such as organ damage, for instance calcification of the brain, hydrocephalus, blindness or even a stillbirth. The child is most at risk of suffering damage if infection takes place in the early phase of pregnancy. This is because the severity of the condition subsides as the pregnancy progresses, although the pathogens are transferred to the unborn child more frequently.

Infection

Most expectant mothers contract the condition by eating raw meat and processed meat or meat that has not been sufficiently cooked. Another source of infection is contact with infectious parasite eggs (oocysts) excreted with feline faeces, which may occur during garden work or when cleaning a cat's toilet. Vegetarian foods, above all fruit and vegetables growing close to the ground, may also be contaminated with toxoplasma oocysts.

One of the most frequent infections among pregnant women

Preventing infection

There are a few things that people can do to prevent an infection with *Toxoplasma gondii*:

- Do not eat raw meat (e.g. tartar, rare steak, raw processed meats).
- Do not touch the eyes or the mouth without washing your hands when dealing with raw meat.
- Thoroughly wash fruit, raw vegetables and salad before consumption.
- Wear gloves when gardening and wash your hands carefully when you are finished.
- If you have cats in your household that go outside, the cat's toilet should be scrubbed daily – by another person – with hot water (above 70 °C)

Test during early pregnancy

The test for toxoplasmosis antibodies shows whether you have already been in contact with the pathogens and therefore possess protective

antibodies. If the immune status has not been established already, this should take place as quickly as possible once pregnancy has been confirmed. Where antibodies are identified, additional blood tests will usually indicate whether the infection occurred quite some time in the past or if it was during the pregnancy itself. If tests for toxoplasmosis antibodies are performed later on in the pregnancy, it is often no longer possible to exclude the possibility that infection took place in an early phase of pregnancy, leading to anxiety and unnecessary additional examinations.

The infection is often asymptomatic, so expectant mothers who are not immune are advised to attend screening for toxoplasmosis antibodies every 8 weeks. This enables the prompt detection of a possible infection and its early treatment with special antibiotics to reduce the risk of harmful effects for the child.

Recommended laboratory screening

- **Toxoplasmosis IgG-Ak*** when attempting to become pregnant
- **Toxoplasmosis IgG/IgM-Ak*** during pregnancy as early as possible

Determine the immune status as early as possible during pregnancy

! ■ *Abbreviations:
IgG-Ak = Immunoglobulin G antibodies;
IgM-Ak = Immunoglobulin M antibodies

Cytomegaly

Frequency

The most frequent cause of viral infections in the womb leading to foetal damage is the human cytomegalovirus (HCMV). 53 percent of pregnant women in Germany do not have a history of contracting the infection, which would protect them from repeat infection. 0.5 to 4 percent of expectant mothers experience their first infection with the cytomegalovirus during pregnancy.

Consequences

A CMV infection is mostly harmless for the mother. Often it does not manifest any symptoms or may only be experienced as a mild flu with general symptoms like fever, tiredness and swollen lymph nodes, which means it frequently remains undiagnosed.

The principal risk for damage to the child is when first infection takes place between the moment of conception and the 20th week of pregnancy. Around 10 to 15 percent of the infected children show irregularities immediately after birth, including low weight, bleeding in the skin, an abnormally small head, calcification of the brain or hearing and vision impairments. Permanent damage

should be expected among 30 to 40 percent of these children. But even if the child does not show any sign of damage at birth, 8 to 15 percent of them should be expected to manifest late effects like impaired hearing or vision, as well as a delayed development of mental capacities, motor skills or language acquisition.

Reactivation of the cytomegalovirus takes place in around 1 in 1,000 expectant mothers with a history of CMV infection. Repeat infection with another strain of the CMV virus can also occur. In these cases, however, the risk of transmitting the disease to the unborn child is only approximately 1 percent.

Preventing infection

The transmission risk can be reduced significantly by adhering to some hygiene rules when dealing with infants. Contact with urine or saliva should be avoided above all. It is important to wash hands thoroughly with soap and water after changing nappies, washing or feeding the baby, wiping away tears, cleaning its nose or after contact with items that are coated with saliva. Kisses on the mouth, sucking on the dummy by the mother, sharing food, cutlery, crockery, drinking vessels, tooth brushes,

Thorough hand hygiene during contact with infants, the avoidance of kisses on the mouth and protected sexual contact reduce the risk of transmission.

towels and wash cloths should also be avoided. Expectant mothers can also contract CMV through sexual intercourse with a seropositive partner, for instance via saliva or genital secretions – condoms are therefore advisable.

Test during early pregnancy

Where possible, screening for antibodies to CMV in the blood should take place prior to pregnancy; if this is not possible, it should happen as early as possible after conception, as blood tests are only able, with a degree of certainty, to exclude infections that took place in the last 12 weeks. It is advisable to repeat the test every 8 weeks for expectant mothers who do not have antibodies to CMV – so have no prior infection with CMV – as CMV frequently does not manifest any typical symptoms and the infection can only be detected with certainty by laboratory testing.

Recommended laboratory screening

- **Cytomegaly IgG-Ak**
when attempting to become pregnant
- **Cytomegaly IgG/IgM-Ak and in cases of irregularities**
CMV IgG avidity
during pregnancy as early as possible





Fifth disease

Frequency

Around two thirds of women have experienced an infection with the fifth disease pathogen, parvovirus B19, prior to becoming pregnant. They are protected from complications if they come into contact with the virus while expecting, as a prior infection usually leads to lifelong immunisation. Where the expectant mothers experience first infection, the risk of transmission to the unborn child is around 4 to 17 percent, whereby the greatest risk is associated with infections during the first 20 weeks of pregnancy.

Consequences

Unprotected, expectant mothers are exposed to an elevated risk of miscarriage if they become infected early on during pregnancy. Symptoms in the unborn child, such as severe anaemia and dropsy, known in medical terminology as Hydrops fetalis, usually occur with a delay of 3 to 6 weeks following the expectant mother's acute infection, and sometimes significantly later. This is why special ultrasound examinations, known as Doppler ultrasound, should be carried out for at least 12 – or better – 20 weeks after infection of the mother.

The child can also be treated by means of blood transfusion via the umbilical cord vein. This method saves over 80 percent of the unborn children suffering from dropsy – while around two-thirds of the pregnancies with Hydrops fetalis are fatal when left untreated.

Infection

Transmission takes place by droplet and contact infection with saliva, blood or other bodily fluids, and very rarely due to infected blood products. The greatest excretion of viruses in the saliva occurs prior to the manifestation of typical skin rashes, and infections may proceed without specific symptoms, so expectant mothers have hardly any way of protecting themselves from fifth disease. Non-immune expectant mothers that live with infants in a shared household or work with them professionally are most at risk.

Test during early pregnancy

It is advisable to check immunity prior to conception or in the early phase of pregnancy. An antibody test can

be conducted to determine infection during pregnancy after contact with fifth disease, if a suspicious skin rash occurs or if there are irregular results of an ultrasound examination. Additional laboratory testing is necessary where antibodies are detected and if ultrasound examination indicates that the unborn child is infected.

Recommended laboratory screening

- **Parvovirus IgG-Ak** when attempting to become pregnant
- **Parvovirus IgG/(IgM-Ak)** during pregnancy as early as possible



Non-immune expectant mothers that live with infants or who work with them professionally are most at risk.



Worth knowing: The employer covers the costs of laboratory screening during pregnancy for expectant mothers with close contact to infants.

Chickenpox

Frequency

Around 96 percent of all women in Germany in a child-bearing age have antibodies to the varicella zoster virus in their blood and are protected against complications caused by chickenpox during pregnancy. Chickenpox can have serious consequences for the mother and the child, which are, in principle, preventable by vaccinating non-immune women prior to conception. Nevertheless, 20,000 to 30,000 women who are not immune to varicella become pregnant each year.

Consequences

Where an expectant mother contracts chickenpox before the 24th week of pregnancy, between 1 and 2 percent of the unborn children may develop what is known as foetal varicella syndrome. Among the consequences are damage to the skin and the limbs, neurological disorders and vision impairments. Around 30 percent of the infected children do not survive. Although the risk of varicella syndrome is virtually negligible after the 24th week of pregnancy, the expectant mother may nevertheless experience a particularly serious case of pneumonia.

Babies can suffer from a serious condition called neonatal chickenpox if the mother falls ill between 5 days prior to the birth and 2 days thereafter. The greatest risk occurs if the newborn child falls ill between the 5th and the 10th day of life, as around 20 percent of these cases are fatal.

Infection

Chickenpox is a highly infectious droplet infection that is transmitted by coughing, breathing and sneezing. The content of the chickenpox pustules is also responsible for the smear infection. The risk of infection starts 2 days prior to the emergence of the pustules and ends 5 to 7 days after their emergence, when the lesions have crusted over.

Test during early pregnancy

If the expectant mother or her parents cannot remember whether the woman has a history of chickenpox, it is advisable to determine immunity to varicella early on during pregnancy. Where the immune status is unknown, or in cases of contact with infected persons, the varicella IgG antibodies must be determined immediately. If there is no immunity,

The highly infectious droplet infection is transmitted by coughing, breathing and sneezing.

it is possible to prevent or at least significantly reduce the severity of the illness through the earliest administration of immunoglobulin within 3 and by no later than 10 days after probable contact with the varicella virus (STIKO Recommendation, August 2018).

Recommended laboratory screening

- **Varicella IgG-Ak**
when attempting to become pregnant and unclear immunity situation (covered by statutory health insurance pursuant to the Guidelines issued by the Federal Joint Committee on the Rules of Conception and the Termination of Pregnancy).
- **Varicella IgG/(IgM-Ak)**
during pregnancy as early as possible/after contact



Group B streptococcal infection

Frequency

A temporary or permanent colonisation of the vagina and/or the anus with group B streptococcus is identifiable in an average of 16 percent of expectant mothers in Germany. These bacteria are usually harmless for the women affected and do not cause any symptoms.

Consequences

The newborn child is at risk, however, if it is infected with the pathogens by passage into the womb following a premature rupture of the membranes or during the natural birthing process. Newborn children and babies with a low birth weight are susceptible to infection especially.

Statistically speaking, 2 to 5 of 1,000 newborn babies contract a group B streptococcal infection. The most frequent consequences for the babies are blood poisoning or even septic shock, as well as meningitis or pneumonia. Around 4 percent of the mature newborns who contract the infection do not survive, and these numbers rise among premature births. Meningitis may also lead to long-term damage.

The child can be infected following premature rupture of the membrane or during the natural birthing process.

Test and treatment

Up to 90 percent of newborn babies can be protected against group B streptococcal infection by examining the expectant mother between the 35th and 37th week of pregnancy and by administering antibiotics to the mother during childbirth and possibly to the child shortly after birth. It is therefore advisable to conduct a smear test before birth in order to clarify whether group B streptococcus is present in the mother. The test should be conducted earlier if there is a risk of premature birth.

Recommended laboratory screening

- **Vaginal and anal smear for group B streptococcus in the 35th to 37th week of pregnancy**



Individual health services

The statutory health insurance providers cover the cost of the tests if there are reasonable grounds to suspect an infection. They are not obliged to do so as a rule if there are no indications. In these cases you can have the tests done as optional services. You will receive an invoice, which you will be required to settle. However, some health insurance providers do cover the cost, even without clear indications of infection. We will then send the laboratory findings to your doctor.

Ask your doctor to explain the costs for the requested analyses and enquire with your health insurance provider which costs it will cover!

For further patient information on many other health issues, go to:

www.LADR.de/patienteninformation



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LADR Laborverbund Dr. Kramer & Kollegen unter www.LADR.de**

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