

# A 5-year study of *Toxoplasma gondii* infection in adults, children and pregnant women in North-Western Greece

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## Introduction and Purpose

**Toxoplasmosis** is an important zoonotic parasitic disease with worldwide distribution.

The course of infection is **generally benign**.

***Toxoplasma gondii* can cause significant morbidity:**

- in the developing foetus and
- in immunocompromised people.

The **purpose** of this study was to determine the **incidence of toxoplasmosis** in adults, children and pregnant women in **North-Western Greece** through the evaluation of serological and molecular examination.

## Methods

- During the last five years, serum samples from **6427 adults** (aged between 17 to 70 years) and **children** (0 to 16 years) suffering from different clinical entities and **2185 pregnant women** (20 to 40 years) during their pregnancy were tested.
- Both IgG and IgM anti-toxoplasma antibodies were determined using an immunoenzymatic method (AxSYM Toxo IgM, IgG assay, Abbott Diagnostics).
- IgM positive sera were further tested by an assay measuring the avidity of IgG specific antibodies (Vidas, Toxo IgG-avidity kit, BioMerieux).
- Additionally, PCR was performed in subjects with a low avidity IgG antibody index (index <200).

## Results

**Seroepidemiological study showed that:**

- 2507 (39%) adults and children were seropositive with significant differences in incidence between male and female group.
- Adults and female population were most affected (44.8% and 60.6% respectively).
- Performing PCR in suspected cases with low avidity result, a primary infection was identified in twenty cases (39.2%).
- Total incidence of acute toxoplasma infection was 0.31% and there was no statistically significant difference in regard of age group.

**From adult confirmed cases:**

- 40% were immunosuppressed and
- 53.3% presented with ocular or neurological complications.
- Two out of five children (40%), who were born from mothers with confirmed infection, had congenital toxoplasmosis with chorioretinitis and intracranial calcification.
- The prevalence of IgG-specific antibodies in the pregnant women was 21.74% while the incidence was estimated to be 0.13%.
- Analysis of the results are presented in **Table 1**.

## Conclusions

- ✓ **Toxoplasma infection** is an important public health problem **affecting** adults and children in North-Western Greece with women being exposed to *Toxoplasma gondii* more than men.
- ✓ Since **78.3%** of the pregnant women is at risk of developing acute infection during pregnancy, further efforts are required to provide better prevention strategies.
- ✓ **Extended studies should be performed** to establish the complete picture of *Toxoplasma* infection in **Greece**.

Table 1

	No. of cases	Sero-positive No. (%)	IgG only No. (%)	IgG + IgM No. (%)	Low-avidity result No. of suspected cases	PCR (+) result No. (%)
Adults	5013	2249 (44.86%)	2178 (96.84%)	71 (3.16%)	42	15 (0.29%)
Children	1414	258 (18.24%)	245 (94.96%)	13 (5.04%)	9	5 (0.35%)
Pregnant	2185	475 (21.74%)	419 (88.21%)	56 (11.7%)	28	3 (0.13%)