Congenital toxoplasmosis

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Abstract

Toxoplasmosis is caused by infection with the protozoan parasite Toxoplasma gondii. Congenital toxoplasmosis is an infection resulting from the transplacental passage of the parasites from an infected mother to the foetus. An acute infection in pregnancy may result in congenital toxoplasmosis, which manifests in affected newborn as the variable association of encephalitis and/or hydrocephalus with intracranial calcification, chorioretinitis with scarring and loss of vision, hepatitis, and lymphadenopathy. Children who are apparently normal at birth may subsequently develop toxoplasmosis-associated injuries, including deafness, microcephaly, and low IQ.

Incidence

In case of seroconversion during pregnancy (between 5,000 et 10,000 cases per year in France), the rate of transplacental transmission of the toxoplasmosis varies from 6% at 13 weeks gestation to 72% at 36 weeks. The highest risk (10%) of having a congenitally infected child was found in women who seroconverted at 24 to 30 weeks of gestation.
Prenatal diagnosis
Prenatal evaluation of transplacental transmission of the toxoplasma is based on amniotic fluid PCR analysis, and possibly on mouse inoculation with amniotic fluid (4). The presence of IgM does not necessarily reveal a very recent infection, as it may persist more than one year. In case of positive IgM, the diagnosis of recent infection is based on IgG avidity. In case of an ancient infection, urea cannot disrupt the antigen/antibody complex.

Treatment
Women believed to have acquired toxoplasmosis during pregnancy are routinely treated. Although the efficacy of this is debated, early treatment may prevent the further progress of the infectious process and the development of handicaps in children. The treatment is as follows.

Before 30 weeks
- If the toxoplasma is not detected in the amniotic fluid and if ultrasound examination is normal: prescription of 9 million UI of spiramycin per day until parturition.
- If the toxoplasma is detected in the amniotic fluid and if ultrasound examination is normal: prescription of pyrimethamine and sulfonamides, together with folic acid.
- In case of cerebral microcalcifications or hydrocephaly diagnosed by ultrasound, a termination of pregnancy may be proposed to the parents.

After 30 weeks
The risk of transplacental transmission is high, and pyrimethamine and sulfonamides are systematically prescribed. In any case preconceptional serology should be preferably available, and there should be at least a 4 week delay between maternal infection and prenatal diagnosis in order to avoid false negative results.

At birth
Even if there is no evidence for transmission of the toxoplasma through the placenta, congenital infection cannot be excluded. It is then necessary to examine the newborn with a transfontanellar ultrasonography and ophthalmologic surveillance. If the clinical examination and the serology are negative, no treatment is necessary. If the serology is positive, parents can be only reassured when serology has become negative. The infected child must be treated with pyrimethamine and sulfonamides for twelve months.

Recommendations for prevention
In France prevention of congenital toxoplasmosis is routinely applied: all pregnant women are tested in the first trimester, and seronegative patients then have a monthly test until parturition (birth). Toxoplasma infection in women at risk can be prevented in large part by:
- cooking meat to a safe temperature
- peeling or thoroughly washing fruits and vegetables before eating;
- cleaning cooking surfaces and utensils after they have contacted raw meat, poultry, seafood, or unwashed fruits or vegetables;
- avoiding changing cat litter or, if no one else is available to change the cat litter, using gloves, then washing hands thoroughly;
- not feeding raw or undercooked meat to cats and keeping cats inside to prevent acquisition of Toxoplasma by eating infected prey.

References


