

symptoms in any particular patient under treatment with mepacrine. It is significant, however, that both of the cases were of 'highly strung and nervous nature'.

3. Intense sexual excitement was a marked feature in both the cases, cause of which needs further investigation.

4. The part played by Crude Liver Extract or Vitamin B Complex or both is difficult to assess. A bigger series of such patients must be investigated before a definite opinion can be

given. (Case 'A' was treated without and case 'B' treated with Liver Extract and Vitamin B Complex, but the rate of recovery was practically the same and the ultimate outcome was also similar.)

5. Both the patients recollected to a fair extent their unusual behaviours during their illness. This is in contrast to what some other workers have reported with regard to mental psychoses following mepacrine administration for the treatment of malaria.

## Occasional Notes

### THE VENEREAL DISEASE PROGRAMME OF THE WORLD HEALTH ORGANIZATION

#### THE SIMLA TRAINING CENTRE AND DEMONSTRATION AREA

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As an introduction to the discussion of the venereal disease activities of WHO, it may be relevant to review briefly the aims, activities and accomplishments of the organization. The aims of the organization may be best summarized by a quotation from the constitution as 'the attainment by all peoples of the highest possible level of health'. The WHO was set up as one of the specialized agencies of the United Nations a little more than two years ago. From the beginning it was apparent that the health problems of the world, particularly in the under privileged and war devastated areas where funds, equipment and personnel are limited, are myriad.

The organization set out to carry out a programme in several fields. The demonstration and consultation services to governments provide for medical assistance in four major fields: Venereal Disease, Malaria, Tuberculosis, and Maternal and Child Health. The first three were chosen as being among the more widespread and serious of diseases which extract a fearful toll of life in addition to disabling men and removing them from productive work over long periods of time. Yet advances during the recent years have provided the medical profession for the first time in history with methods which make it possible to think in terms of control of these diseases on a large scale at a relatively small per capita cost. It was felt that aiding governments in their work in the

four fields mentioned, by means of demonstration teams, would be a most effective way to take advantage of existing knowledge.

Besides the actual medical assistance, the organization undertook to carry on some of the programmes of the League of Nations in epidemiologic reporting, standardization of medicinal products, etc., and to inaugurate a programme of collection of vital statistics.

As an adjunct to the activities already discussed, an intensive programme of educational activity was begun which comprised both granting of fellowships and publication of material of both general and specific public health importance. There have already been very concrete demonstrations of the value of international co-operation in health work. 'In the cholera epidemic in Egypt WHO's assistance to the Egyptian public health authorities . . . perhaps demonstrated most graphically how nations can co-operate against a common disease danger' (Calderone, 1948). Malaria control work has already shown results in Greece, the WHO Field Service through its activities has reduced the malaria incidence from 85 per cent to 5 per cent in the area where it operated. In many countries, including India, teams furnished by the Scandinavian Red Cross Societies under the ægis of UNICEF and WHO have been carrying out an extensive programme of B.C.G. vaccination for the control of tuberculosis. This simple measure had been proven to reduce the incidence of new cases of tuberculosis by about 80 per cent. The governments of Poland, UNICEF, and WHO carried out with penicillin the first nation-wide mass attack on syphilis in history with striking results. The experience has provided information as to effective means of combating similar situations in other countries. In about 10 months, 43,000 cases of syphilis and 27,000 of gonorrhœa were found and treated with penicillin as a result of mass testing.

The experience with penicillin therapy, in more than 500,000 patients treated for syphilis in U.S.A. alone, has shown that penicillin therapy is an effective tool for the public health control of syphilis. The patient is rapidly rendered non-infectious, and the short time required for treatment, coupled with an almost complete lack of serious toxicity, makes possible within a short time the completion of treatment in a high percentage of patients, with this highly effective therapeutic agent. The WHO is setting up field demonstration units to acquaint physicians throughout the world with the use of penicillin in the treatment of syphilis and to teach newer methods of diagnosis and treatment in the other venereal infections. The demonstration team assigned to Himachal Pradesh with headquarters in Simla is the first such WHO unit in the field.

The hill tracts of this area are said to have the highest rate of venereal infection of all India. There are several customs, namely *rheet* and *polyandry*, which contribute to the venereal disease problem. Polyandry has been practised for a long time in an effort to avoid splitting of the land, through inheritance, into holdings which would be too small for profitable farming or to support a family. In the custom of *rheet*, if the woman desires to leave one husband for another, the one who takes her must pay an agreed sum of money to the first husband. The woman can make the change at will if the price is paid and cases of five or more changes are not infrequently seen. It is stated that both practices are on the decline, but the significance in the spread of venereal infection is evident. A further complicating factor in this area is the belief that self-cure can be obtained by passing the venereal infection on to another sexual partner.

The first step in a serious approach to attacking the problem in the area has been to make surveys of representative samples of population to determine the actual rate of prevalence of the various infections. In carrying out such surveys, it is necessary to depend upon the various serologic tests for syphilis such as the Kahn flocculation, Wassermann complement fixation, and others. It has recently been called to attention by Mahoney, Arnold and Levitan that in areas of Central America the standard serologic tests for syphilis give a high incidence of false positive reactions. This finding cannot be explained alone by malaria or other common causes of false positive reactions. It is anticipated that similar findings will be encountered in other parts of the world, including India where conditions are similar. In 1941, Pangborn of the New York State Laboratories isolated cardiolipin, the active principle of the heart extracts that have been used in constructing antigens for serologic tests for syphilis (Pangborn, 1941). Extensive studies

since that time, both in the United States, Europe and in Central America, have shown that the use of cardiolipin as an antigen in the serologic test for syphilis will reduce the proportion of false positive tests. At the same time some of the new techniques developed such as the VDRL slide test with cardiolipin (Harris *et al.*, 1946; Harris *et al.*, 1948; Stitt *et al.*, 1948) have been designed so as to minimize the equipment needed for performance, while the antigen and reagents needed can be furnished in a form which is stable even in the hot climates, and the reagents are easily prepared for use. The simplicity of some of the newer tests and the relatively small amount of equipment needed are of the highest importance when it is desired to furnish facilities for laboratory diagnosis of syphilis to hospitals and clinics whose personnel and finances are limited. As rapidly as possible the WHO demonstration teams will complete the comparative studies of the newer simpler tests and the standard tests (Wassermann, Kahn, etc.). The importance of the availability of simple, easily performed, inexpensive test methods, which will give a minimum of false positive reactions in areas where malaria and other diseases confuse the serodiagnosis of syphilis, is self-evident.

As the basis for therapy the team will use penicillin to demonstrate the ease and effectiveness with which syphilis can be treated. The newest development is the procaine salt of penicillin G in oil with 2 per cent aluminum monostearate. With one injection of 300,000 units of this preparation a therapeutically significant blood level of penicillin, 0.03 unit per cc., can be demonstrated in the great majority of patients for 96 to 144 hours (Arnold *et al.*, 1949; Boger and Flippin, 1949). The first studies on treatment of early syphilis with a single injection of 300,000 units of this preparation indicate a satisfactory clinical response. The public health implications of this development are highly significant. In considering mass therapy of syphilis two objectives are desirable: (a) the first is to find and to treat in any group the largest number possible of open, contagious syphilis so as to reduce the infectious reservoir and (b) the second objective is to treat syphilis in the early stage so as to prevent the development of the latter and crippling complications. Thus it is evident that with a therapy which is inexpensive, easily administered, and which requires no hospitalizations, it is possible to think in terms of ambulatory mass treatment at a low cost.

The rate of success in treatment can be reliably predicted on the basis of the time-dosage schedule of penicillin used. When a physician in private practice treats a patient he is interested in using the best treatment regardless of the cost so as to assure a favourable outcome for the individual. However, the worker

in the field of public health thinks in terms of giving the maximum of benefit to the largest number of people possible at the minimum of cost. In terms of treatment of syphilis this means that treatment must be planned so that the largest possible number of patients may be cured by the use of a given amount of penicillin. This concept is illustrated by the following example: Assume that 1,000 cc. of procaine penicillin with 2 per cent aluminum monostearate is available to a V.D. centre. The number of cured patients which can be obtained with this amount of drug used according to various schedules is shown below:

Schedule	Number treated	Per cent relapse	Number re-treated	Number cured
300,000 units—1 cc. . . . .	1,000	15-20	150-200	750-800
900,000 units—3 cc. in doses of 300,000 units each . .	333	5-10	16-33	300-317
1,500,000 units—5 cc. in 5 doses of 1 cc. 300,000 units each	200	2-5	4-10	190-196

The advantage of using the smaller dose schedule so as to secure the largest number possible of cured, non-infectious patients with a given amount of drug is self-evident. Those patients relapsing can be re-treated as needed by larger doses of penicillin and cured for, to date, small doses of penicillin have not been demonstrated to cause the development of penicillin-resistant strains.

As part of the treatment demonstration programme, treatment of pregnant women with the same penicillin will be carried on. By this time a significant series of syphilitic women has been treated in various centres prior to or during pregnancy, providing the effectiveness of treatment with penicillin alone by the birth of non-syphilitic infants, some of whom have already been followed up to three years of age (Cole *et al.*, 1949; Aron *et al.*, 1947; Goodwin and Moore, 1946).

Besides demonstration of treatment method and study of relative performance of tests for syphilis, the WHO team will work with the other venereal diseases. Specific treatment is now available—the sulfonamides provide specific therapy for chancroid and lymphogranuloma venereum; streptomycin has been found to offer a satisfactory cure for granuloma inguinale; penicillin has proven completely curative for gonorrhoeal urethritis and to date no true penicillin-resistant strain of gonococcus has been

observed *in vivo*. It is evident that the means are available to control venereal diseases by treatment. What is now needed is adequate public health facilities to utilize the known therapeutic tools along with other V.D. control elements.

The WHO and the Government of India have set up the centre in Himachal Pradesh to demonstrate what can be done by utilizing the newer techniques available. The WHO team will train physicians, serologists, nurses and laboratory technicians in the newer methods used elsewhere, and it is expected that as the centre grows and is taken over by the venereal disease

division of the Ministry of Health, it may become an important teaching, standardization and research centre for venereal disease for the Government of India.

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