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Diagnosis, treatment and prevention of congenital toxoplasmosis in the United States of America

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The aim of this technical report prepared by the American Academy of Pediatrics was to assess the information on the diagnosis, treatment and prevention of congenital toxoplasmosis. A PubMed search was performed, and 225 articles were selected. The quality of evidence was assessed using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) system. Evidence quality is classified into four categories: high, moderate, low, and very low, a score which reflects the reliability of the presented results.

According to the GRADE system, the quality of evidence for the effectiveness of prenatal serologic screening for toxoplasmosis and of the treatment of pregnant women would be considered to be of high quality, since further research is unlikely to change confidence in the estimates. The quality of evidence for postnatal treatment would be moderate, since further publications are likely to change the estimates.

The review addresses aspects of the biology of *Toxoplasma gondii* and the existence of three main genotypes or clonal strains (I, II, and III) in Europe, North America, and South America. These strains differ in virulence and in their epidemiological patterns, differences which partly explain the disparities in the clinical spectrum of congenital toxoplasmosis between different regions worldwide.

Toxoplasmosis infection occurs primarily through the oral route, and the report refers to important risk factors such as the ingestion of water and food contaminated with oocysts and the consumption of meat infected with *Toxoplasma gondii* cysts. Studies have shown that disease transmission by oocysts is the most common method of transmission in the USA. In Brazil, drinking water is an important source of endemic contamination.

The rate of toxoplasmosis seroprevalence varies worldwide. It is less than 10% in some European countries and has reached 80% in Brazil.

Some European countries have already implemented prenatal serologic screening programs for toxoplasmosis. The programs include guidelines on primary prevention for susceptible pregnant women, treatment of those who exhibit seroconversion, and fetal diagnosis by testing the amniotic fluid using polymerase chain reaction (PCR).

Although many studies have assessed the cost-effectiveness relationship of these programs based on the lack of proof of treatment effectiveness during pregnancy and on the low prevalence of the disease in some regions, many observational studies have demonstrated the benefits of early diagnosis and treatment of toxoplasmosis during pregnancy.

Congenital toxoplasmosis is a major problem in many countries and produces both a wide spectrum of clinical manifestations and high rates of morbidity. Children are usually born asymptomatic, and a high level of suspicion is necessary in the absence of prenatal maternal assessment.

The serological diagnosis in the newborn is made by the detection of anti-*Toxoplasma gondii* IgM or IgA antibodies, as these do not cross the placenta. Persistence of IgG beyond 12 months of age is considered the gold standard for the diagnosis of congenital infection.

Though there are no randomized clinical trials demonstrating the beneficial effects of treatment, many observational studies have demonstrated the effectiveness of treatment in children with congenital toxoplasmosis, especially in terms of neurological, auditory, and ophthalmological aspects.

The reading of this article is pertinent because of the relevance of congenital toxoplasmosis in Brazil. Knowledge on the strategies for preventing congenital toxoplasmosis and the standardization of practices used to treat the disease may contribute to minimizing the problem in our country. The aspects addressed in the article are listed below:

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1. Evidence on the risk of maternal infection and on both congenital transmission and symptomatic disease in the USA and Europe.
2. Important differences between the North American and European literature on the subject.
3. Significant differences in the clinical spectrum and severity of toxoplasmosis between American and European children.
4. Diagnostic considerations in the mother, fetus, and infant.
5. Evidence from observational studies on the effectiveness of the treatment given to pregnant women to decrease the rate of vertical transmission and to prevent severe disease in newborns.
6. Protocols for the treatment of pregnant women (prenatal care) and children (postnatal care).
7. Feasibility of serologic screening and treatment during pregnancy.

Link to the protocol:
http://pediatrics.aappublications.org/content/pediatrics/139/2/e20163860.full.pdf

Maldonado YA, Read JS, AAP COMMITTEE ON INFECTIOUS DISEASES. Diagnosis, Treatment, and Prevention of Congenital Toxoplasmosis in the United States [Internet]. Pediatrics. 2017 [cited in 21 Jun 2017];139(2):e20163860. Available at:
http://pediatrics.aappublications.org/content/pediatrics/139/2/e20163860.full.pdf.