Does Pulmonary Tuberculosis Continue to be a Chronic Problem?*

LEO TEPPER, M.D.

Los Angeles, California

There appears to be a growing belief—and not within lay minds only—that tuberculosis is no longer a problem to be concerned with on the community level and also that the diagnosis of active tuberculosis for the individual patient no longer carries the implications of long term disability and economic dependency as in the past. Do the available facts warrant such an optimistic view? In regard to the present magnitude of the tuberculosis problem, there has been much publicity given to the marked drop in the mortality rate in this country from the 1900 figures of approximately 200 per 100,000 population to approximately 12 per 100,000 at present. It is this evidence, primarily, which has led to the conclusion that tuberculosis has gone the way of typhoid, diphtheria and smallpox. However, as Edwards and Drolet have pointed out, "the death rate from tuberculosis is a limited and inadequate index of the problems of disease in the community." Morbidity statistics indicate that the number of new cases reported yearly has fallen little and that with patients being kept alive, who formerly would have died, the total number of accumulated cases in need of supervision is greater now than in previous years. It is the living patients who make up the tuberculosis problem, both as to their treatment needs and the threat they present to perpetuation of the disease. Hinshaw put it very succinctly in a recent talk, that "dead men tell no tales and also do not spread bacilli." Most recent figures indicate that there are approximately 1,200,000 in the United States with tuberculosis in some form; 400,000 are considered active, with 150,000 of these unknown. The active cases present a sizable reservoir for spread of infections and the inactive ones a potential group for endogenous reactivation.

The continuing high morbidity some have considered to be due to increasing population, improved case finding and better reporting, rather than to a true high rate of disease. However, the case rate (number of cases per 100,000 population) curve has remained practically constant for the past 20 years. Improved case finding undoubtedly has played some role in maintaining the morbidity figures in recent years, although by far the majority of cases, unfortunately, still are not brought to light by survey work or contact investigation but through examination of people with advanced disease who visit physicians' offices, clinics or hospitals, because of symptoms. The factor of better reporting of cases is debatable.

Studies on the incidence of infection which would be the truest measure of frequency of contact of the populace with tubercle bacilli have not been
done on an adequate scale to reach a definite conclusion. However, skin testing of selected groups, such as school children, nurses and college students, indicate a definite lessening in the incidence of infection. For example, at the University of Pennsylvania in 1931, 51 per cent of the students entering were positive reactors and in 1953, only 14 per cent. In the past 20 years, the number of positives have dropped from 33 per cent to 11 per cent at the University of Minnesota. Nevertheless, it has been estimated that there are approximately still some 50 to 60 million positive reactors without evidence of present disease in the United States—another sizable potential group of endogenous reactivators. In addition to our own reservoir, it has been pointed out that tuberculosis is now the leading disease and the cause of millions of deaths yearly in other portions of the world where our men and women may be sent.

In a recent speech, Dr. J. H. Harley Williams, of England, termed it today's most important tropical disease. It has been estimated that approximately 10 per cent of the population in the Orient are walking around with infectious lesions. The outside world cannot be neglected as a factor in our total tuberculosis picture in the United States. The goal of eradication of tuberculosis in this country could be delayed greatly and it is not inconceivable that there might be an actual increase in disease amongst us if there were a marked alteration in our standard of living, too rapid a withdrawal of segregation and treatment facilities, or a diminution in efforts to ferret out the unknown cases in our midst. Although there may be some differences of opinion, in regard to the emphasis which should be placed upon various elements in the tuberculosis control program, there is complete accord with the view that there must be no slackening of control measures.

In our approach to gain victory over tuberculosis within the individual patient, however, there is less agreement. We have experienced a revolution in the treatment of this disease initiated by the advent of antimicrobial agents and improved surgical techniques. This revolution is far from ended, with many unanswered questions and varying views keeping the cauldron boiling. Uncertainty exists in regard to the best combination of antimicrobials and how long they should be given, as to the significance of isoniazid resistance, the role of minor collapse procedures, over whether closed lesions should be resected etc.; but the most inciting questions of all are those directed at the long established principles of non-specific treatment aimed at favorably influencing the host parasite relationship.

Originally, the new agents, along with surgical improvements were merely considered as adjuncts to the time honored and empirically proved regimen embracing physical rest, peace of mind, adequate diet and a gradual resumption of the responsibilities of a normal life program after stabilization of disease. The majority still appear to hold that this basic framework should be incorporated in the modern therapy program, voicing the opinion that until long term results of management with antibiotics, plus rest, are known, it would be unwise to discard those measures directed at bolstering of native resistance, consolidation of healing gains
and prevention of relapse. The proponents for retaining rest as a basis for treatment point to the more rapid reaching of target point in a large proportion of cases with consequent earlier ambulation as a sufficient stride towards lessening the chronicity of tuberculosis without providing a hazard to the patient. The members of this group emphasize we must recognize that the present antimicrobials are not bactericidal, only bacteriostatic, and as long as viable organisms may be retained within the body (and surgery does not guarantee their removal) the factors which are felt to play a role in influencing native resistance cannot be neglected. The fact that relapses are still occurring, although so far in small numbers, despite antimicrobial therapy, they feel is further justification to utilize all of the treatment aids at our command.

However, there are others who propose that bed rest can be dispensed with long before the target point is reached without ill effects. They consider the antimicrobials to be the basic requirement in the treatment program and question the role that rest plays in bringing about the rapid subsidence of symptoms, x-ray clearing and bacteriological conversion in types of disease which were rarely known to respond in this fashion with rest, relaxation and diet alone. They point out that even prior to the days of streptomycin there were some who questioned the significance of bed rest, especially its strict application. Recalcitrant exceptions who did well, despite complete disregard for instructions were familiar to all as were the other unfortunate exceptions, the cooperative patients who displayed a downhill course despite a vegetable-like existence. Such exceptions did not negate the fact that the majority of patients on rest did do well and the majority who flaunted the rest program did poorly. However, Bray and others reported the use of liberalized rest programs deliberately or because of limited personnel, with successful arrest of disease comparable to results obtained with strict bed rest. As to the argument, that lengthy rest programs prevent relapse, statistical reports such as those of Mitchell and De Fries cast doubt on the importance of rest in avoiding breakdowns, although there are so many variables involved, especially after the patient leaves the sanatorium, that an interpretation of such data is difficult.

In recent years, reports from Pittsburgh, New York, Cleveland, Chicago and Detroit suggest good results on early ambulation programs with antimicrobial agents. These programs were initiated largely because of poor bed situations or in patients who would not accept sanatorium placement. However, deliberate early ambulation efforts in the sanatorium are being tried. There is a wide variation practiced from only slight modification of the strict bed rest regimen to the most extreme example as reported by Dressler and Middlebrook who are getting all patients up on graded physical activity immediately acute symptoms have subsided without regard to x-ray or bacteriological status. Clearly, it is too soon to be able to come to conclusions concerning these medical regimens slighting the role of rest.

As to the role of surgery, when it is added to the drug program, cavity
closure or elimination and sputum conversion are obtained more rapidly and in a higher percentage of cases. The general view is that if medical management has not obtained the desired results within six to nine months, that surgical aid should be given, if at all possible. The trend still favors resections. The enthusiasm, however, for removing stable target point foci dwindled somewhat as it was discovered that a high percentage of resected specimens were either negative or revealed organisms which could not be grown or produce disease in animals. Late reports with improved techniques, such as outlined by Hobby, suggests that a high proportion of these organisms may well be virulent. There have been some reports on short term follow-up of resected and non-resected target point cases suggesting no significant difference in relapse rate of the two groups. Others do not support this view and here, too, only time and observation will give the answer. However, if long term drug therapy does prove effective in preventing relapse of target point cases, the length of treatment for a high percentage of patients will be further reduced through avoidance of surgery.

In the matter of post-sanatorium rehabilitation of arrested and inactive cases, there is also a tendency to question the need for cautious redirection of patients into pursuits which would be less demanding than their original vocations as a prophylaxis against breakdown. It is being expressed more frequently that most patients can be returned safely to their previous occupations if physically able to do so under the protection of long term drug therapy. Here, too, is a promise for reducing the chronicity of the tuberculous if the need for long drawn out retraining programs can be dispensed with.

Mention should be made, before closing, that unfortunately a small proportion of patients have very long standing extensive disease at the time of detection which responds poorly to chemotherapy. If definitive surgery is not possible the chronicity of tuberculosis for this group is not altered. Then there is another small section of patients for whom modern treatment has meant an actual increase in chronicity of disease. These are the advanced cases who would have expired in previous years but who, with antimicrobials, are kept alive as long term custodial cases.

To sum up, it is evident that despite the downward course of tuberculosis, in the United States, this disease still presents an epidemiological problem of considerable magnitude and any slackening of control measures would be hazardous. As far as the individual patient with active tuberculosis is concerned, treatment is still of relatively long duration with no rapid treatment program as for lues, on the horizon, as yet. Nevertheless, there is a definite trend towards lessening the duration of disability greatly with a growing acceptance of the thesis that prolonged physical and mental inactivity may not be essential. Clearly, the validity of this approach must be tested by time. Early enthusiasms may well prove unfounded as late relapses occur. A large proportion of phthisiologists believe that we should be content with the comparative earlier return of patients to normal life programs now obtained under treatment embrac-
ing both the antimicrobials and the previous principles of rest therapy. However, the prospects of a much more rapid resumption of a normal existence are so exciting to both patient and physician that a thorough testing of increasingly early ambulation of selected patients, under careful supervision, definitely appears warranted, especially in view of the favorable evidence in this direction to date.

**SUMMARY**

1. Despite the widespread belief fostered by the marked decline in the tuberculosis mortality rate that this disease has been conquered in this country, tuberculosis still presents an epidemiological problem of considerable magnitude in the United States:

   (a) Morbidity statistics do not parallel the precipitous drop in the tuberculosis mortality rate.

   (b) With the new cases reported falling off little, and many cases being saved, who in previous years would have died, the total number of known cases in the community representing potential source of reactivation or spread, is actually greater than in previous years.

   (c) Although the incidence of infection has diminished in the United States, as revealed by skin testing of selected groups, it is estimated that there are still some 50 to 60 million tuberculin reactors who offer a sizeable potential for endogenous disease.

   (d) Tuberculosis is still the leading disease problem in many other portions of the world, notably the Orient, and the United States is not completely isolated from these outside sources of infection.

   (e) Slackening of accepted control measures could conceivably result in an increase in the incidence of tuberculosis in this country.

2. In the realm of medical and surgical management of the individual patient with tuberculosis, treatment is still of relatively long duration with no rapid method as for lues.

   (a) For a small segment of patients with extensive disease, who would have died in previous years, but now are saved by antimicrobial therapy, to remain as custodial cases, there is still a definite problem of chronicity.

   (b) However, for the large majority of patients, treatment, embracing the antimicrobials and surgery, is returning them to active life programs in a much shorter period of time than in the past.

   (c) The trend is growing to question the importance of rest and the need for a cautious resumption of normal pursuits in the arrest of disease and prevention of relapse.

   (d) Only long term follow-up studies can determine the validity of this approach but the prospects of a rapid return to a normal existence are so exciting to both patient and physician that a thorough test of increasingly early ambulation definitely appears warranted, especially in view of the favorable evidence in this direction to date.
SUMARIO

1. A pesar de la extendida creencia, alimentada por la marcada declinación en la curva de mortalidad por tuberculosis, de que esta enfermedad ha sido conquistada en este país, la tuberculosis todavía representa un problema epidemiológico de considerable magnitud en los Estados Unidos:
   a) Las estadísticas de morbilidad no paralelan la caída estrepitosa de la curva de mortalidad por tuberculosis.
   b) Con los casos nuevos reportados, que han disminuido poco y muchos casos que han sido salvados, de los que en años previos hubieran muerto, el número total de casos conocidos en la comunidad que representan una fuente potencial de rreactivación o diseminación, de hecho, es mayor que en años anteriores.
   c) Aunque la frecuencia de infección ha disminuido en los Estados Unidos, como se revela por las pruebas cutáneas de grupos selectos, se estima que hay todavía 50 a 60 millones de reactivores tuberculínicos que ofrecen una gran fuente potencial para la enfermedad endógena.
   d) La tuberculosis es todavía el problema médico mayor en muchas otras partes del mundo, notablemente en Oriente, y, los Estados Unidos no están completamente aislados de estas fuentes externas de infección.
   e) La desatención de las medidas aceptadas de control, es de concebirse, podría resultar en un aumento de la frecuencia de la tuberculosis en este país.

2. En realidad, en el manejo médico quirúrgico del paciente individual con tuberculosis, el tratamiento es todavía de relativa larga duración sin haber un método rápido como para la lúes.
   a) Para una pequeña parte de pacientes con enfermedad extensiva,—quienes hubieran muerto hace algunos años, pero ahora son salvados por la—terrapéutica antimicrobiana, para permanecer como casos de custodia, hay todavía un definitivo problema de cronicidad.
   b) Sin embargo, para la gran mayoría de pacientes, el tratamiento que abarca los antimicrobianos, la cirugía y los problemas previos de terapia de reposo los retorna a la vida activa en un período de tiempo más corto que en el pasado.
   c) La tendencia creciente es a dudar de la importancia del reposo y de la necesidad de la cautelosa reanudación a las actividades normales.
   d) Sólo la observación prolongada de los enfermos puede determinar la validez de esta nueva tendencia, pero las perspectivas de un rápido retorno a una existencia normal que resulta tan excitante para el paciente como para el médico, hacen que se imponga una prueba acuciosa del incremento en la ambulación temprana, especialmente en vista de la evidencia favorable que hay hasta ahora en este sentido.

RESUME

1. Malgré que le déclin marqué du taux de la mortalité tuberculose répand l'idée que cette affection a été jugulée dans le pays, la tuberculose présente encore un problème épidémiologique d'une ampleur considérable aux États-Unis.
a) Les statistiques de morbidité ne correspondent pas à la brusque chute du taux de mortalité tuberculose.

b) Avec les nouveaux cas observés, évoluant peu et les nombreux cas de malades que l'on peut sauver maintenant, alors qu'auparavant ils seraient morts, le nombre total de cas connus dans la collectivité qui gardent un potentiel de réactivation ou d'extension des lésions, est actuellement plus grand que dans les années passées.

c) Bien que la fréquence de l'infection ait diminué aux États-Unis, comme le prouvent les tests cutanés de groupements déterminés, on estime qu'il y a encore 50 ou 60 millions d'individus réagissant à la tuberculine, qui offrent un potentiel important de réinfection endogène.

d) La tuberculose est encore le problème de premier ordre dans beaucoup d'autres parties du monde, en Orient particulièrement, et les États-Unis ne sont pas complètement isolés de ces sources extérieures d'infection.

e) Le relâchement des mesures de contrôle pourrait vraisemblablement déterminer une augmentation de la fréquence de la tuberculose dans ce pays.

2. Dans le domaine de la thérapeutique médicale et chirurgicale de la tuberculose, le traitement est encore d'une durée relativement longue, sans moyen de traitement rapide, comme nous n'avons maintenant contre la syphilis.

a) Pour un petit nombre de malades, atteints de lésions extensives, qui seraient morts dans les années passées, mais qui maintenant sont sauvés par la thérapeutique antimicrobienne, et qui restent à surveiller, il se pose encore le problème certain de la chronicité.

b) Cependant, pour la grande majorité des malades, le traitement par les médications antimicrobiennes, la chirurgie et la pratique déjà ancienne du repos, permet la reprise d'une vie active beaucoup plus rapidement.

c) La tendance actuelle est de rechercher la valeur que l'on doit attribuer au repos intégral et à la reprise prudente de l'activité dans la stabilisation et dans la prophylaxie de la rechute.

d) Ce n'est qu'en suivant pendant longtemps les malades que l'on pourra déterminer si la suppression de ces mesures est valable. Toutefois les perspectives d'un retour rapide à la vie normale provoquent un tel enthousiasme chez le malade et chez le médecin qu'une étude poussée sur la reprise précoce de l'activité apparaît vraiment justifiée.