The subject that has been allocated to me is "anti-tubercular chemotherapy and systemic treatment of primary tuberculosis." The first portion is mostly a subject of pharmacology and as regards the second portion of the subject, I am really afraid to deal with it. In our country where the infectivity is so high (about twenty-six to thirty per cent tuberculin positive cases, even up to the age group of 14 years) it will be very difficult to get the case as soon as it is infected. It is all right for western countries like Denmark, Sweden and America, where there is a very low degree of infectivity, where they can even think of removing the tubercle bacilli from the body by chemo-prophylaxis, but in under-developed countries where the infection rate is very high, it is worth-while treating all the positive reactors. Of the various antitubercular drugs that have been used for this one is I.N.H. Prof. Zorini in Italy, has claimed good results with chemo-prophylaxis.

In the meeting in Denmark in September 1957, it was decided by the experts from various countries that before chemo-prophylaxis could be taken up as a mass campaign, further pilot studies should be undertaken.

Every one who harbours tubercle bacilli in his person does not suffer from tuberculosis. If that would have been so, then about eighty-six per cent of the positive reactors of the age group of thirty to thirty-five years would have suffered from this deadly disease. But it is not so. The resistance of the individual also plays an important role in the causation of the disease.

It can be seen that in those countries where the infectivity is high, instead of going in for chemo-prophylaxis and its pros and cons, BCG vaccination only will be the solution.

The various drugs that are in use are mainly three—streptomycin, P.A.S. and I.N.H. Besides, there are some other drugs like cycloserine and pyrizinamide which have been reported by the American workers as effective; but they have not been tried in India, and we have no experience of these new drugs, except that in our country, they are used only in resistant cases, where all other drugs have practically failed. All the antitubercular drugs mentioned above are bacteriostatic, except INH, which has bactericidal action also. Streptomycin and PAS inhibit the further growth, whereas, INH has killing effect on tubercle bacilli. Streptomycin is only a suppressive drug and even when given prior to the infecting dose of the organism, is unable to prevent the disease. The tubercle bacilli are disseminated from the local site of the inoculation and the infection progresses until necrosis and hypersensitivity, indicative of acquired resistance, appear.
Thereafter, the course becomes regressive. Thus resistance of the host is a necessary concomitant of suppressive streptomycin therapy. Besides this, there is another possible danger, i.e. the development of resistant strains. There are two available procedures to reduce the rate of emergence of resistant strains of *Mycobacterium tuberculosis*: (1) The change in the therapeutic regimen in which streptomycin is administered every third day instead of daily appears to be as effective as a more intensive schedule in the treatment of certain types of tuberculosis. (2) The combination therapy—this procedure definitely retards the emergence of resistant strains.

**CHANGING CONCEPTS OF CHEMOTHERAPY**

In no other field is chemotherapy undergoing more rapid changes than in tuberculosis. A few years ago, streptomycin was the only effective drug; it was considered as the one-bullet weapon. Because of the rapid development of resistance, chemotherapy was held in reserve, if the disease could be adequately controlled by other measures. Streptomycin was used only in acute stages or to prevent complications of surgical intervention. The philosophy of therapy was expressed in the aphorism—'it is folly to use one single bullet to shoot at a jackal when a tiger is in the offing.'

At present, practically all the therapeutic regimens are started with chemotherapy and continued until no more benefit can be offered by the drugs. A majority of the cases heal by chemotherapy; only a small percentage of the cases requires surgical intervention. Now, the treatment has become so much standardised that it does not require any tuberculosis expert.

This is, in short, about the drugs that are in use.

Besides, the use of cortisone has also been advocated in acute forms of tuberculosis like meningitis, tubercular pneumonia, pleurisy, pericarditis and miliary tuberculosis. In cases of meningitis, intrathecal cortisone is also being administered.

While discussing the systemic treatment of primary tuberculosis, three points must be stressed: (1) Importance of an early diagnosis—if an early diagnosis is followed by treatment, the tubercule bacilli can be killed early. A late diagnosis of acute tuberculosis, either miliary or meningeal, entails disastrous consequences. (2) It should not be forgotten that the onset of subacute and chronic tuberculosis is usually fairly sudden and obvious, and treatment should be started at this time. (3) Third and the last in our opinion, we must emphasize the necessity of an early detection of the patients with symptom-free onset, only diagnosed by a positive Mantoux test.

We know that the action of these drugs are very strong on recent and early developing lesions. The drugs inhibit the further growth of the bacillus, eventually killing them and altering the character of the remaining organisms (drug sensitivity pathogenicity). These organisms still alive in the lesions, probably result in the persistence of allergy and the development of the real immunity.