Advanced epidemiological studies on toxoplasmosis in animals and man

Hasan Ali Mohamed, Maher A. Siam, Osman M. Hamed, Mohyey El-Din Abdul Hafiez Hassanain,

Cairo University
Giza, Egypt

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Abstract

Toxoplasmosis is one of the most common parasitic zoonoses world-wide, caused by intracellular Toxoplasma gondii protozoan capable of infecting all types of nucleated mammalian host cells. The disease is of economic veterinary importance and of public health hazard in human side. In the present study, antigens were successfully prepared from RH strain tachyzoites and were used for sero-diagnosis of random samples of both humans & buffaloes by ELISA and SFDT. Where, the percent of sero-positive was [56.2&50] and [14.6&10.1] respectively. These results were compared with the commercial LAT that gave uncorrelated results and judged as unsuitable test for diagnostic purposes. New techniques were used for developing the performance of maintenance and preservation of RH strain tachyzoites. A modified method for long term acute stage in mice was used for the first time and succeeds to harboring the T. gondii protozoan up to 12 DPI. Also, it was proven that the liquid nitrogen preservation is the favorable media to save the RH strain tachyzoites viable for more than 18 months, also, DMSO media at (-70°C) save the tachyzoites viable for about one year. The sero-prevalence of naturally infected Egyptian kittens was [41.8] by using SFDT where, the shedding percent recorded was [3.6 ], and experimental infection of sero-negative kittens was done to detect the average time of both prepatent period [5-7days] & the shedding course [12days ]. The sero-positive shedder cats were re-housed at rest period for 2months before the first re-shed trial followed by 3 months before the second trial where cats re-infected with the T. gondii RH strain bradyzoites accompanied with and without corticosteroid injection corresponding to the two trials where the result obtained was [7,7] in corticosteroid non-treated group and [41,7] in corticosteroid treated one. The re-shedding investigation is absolutely the first Egyptian trial. Also, in the present study, another two new developed Egyptian experiments were successfully done for the first time. The first was in vivo induction of RH strain bradyzoites in mice brain and the isolation at 45 DPI Also, the success for re-activation this chronic stage to ensure the parasite opportunity. Where, latent infection was confirmed in 100% of corticosteroid treated mice. In the second experiment, T. gondii DNA was isolated from some Egyptian kinds of processed meat; basterma, showarma and cooked brain. Where, the total percent of isolation was [14.4]. Mice brain emulsion containing bradyzoites were used as processed meat model and exposed to different types of treatments: heating, chilling, freezing and salting. The total percentage of bradyzoites persistence with different types of treatments was recorded and heating is found to be more effective than salting as a method of treatment while freezing is more effective than chilling as a storage method of processed meat. The main conclusions: [1] cats re-shed oocysts under certain circumstances and could contaminate the surrounding environment more than one time [2] processed meat was confirmed as non-neglected source of human toxoplasmosis [3] latent toxoplasmosis is considered a potential mode of infection maximizing the host risk and must be statistically estimated compared to acquired and congenital toxoplasmosis.

Keywords
Toxoplasmosis, RH strain, ELISA, SFDT, DMSO,