



Seroprevalence of *Toxoplasma gondii*, cytomegalovirus and rubella virus among Greek and immigrant pregnant women



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Background: The primary infections caused by *Toxoplasma gondii* (*T. gondii*), cytomegalovirus (CMV) and rubella virus represent a significant threat if diagnosed during pregnancy. Although commonly mild or asymptomatic in healthy subjects, these infections may pose an important medical risk in fetuses and newborns, since they can be responsible for serious complications. Thus, we aimed to determine the seroprevalence of *T. gondii*, CMV and rubella virus through antenatal screening among Greek and immigrant women during the first trimester of pregnancy.

Material/methods: Pregnant women receiving antenatal care in the outpatient clinic of our hospital between 2010 and 2014 were included in this study. Women were divided into two groups which comprised Greeks and immigrants. Blood samples were collected after an overnight fast. After clotting, to obtain serum needed for the measurements of antibodies, blood was centrifuged at 1200g for 10 minutes. Anti-*T. gondii*, anti-CMV and anti-rubella IgM and IgG antibodies were determined using a chemiluminescent microparticle immunoassay method (Architect i1000 SR, Abbott Diagnostics, Sligo, Ireland).

Results: The presence of specific IgM and IgG antibodies for *T. gondii*, CMV and rubella virus was tested in 1264 women, 868 Greeks and 396 immigrants. Anti-*T. gondii* IgG antibodies were found in 14% of the Greek women and 29% of the immigrants ($p < 0.05$), while 0.3% of the Greeks and 1.4% of the immigrants ($p < 0.05$) tested positive for anti-*T. gondii* IgM. Anti-CMV IgG antibodies were positive in 63% and 96% ($p < 0.001$) of Greeks and immigrants, respectively, while 1.8% and 1% ($p = NS$) tested positive for anti-CMV IgM antibodies in the same groups, respectively. Finally, anti-rubella IgG antibodies were detected in 93% of Greeks and 91% of immigrants ($p = NS$), while anti-rubella IgM antibodies were found positive in 0.7% and 0.3% ($p = NS$) of Greeks and immigrants, respectively. The IgG avidity test was performed in all cases where IgM for *T. gondii* and CMV tested positive. However, no primary infections were detected and all pregnancies were uneventful.

Conclusions: Seropositivity to *T. gondii* and CMV was higher in immigrants compared to Greek women. Interestingly, we demonstrated that there remains a part of the population, less than 10%, still susceptible to rubella infection, despite the availability of the vaccine. Understanding the epidemiology of the infections caused by these pathogens is a key element in the development of new strategies for the management and, more importantly, prevention of congenital infections. Thus, antenatal screening should be provided and pregnant women must be encouraged to perform these tests. Moreover, educational and behavioural interventions for preventing these infections must be given in pregnant women.