IMPACT OF TOXOPLASMA GONDII STRAIN DIFFERENCES ON SEROLOGICAL DIAGNOSIS AND DISEASE IN AIDS PATIENTS WITH CEREBRAL TOXOPLASMOSIS AND IN OTHER GROUPS OF PATIENTS

Key words

Toxoplasma gondii, toxoplasmosis, strain. strain differences, serology, diagnosis, standardization, AIDS.

Objectives

1 To standardize diagnostical tests by defining and characterizing reference T. gondii strains for use in defined test systems.

2 To establish a classification system of T. gondii isolates and to identify antigens that are important for diagnosis and that might be specific for humanpathogenic T. gondii strains.

3 To analyze sporozoites. which might be the source for strain differences. Sporozoite antigens might be identified that will be useful as potential vaccine candidates for use in cats.

4 To determine the regional prevalence of toxoplasmic encephalitis in AIDS patients throughout Europe.

Brief description

The overall aim of this project is to achieve a deeper knowledge about epidemiology, diagnosis, treatment and prevention of toxoplasmosis especially in immunocompromised patients. An infection with T. gondii generally presents mild or asymptomatic diseases in healthy adults leading to the development of persisting cysts predominantly located in the brain of infected individuals. In immunocompromised patients. reactivation of cysts may result in cerebral toxoplasmosis, a disease that often has fatal outcome in AIDS patients. In addition to reactivated toxoplasmosis. an acute infection acquired in utero can cause serious or fatal illness in the infant. Diagnosis of T. gondii infection has mainly to rely on serological methods, which often are insufficient in diagnosing congenital infection or cerebral toxoplasmosis in AIDS patients. Since serological methods for detection of T. gondii-specific antibodies are not standardized throughout Europe, contrary results may occur. In addition, T. gondii strain-dependent human antibody response may also explain differences of test results. So far, no serological typing of T. gondii isolates is available. although it was demonstrated by several investigators that strain differences do exist. International scientific investigations on toxoplasmosis generally analyze the mouse-virulent laboratory reference strain RH, although it is known that most recent clinical isolates are non-mouse lethal. The RH strain is the one that is used in most serological tests as the antigenic source. Since it is not clear, whether all "RH-strains" are identical, this Concerted Action is planning to characterize reference T. gondii strains that were obtained from different diagnostical laboratories. Reference strains should be compared with clinical isolates in regards of differences in genotype and phenotype to establish a classification system upon which epidemiological studies could be possible. Representative isolates should be tested in diagnostical laboratories throughout Europe to determine parasitic factors/antigens that might be critical for standardized diagnosis. To perform such studies, this Concerted Action will cooperate with the Concerted Action "congenital Toxoplasmosis". Two identical European strain collections of T. gondii will be estab-

lished, that are available to the scientific community for further studies. Since sporozoites might be the source for strain differences, sporozoite antigens might be identified that could be useful as potential vaccine candidates for use in cats. Finally, in order to analyze the epidemiology of toxoplasmosis, the regional prevalence of reactivated toxoplasmosis (encephalitis/disseminated toxoplasmosis) shall be determined throughout Europe.

The meetings of all participants are organized every 6-10 months and are held in connection with international workshops *Toxoplasma gondii Research in Europe.* Past workshops have taken place in Wurzburg (Germany) and Oxford (United Kingdom). The next workshop will take place in Vienna in April or May 1994. Further information is available from the project leader.

Project leader:

Dr. U. GROSS
Institute of Hygiene and Microbiology.
University of Wurzburg
Josef-Schneider Strasse 2
DE 97080 Wurzburg
Phone: +49 931 201 39 01
Fax: +49 931 201 34 45
Contract number: CT921535

Participants:

Dr. Andreas HASSL
Clin. Inst. for Hygiene,
Univ of Vienna
Kinderspitalgasse 15
AT 1095 Vienna
Phone: + 43 1 40490238
Fax: +43 I 40490242

Dr. Jean F. DUBREMETZ
INSERM U42
369 Rue Jules Guesde
59651 Villeneuve d'lAscq Cedex
Phone: + 33 20911462
Fax: +33 20059172

Dr. J.P. FERGUSON
Nuffield Dept. of Pathology and Bacteriology,
Univ of Oxford
UK Oxford OX3 9DU
Phone: +44 865 220524

Dr. J.P. OVERDULVE
Dept. Parasitology and Trop Vet. Med,
State Univ of Utrecht
Yalelaan I
NL 3508 TD Utrecht
Phone: + 31 30 532559
Fax: + 31 30 540784

Dr. Moni F. CESBRON-DELAUW
Centre d'Inuuunologie et de
Biologie Parasitaire,
Unite Mixte INSERM U167-CNRS 624,
Inst. Pasteur
1 Rue du Pro£. A. Calmerte
FR 59019 Lille Cedex
Phone: + 33 20877965
+ 33 20877888

Dr. M. ROMMEL
Dept. of Vet Med, Inst. for Parasitology.
Univ of Hannover
Bunteweg 17
DE 3000 Hannover 71
Phone: +-49 511 9538793
Fax: + 49 511 9538870