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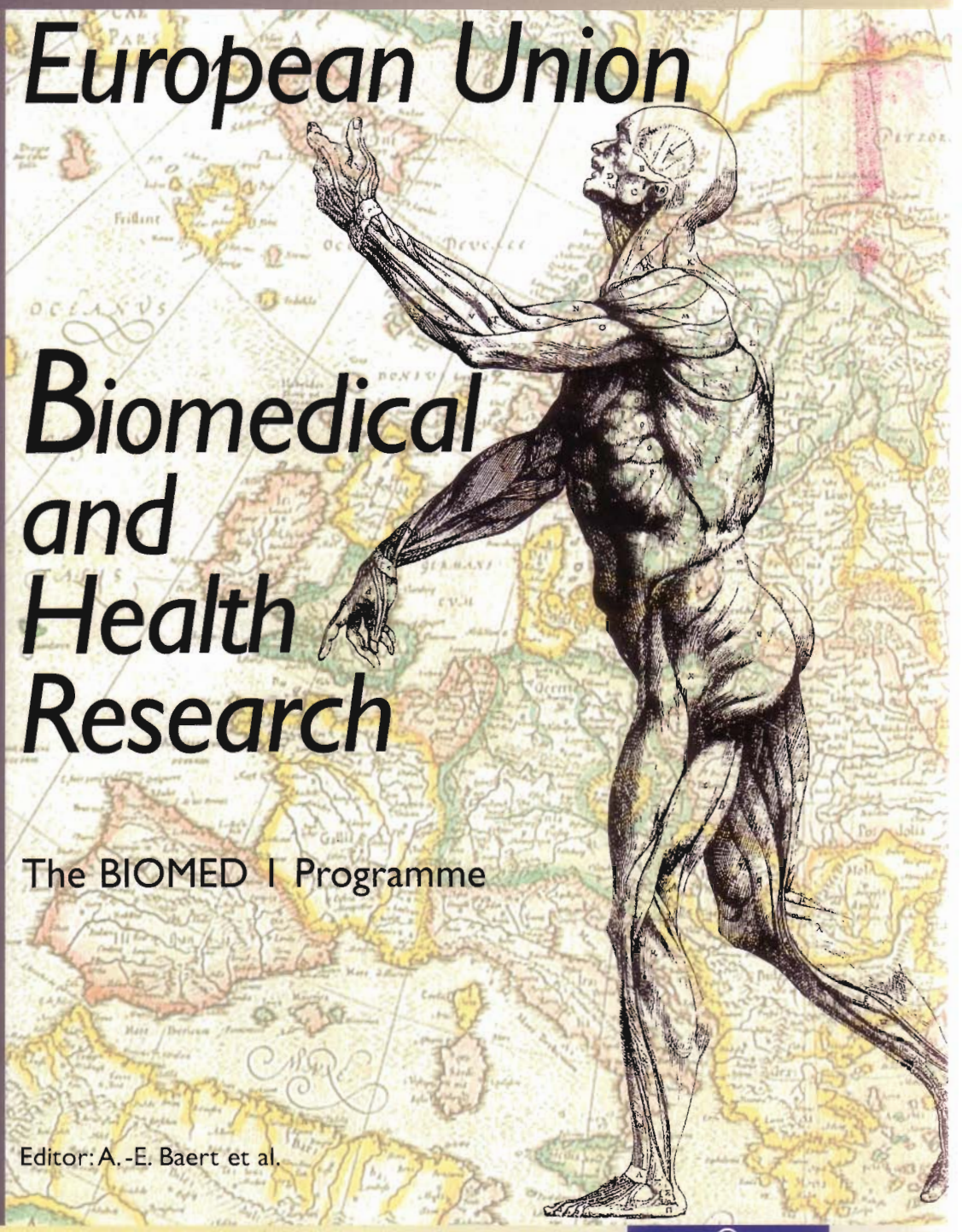

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IMPACT OF TOXOPLASMA GONDII STRAIN DIFFERENCES ON SEROLOGICAL DIAGNOSIS AND DISEASE IN AIDS PATIENTS WITH CEREBRAL TOXOPLASMOSIS AND IN OTHER GROUPS OF PATIENTS

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.

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EUROPEAN STUDY GROUP ON CONGENITAL TOXOPLASMOSIS

Key words
Toxoplasma, toxoplasmosis, pregnancy, screening, infection, blindness, congenital infections.

Objectives
1 Develop and evaluate new technologies for diagnosis of toxoplasma in pregnancy.
2 Standardisation and quality control of current and emerging diagnostic tests for toxoplasmosis.
3 Establish a clinical and biological case definition and stage classification of congenital toxoplasmosis.
4 Establish a register of children with congenital toxoplasmosis diagnosed after common guidelines.
5 Evaluate current treatment strategies and propose treatment schedules to be evaluated in a European multi-centre study.
6 Develop common guidelines for appropriate advice to pregnant women on how to avoid infection (health promotion).
7 Investigate transmission of Toxoplasma infection to human populations, and between mother and child.

Brief description
Infections with *Toxoplasma gondii* are found all over the European Community. In the EC, 3,5 million children were born in 1989. Of these, it is estimated that 7,700 mothers were infected with toxoplasmosis during pregnancy, and 3,100 children were infected before birth (assuming 40% transmission rate). Two hundred and fifteen children will have severe damage like hydrocephalus and mental retardation, and the remaining will have a high risk of presenting retinochoroiditis within the first 20 years of life.

Objective 1: The network will identify promising novel diagnostic techniques and reference laboratories that wish to evaluate these tests (see below).

Objective 2: Appropriate control and reference specimens, which will compromise serum samples, amniotic fluid and foetal blood samples, will be produced and exchanged between the laboratories.

Objective 3: The concerted action will assemble and combine current knowledge of the clinical, serological and microbiological manifestations of congenital toxoplasmosis.

Objective 4: Pregnant mothers with suspected acute toxoplasmosis and children with suspected congenital toxoplasmosis will be offered registration in a European register of congenital toxoplasmosis. The register will be kept at Division of Prenatal Medicine and Obstetrics, A.Z. V.U.B., Brussels (Belgium) which will be responsible for data analysis and follow up. The establishment of a central register will have to be approved by national ethical committees.

Objective 5: The concerted action will establish a working group to consider the feasibility of conducting a European multicentre trial of treatment of congenital toxoplasmosis.

Objective 6: Informal, qualitative interviews will be conducted with small groups of pregnant women.

Objective 7: The working group will initiate research to identify risk factors associated with exposure to Toxoplasma infection in different countries. Such information can be used to develop better targeted health education programmes.

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