BIOEPIDEMIOLOGIC RESEARCHES ON THE PRESENCE OF TOXOPLASMA GONDII IN COLONIES OF COLUMBA LIVIA IN THE CITY OF PERUGIA

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The tangible numeric increase in the urban environment of different species in the animal population is reason for worry to the organisms responsable for the protection of the environment and health care. A particular aspect of the problem is represented by the settling in conurbation of Columba livia (rock-pigeons) synanthropic species which, in colonies sometimes of hundreds, fills nowdays permanently historic centres and outskirts towns finding in them favourable conditions for their development and survival. In this study we refer to the results obtained from a bio-epidemiologic research aimed to control the eventual presence and diffusion of T.gondii in the pigeon colonies present in the city of Perugia. This research is a part of the working programme sponsored by the Perugia Municipal Administration aimed to acquire data about the real numerical value of the colonies of pigeons living in urban areas and also their role as a reservoir of pathogenetic micro-organisms potentially trasmittable to man.

The research was done on 280 animals divided in two groups belonging to different urban areas; the animals of the first group (n.119) belong to a colony settled in the historic centre usually fed by volonteers in areas where stray and semi-stray cats live. The animals of the second group (n.161) which come from the outskirts towns have completely different feeding habits as there is not a specific source of food so they are used to feed themselves in the open countryside where cats are not usually found. We have used serologic methods (I.F.I.) to demonstrate the presence of anti-toxoplasma antibodies in the blood serum of the captured subjects and the biological isolation of the parasite injecting via i.p. suspensions of trypsinized muscle tissue to mice, cortisonized Toxoplasma free. At the same time from two different areas in the historic centre, one of which was a playground and the other was a suburb, we have taken specimens of the soil at various depths (2-7cm) to reveal presence, if any, of oocysts of T.gondii. The results obtained have revealed a positive serum result at various levels from 1/20 to 1/2560 in n.24/119 of the pigeons of the first group (20%) and positive serum result at various levels from 1/20 to 1/160 in n.6/161 of the animals in the second group (3.7%). T.gondii was isolated only in the first group of pigeons amongst those animals who were serum positive (6/24=25%) with antibody levels $\geq$ 1/1280. In serum positive animals which had values less than 1/1280 it was not ever possible to isolate the parasite. This also occurred in all the serum negative animals, except for one subject which was negative as regards the I.F.I. but from which it was later possible to isolate biologically T.gondii in mice inoculated with a suspension of trypsinized muscle tissue. The search for the oocysts, done on n.10 samples of the soil, resulted positive only in one case. The sample came from an area near to the playground where a substantial colony of pigeons usually live and where cats were often found to prey such animals. The oocysts, vital and infectious, inoculated into mice, have reproduced in the latter, the typical terminal cysts of the parasite.