

IMMUNOLOGY AND HANSEN'S DISEASE

EDITORIAL

At the present time the control of Hansen's disease rests upon medical measures whose goal is to diminish or abolish the infectiousness of "multi-bacillary" patients and to prevent disabilities, both in multibacillary and tuberculoid cases through "early diagnosis and treatment" i.e., in sanitary administration terminology, "Secondary Prevention".

The experience from several control programs, in recent years, points out that the efficacy of "case finding" and "case holding" methods is hampered by many social, medical, legal, operational and financial constraints or obstacles, the most important of which is doubtlessly, the stigma associated with the disease, a subject that "Hansenologia Internationalis" has repeatedly emphasized.

Another obstacle affecting the control policies — treatment (Dapsone, Rifampicin, Clofazimine) to eliminate the "sources of infection" — is represented by the long term schedules, the difficulties to secure the regularity and diligence of the patients and the problem of resistance to dapsone and other drugs.

The research on Hansen's disease immunology that will lead to better control methods — primary prevention by a vaccine and immunotherapy — is being encouraged in many centers due to the availability of bacillary material from armadillos artificially infected and the support of the World Health Organization, IMMLEP, whose goals are:

- a) To obtain a vaccine against Hansen's disease.
- b) To develop specific immunological methods for the detection of the immune response.
- c) To improve the understanding of the immunopathologic mechanisms involved in Hansen's disease.

A short appraisal of the current knowledge of the immunopathology of Hansen's disease and of the attempts to obtain a vaccine or immunotherapeutic products would be :

— The "polarity concept" and its influence on the classification of the clinical forms of Hansen's disease, is universally accepted.

— The defense against Hansen's infection is done, mainly by a "cell-mediated immune reaction": — bacterial antigens sensitize lymphocytes (thymus dependent) and, in consequence, there is liberation of soluble lymphokines and macrophagic activation rendering these cells able to phagocytize and digest the bacilli.

— However in the polar Virchowian form of Hansen's disease, the cell-mediated immunity is suppressed and the bacilli multiply freely inside the macrophage. It is supposed that there is an immunitary imbalance that favors the stimulation of "suppressor".

— Also, the B-lymphocyte seems to be stimulated by Hansen's bacillus antigens : — in the Virchowian form, or in the borderline one near this pole,

there is a large amount of circulating antibodies and immune complexes, resulting, in extreme cases, in reaction or "autoaggressive Hansen's disease".

— The pathogenic mechanism of the Hansen's disease neuritis is a matter of great concern: there is some evidence that nonbacterial antigens — myelin sheath basic protein in non-Virchowian cases or material from perivascular basal membrane, probably reticulin, in Virchowian patients, would be responsible for the observed lesions.

— Hansen's bacillus, like other mycobacteria, has several antigenic components — from 7 to 20 — of which some specific determinants were identified (component 7) and used in serological reactions to detect subclinical infections. Purified Protein Fractions serve the same purpose when used in intradermic tests for "delayed hypersensitivity". The importance of these biological products for a better understanding of the epi-

demiology of Hansen's disease must be emphasized.

— Concerning therapeutic trials, several biological products have been used whose goals are to modify the immunitary state of the Hansen's disease patients: the injection of leucocytes from Mitsuda-positive donors or of the "transfer factor" and, lately, with promising results, the "immunological stimulation" done with the intradermic administration of a mixed suspension of the heat killed Hansen's bacilli and live B.C.G.

— The same product (suspension of Hansen's bacilli and B.C.G.) is being tried as a preventive vaccine in Hansen's disease contacts.

— This summary is intended to emphasize the important advances in the field of research in the immunology of Hansen's disease and to augur a sustained support from national, international and private agencies to the institutions and researchers devoted to the solutions of these problems.

R. D. AZULAY