

# Seroprevalence of *Toxoplasma gondii* among *in vitro* fecundation women in Greece

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Primary **infection** with *Toxoplasma gondii* during pregnancy can cause fetal **infection** with a risk of complications for the fetus. The proportion of women at risk of acquiring the **infection** during pregnancy in Greece is not very well known, because isn't a national program of surveillance.

## Methods

We propose us to evaluate the seroprevalences of the toxoplasmic infection at *in vitro* fecundation women and to follow the actual situation of the toxoplasmosis in Greece, assuming the dates presented by different researches teams.

The seroprevalence of *Toxoplasma gondii* among *in vitro* fecundation women in Greece was calculated when 1300 blood samples collected from *in vitro* fecundation women were tested for *Toxoplasma* specific immunoglobulin G.

The used method was indirect immunofluorescence to detect IgG class Anti*Toxoplasma*-Antibodies.

## Results and Discussion

The seroprevalence among women tested before pregnancy at the Fecundation Center of Athens was 24.9%. A study effectuated on 474 *in vitro* fecundation women with normal pregnancies demonstrated Antitoxoplasma – Antibodies in 17,2% of them.

The risk of contamination with *Toxoplasma gondii* during pregnancy is relatively low, due to the low incidence of toxoplasmic infection in healthy population (13.5%). However, this risk has to be taken under surveillance because of the dramatic consequences on the fetus. In pregnant women found positive for Antitoxoplasma –

Antibodies (17.2%), the presence of antibodies has different meaning according with the already known dynamic of Antitoxoplasma – Antibodies. The Antitoxoplasma – Antibodies may show a toxoplasmic infection in the patient history which means protective immunity and no risk for fetal contamination (in 14.3% women low and constant titers of IgG were detected in pair samples), or they may be the expression of an acute toxoplasmic infection, occurred during pregnancy, with the risk of fetal contamination. In 2.9% of women we found high titers (>1/160) of Antitoxoplasma – Antibodies which stands for the second interpretation. This is the reason for the different interpretation of positive serology in pregnant women and the necessity of dynamic follow-up of IgG titers.

Seroprevalences of toxoplasmic infection detected in the normal population determined by serological IgG methods by others authors is 31 – 38 %. The small differences can be explain by the geographical areas and the method used for diagnosis. So, the seroprevalence is 36,7% using the method IMX-AXSYM-ABBOTT, is 32,2% using immunofluorescences and 38,8% using the method ELISA Save Test – Triturus.

They are also differences between the different tested groups: using the method ABBOTT- MEIA for testing patients with neurological troubles is 56,9%, at women before pregnancy is 25,5%. To the pregnant women the seroprevalence is variable being 16 % - 34,5%, from different researches centers and the used method: 26,3% (AXSYM- ABBOTT method); 34,5% (ELISA – Roche method), 32% (IMX-AXSYM-ABBOTT method).

The incidences of the acute infection detected by the IgM serology in the evolution of the pregnancy is also variable (0,8%; 1,2% - 2,56%) from different researches centers and the used method 0,8%; 1,2%; 1,48%; 2,56% (IMX-AXSYM-ABBOTT method) and 1,73% using RFC method.

Evaluation of the risk of the transmission of maternal infection to the newborn is made in the present using the modern tehncis, like: PCR method, but they are not relevant results to the children of infected mothers.

On comparing the seroprevalence found in this study with older data, the overall seroprevalence in vitro fecundation women in Greece and living in Athens was found to have decreased between 1983 and 1998. The seroprevalence in different birth cohorts, longitudinally followed in the previous and the present studies, remained at the same level over 10 years despite the increasing age of the women.

## **Conclusion**

Serologic examinations of the in vitro fecundation women shows that 24,9% of them are protected, 75,1% are susceptible to an acute infection during pregnancy.

According with our results, 75,1% of healthy pregnant women are susceptible to toxoplasmic infection. The incidence of acute toxoplasmic infection during normal pregnancy is 2.9% (it may be 7.5%).

These results suggest that 1/3 of seropositive in vitro fecundation women in Greece today have seroconverted before entering the childbearing period and that the percentage of women in Greece acquiring **toxoplasmosis** during the childbearing period is low.

By introducing the method for detection of IgM antibodies as a criterion in the first half of pregnancy to exclude the possibility that **toxoplasma infection** was acquired during gestation, many women will avoid unnecessary examinations, treatment, and anxiety.