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Confirmation of Acute Toxoplasmosis Infection in Pregnant Women

Juan Gabriel Costa^{*}

Physicochemical Department, Faculty of Biochemistry and Biological Sciences, National University of the Litoral, Santa Fe, Argentina

*Corresponding author: Juan Gabriel Costa, Physicochemical Department, Faculty of Biochemistry and Biological Sciences, National University of the Litoral, Santa Fe, Argentina, Tel: +54342154627132; E-mail: jgc302@hotmail.com

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Editorial

Toxoplasmosis is an infection caused by Toxoplasma gondii protozoan that affects all warm-blooded animals. In the world, it is estimated that one in three people has toxoplasmosis. Although the parasite rarely produces a symptomatic infection in man, it leads to complications in immunosuppressed individuals and pregnant women [1,2].

Congenital toxoplasmosis is the second most common parasitic infection in uterus and can cause abortion or bring serious consequences for the newborn, such as brain or ocular tissue damage (e.g. hydrocephalus, mental retardation, deafness, psychomotor impairment, cataracts, strabismus, retinal necrosis and/or blindness) [1].

Typically, the infection begins with an acute phase and after a few months transits to the chronic phase. However, only in the acute phase can the parasite infect the fetus. Therefore, it is essential for women to prevent this infection during pregnancy.

There are treatments for pregnant women who are in the acute phase of toxoplasmosis that help to decrease the probability of transmission to the fetus, and prevent potential damage in case of transplacental infection. However, these therapies may be teratogenic and/or may sometimes generate intolerance to women. Therefore, it is very important to treat only patients whose acute infection has been proven. Consequently, an accurate diagnosis of this infection phase is necessary [3].

Unfortunately, the accurate diagnosis of acute infection is not a simple task. Indeed, no technique currently allows for unambiguous determination of the infection stage by itself and in only one step. There are several diagnostic schemes, applying different sets of techniques to classify the patient phase as acute or chronic. However, the reliability of these results is not always appropriate and long periods of time are frequently required to accurately diagnose the infection stage, to the detriment of the treatment.

Initially, the biochemist should find anti-T. gondii IgG antibodies in the patient. If these antibodies are present, several more tests must be carried out to determine the stage of infection. There is a situation that quickly leaves no doubt an individual is in the acute phase of toxoplasmosis: seroconversion of anti-toxoplasmosis antibodies. This means that an individual with a negative reaction in the detection of antibodies against T. gondii in a test begins to show a positive reaction in the same assay when it is repeated after some time [4].

The presence of clinical symptoms accompanied by a single serological test (anti-toxoplasmosis IgG detection) is not sufficient to confirm acute toxoplasmosis infection, since the clinical symptoms that appear in the acute phase are not specific to this infection (fever, cervical lymphadenopathy, myalgia, asthenia, among others). One exception to this is the patient with chorioretinitis, a condition whose possible causes are much more limited. If this condition is accompanied by high titers of anti-T. gondii IgG in a single assay, it could be ensured that the patient is undergoing an acute phase of infection without further serological studies.

If neither of the two cases is found, the physician should validate the diagnosis with the combined results of different diagnostic techniques. How many trials should the physician conduct to accurately diagnose acute toxoplasmosis infection? Ideally, s/he should conduct three tests that indicate acute infection, such as presence of IgM and/or IgA antibodies specific to *T. gondii*. The presence of IgG antibodies does not indicate acute infection, unless it has very high titers and/or low avidity [5,6].

There are currently many commercial kits to determine the presence of antibodies against T. gondii, both to detect the infection as well as to infer the phase. As regards the latter, these kits still do not make it possible to determine the acute phase of infection with confidence in an only one assay. However, researches in the field are ongoing [7], and if they continue to progress, it will soon be possible to determine the acute phase with certainty and safety in a single trial, and may be, together with the first test that is performed on the patient to know whether s/he has toxoplasmosis infection. In other words, an only one technique may determine if the patient is infected (or not) and also which phase of the disease s/he is experiencing.

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