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EARLY AQUEOUS HUMOR ANALYSIS IN PATIENTS WITH OCULAR TOXOPLASMOSIS: A PILOT STUDY.

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Purpose: To evaluate the diagnostic sensivity of a panel of laboratory tests for ocular toxoplasmosis performed at the time of presentation in a European population.

Methods: For the pilot study, performed in Switzerland, paired samples of aqueous humor and serum were collected from 49 consecutive patients with ocular toxoplasmosis with a clinical course of less than three weeks. Total immunoglobulin G (IgG) and Toxoplasma-gondii-specific IgG, IgM, and IgA were quantified by enzyme-linked immunosorbent assay. The avidity of T. gondii-specific IgG was determined, and DNA extracted from aqueous humor was amplified for detection of a glycoprotein B gene sequence of T. gondii.

Results: The diagnosis was confirmed in 73% (36 out of 49) of the patients. This rate rose to 79,5% if data from a later analysis of aqueous humor derived from five of the negative patients were included. The analysis of serum (detection of T. gondii-specific IgM and analysis of consecutive serum samples) alone did not contribute to the diagnosis. Calculation of local antibody production lacked diagnostic sensivity when it was determined less than three weeks after the manifestation of clinical symptoms [28 out of 49 patients (57%)], but this rose to 70% after an analysis of a second aqueous humor sample. The antibody avidity index attained diagnostic significance in only 8 out of 43 instances (19%), and T. gondii DNA was amplified from no more than 6 out of 39 aqueous humor samples (16%). T. gondii-specific IgA was found within the aqueous humor samples of 11 out of 43 patients (26%).

Conclusion: The application of combined laboratory tests increased the diagnostic sensitivity for ocular toxoplasmosis. A further increase of sensitivity was achieved by an additional examination of aqueous humor at a later time point. The analysis of serum alone does not contribute to confirmation of the diagnosis. Whereas the determination of T. gondii DNA (in immunocompetent patients!) and IgG avidity index alone attained only low diagnostic sensivity, the measurement of the T. gondii-specific IgA level contributed substantially to the diagnostic sensitivity of the laboratory tests.

Further research will be neccessary to confirm the results obtained in the pilot study and therefore, we will increase the sample size including patients from São Paulo (SP/Brazil) and Erechim [RS/Brazil (endemic region for acquired ocular toxoplasmosis)]. We intend to compare the data estimated in these populations, to investigate eventual immunogenetic differences between these populations. Moreover, the possibility of differentiation between the congenital and acquired form of ocular toxoplasmosis based on serological findings will be evaluated.