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EDITORIALS

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Leprosy Control in Shanghai, China¹

Between May 27 and June 25, 1978, I visited the People's Republic of China with a group of doctors of the American Center of Chinese Medicine. While we were in Peking, I asked the Chinese Medical Association if I might arrange to visit leprosy hospitals. They said that there is very little leprosy in that area, but suggested that I check with the officials in Shanghai. When we arrived in Shanghai, I tried to make arrangements but without success. Two days before we left Shanghai, there was a seminar sponsored by the Medical Association of Shanghai with approximately 200 doctors attending the meeting. After I presented a motion picture film on macrophages, two doctors from the leprosy hospital of Shanghai approached me and asked many questions about this work. When I asked to be allowed to visit their hospital they said, "It is impossible." However, at 1 p.m. on the day we were leaving for Hang Chow, a car appeared at the hotel to transport me to the leprosy hospital. I was told that special permission from the health department of the city government had just been obtained on my behalf. Not only was I sur-

prised to find out that the leprosy hospital was not yet open for visitors, but my visit also surprised the hospital staff. The chief medical director, Dr. Chia-Keng Li, was abruptly called back that morning from his field inspection trip through the counties, and Dr. Pao-Hung Chi, who was scheduled to go to Peking for an important meeting that day, had to postpone his trip in order to meet me at the hospital. Dr. Chi was one of the two doctors whom I had met at the seminar held two days previously.

After a 15 minute drive we arrived at the hospital, which consisted of a group of low houses located in the middle of a large agricultural field. The meeting was held in a room with 17 medical staff members, and we talked for about three hours. I spent most of the time answering their questions, and although they offered to let me see the patients I did not have the time.

Shanghai consists of ten counties with a total population of 10,000,000 with 190 communes. The hospital was established in the 1930's by missionaries. In the beginning there were 100 beds and 10 medical staff members, but now it has 690 beds and a large outpatient clinic. There are 280 patients in the hospital at the present time. Apart from the hospital, there are leprosy villages and leprosy stations with a total number of patients of 3,800 and medical staff of 175.

¹This report was presented at the meeting of the American Center for Chinese Medicine, held at the Yen-ching Palace Restaurant, Alexandria, Virginia on September 30, 1978.

The chief function of the hospital is for the treatment of patients with lepra reactions and orthopedic problems, and for clinical studies of various projects. The leprosy villages are not true villages because they do not include family members. They are small hospitals with a capacity of 20 to 100 beds. A "village" belongs to a commune, but it is administered by the patients themselves. Its chief function is for isolation of infectious cases. Patients are discharged after satisfactory treatment.

Leprosy stations are for survey, prevention, and treatment of outpatients, with the "barefoot" doctors performing these functions. Since 1949, a general survey was done once in the municipal area and two to three times in the suburban areas. In addition, sampling surveys of certain populations were done five to six times in suburban areas. Prophylaxis is performed by intramuscular injections of DADDs (diacetyldiaminodiphenyl sulfone) every 75 days to the relatives of leprosy cases. This method proves to be very effective, for the number of new cases was reduced by an average of 86% between 1971 and 1975. The incidence rate is less than 1.5 per 100,000 at the present time. Treatment of outpatients is done in the leprosy villages and stations, and if patients fail to keep an appointment they are first notified. If that does not produce results then someone visits them. If nothing else works treatment is forced on the patients.

Chemotherapy. The dosage of DDS (diaminodiphenyl sulfone) is never less than 100 mg per day. DDS-resistant cases are rarely observed, whereas in other countries many DDS-resistant cases have been observed from patients receiving inadequate DDS doses. B663 (clofazimine) is effective both for treatment and the lepra reaction. Unfortunately, the drug is not readily accepted by patients because of the red skin coloration it causes. Rifomycin, rifampicin, and prothionamide are also used. Rifomycin reduces the Morphological Index but not the Bacterial Index after a short course of treatment. Single drug treatment is the general rule; however, the Chinese recommend the combined drug treatment also.

Thalidomide, B663, and cortisone are used for treatment of lepra reactions. Since B663 is not well accepted by patients, a new herb drug has been developed at the hospital. This

drug is called "Lei-Kung-T'eng" and it is as effective as thalidomide and is acceptable to the patients.

Research work. I was surprised to find out that many of their studies followed my research directions. They performed many chemotherapeutic studies on murine leprosy, on the mouse foot pads infected with human leprosy bacilli, and on the growth of mouse leprosy bacilli in cultures of macrophages. They screened about 300 herb drugs in murine leprosy, but none of them were effective. They also studied a new derivative of B663 which is effective both in experimental and clinical leprosy.

The history of B663 is of interest. The drug was synthesized by Dr. Vincent Barry of Ireland, who found it very effective in experimental tuberculosis but not in humans with tuberculosis. I found B663 was the most potent drug in murine leprosy. Clinical trials in Nigeria revealed good effects in the treatment of leprosy, but it was claimed that drug resistance developed in one year. We tried this drug at the National Institutes of Health in the 1960's and found no drug resistance after continued treatment for a period of five years. The drug has been used throughout the world for the past 18 years, and there has not been a single B663-resistant case observed.

The doctors of the Shanghai hospital did some work on transfer factors, but their results were not as good as those reported by others. They also made efforts to develop new hospital techniques in orthopedic and plastic surgery, but their greatest difficulty has been in their experiments with the tissue culture of macrophages. This was the area of investigation we spent most of our time talking about during my three hour visit. All the aforementioned studies were done before the incidence of Red Guards in 1966.

The new leprosy control system in Shanghai is very interesting in that there are leprosy villages and leprosy stations in the communes. Each commune has a population of about 50,000, and the "barefoot" doctors are familiar with all these people. The doctors are trained to recognize symptoms and signs of leprosy, and they can perform biopsies and stain bacterial slides. There are enough beds for isolation whenever an infectious case is located. The doctors can do the preventive injections, and they have the power to en-

force treatment. A great advantage is that the doctors can follow cases for years in an essentially stationary population. All drugs in use are made in China. The new herb drug is used to alleviate leprosy reactions so that the full dose of drugs can be given without interruption of treatment. Patients live and work in the communes with normal people without many social repercussions. The incidence of new cases, the number of hospital-

ized patients, and the total number of leprosy cases are decreasing. This system appears to be an effective model for leprosy control, at least in Shanghai.

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