

MEDICINE

# Streptomycin for TB

Limited suppressive effect has been obtained, but no one knows what final answer will be. Warning comes not to hope for too much.

► STREPTOMYCIN, penicillin-like medical weapon which proved strikingly effective in controlling tuberculosis in guinea pigs, has now been given to 34 human patients suffering from this disease.

The results of this first trial of the remedy in human tuberculosis are reported by Dr. H. C. Hinshaw and Dr. W. H. Feldman, of the Mayo Clinic and Foundation in the *Proceedings of the Staff Meetings* of the Mayo Clinic.

A "limited suppressive effect" on the disease, especially in some of the more unusual types of tuberculosis, was obtained through streptomycin treatment.

Many of the cases in which streptomycin was tried were apparently hopeless. In these the drug brought about some improvement and perhaps prolonged the lives of the patients. Yet nowhere in the report is there any statement to justify hailing this new drug as a swift and sure cure for tuberculosis.

An unusual feature of the report is the inclusion of a paragraph indirectly addressed to lay persons. In this the scientists, who obviously restrained their report to the most conservative statements, urge the layman who may hear of it to adopt "the same cautious frame of mind." In other words, not too much hope should be aroused by the results so far.

"No one as yet knows what the final judgment will be concerning the effect of streptomycin on clinical tuberculosis," they state.

Care in a sanatorium and collapse therapy, proved and effective methods of treating tuberculosis, should "in no instance" be abandoned for treatment with streptomycin or other antibacterial substances whose value has not yet been conclusively shown.

Very much in favor of streptomycin is its safety, as shown by study of the 34 patients to whom it was given by injection into the muscles every three hours and in some cases for several weeks without interruption. Most patients complained of feeling a little sick and of aching muscles and pain where the injections were made. The pain is no worse than that produced by penicillin. Since

most of the patients to whom streptomycin was given had little chance for rapid recovery, if any, they did not mind the discomfort of the new treatment that might help them. As more purified lots of streptomycin have become available, there have been less severe reactions to it.

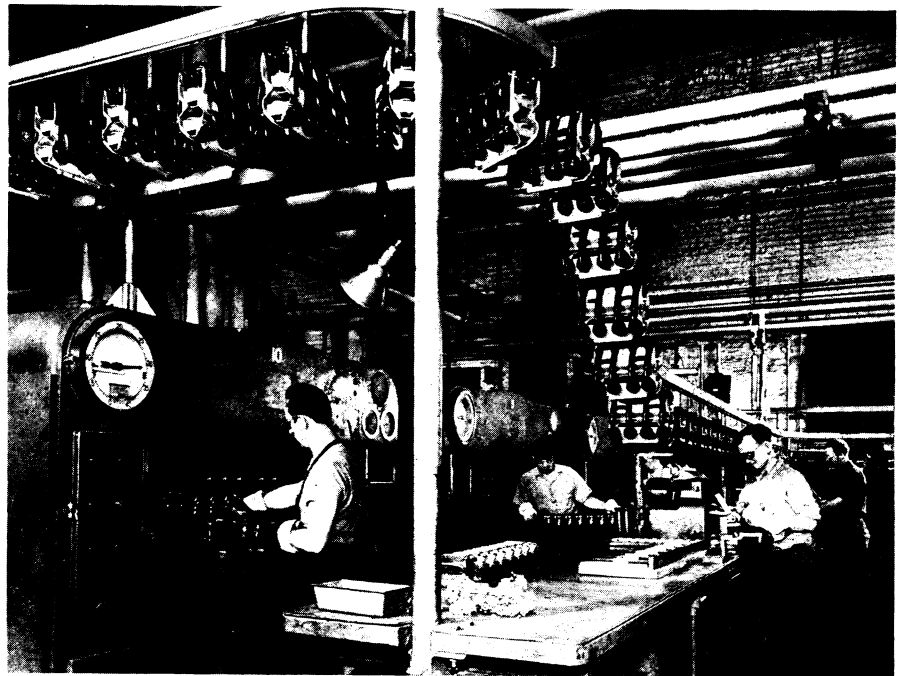
Streptomycin seems to have the best effect in patients with unusual and particularly dangerous forms of tuberculosis, such as tuberculosis of kidneys and bladder and the type known medically as miliary tuberculosis. In miliary tuberculosis the disease is not limited to the lungs but is spread through the body by the blood stream and usually is rapidly fatal.

In two patients with this form of tuberculosis, one of whom also had tuberculosis of the kidneys, "unmistakable and striking improvement" of the tuberculous condition of the lungs appeared in X-ray

pictures. Improvement in the general condition of the patients, however, did not parallel that shown in the chest X-rays, and the physicians believe the disease has become localized in some inaccessible regions of the body.

Encouraging results were obtained when streptomycin was given to four patients with tuberculosis of the bladder or kidneys. Each of these had only one kidney, the other having been removed because of the tuberculous condition. Each was excreting tuberculosis germs before streptomycin treatment was started. This stopped within two to four weeks and no germs have been found up to four months after the drug was stopped.

Some of the patients with tuberculosis of the lungs, on the other hand, although they seem to respond to streptomycin, apparently are better only so long as they are taking the drug. In some cases the tuberculous process is reactivated promptly after treatment is stopped. Extensive, progressive lung damage known to be of recent origin tended to improve promptly in a manner resembling the natural processes of healing. The drug, however, did not seem to have any rapidly effective curative action in these cases.



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These results lead the scientists to believe that streptomycin checks the growth of the tuberculosis germs, thus suppressing the symptoms of the disease, but that it does not actually kill the germs and in that sense cure the disease.

A few patients with tuberculosis of the skin were given streptomycin. Not enough time has elapsed to be sure of the permanency of the results in these patients, but in three of them inflamed lymph glands that were discharging pus cleared up promptly.

Streptomycin, obtained from a mold-like germ that lives in the soil, was discovered by Dr. Selman A. Waksman and associates of Rutgers University and the New Jersey Agricultural Experiment Station. His finding that the germ-chem-

ical was a powerful weapon against tuberculosis germs in the test tube led to its trials by the Mayo scientists.

When it showed itself much less toxic and more powerful than any of the sulfone drugs previously used in treatment of experimental tuberculosis of guinea pigs, trials on human patients were started. In these Drs. Feldman and Hinshaw had the assistance of Dr. Karl Pfuetze, of Mineral Springs Sanatorium, and of colleagues at the Mayo Clinic, including Drs. Herman Moersch, Arthur Olsen, Harry Wood, Wallace Herrell, Fordyce Heilman, Dorothy Heilman, Robert Glover, R. L. J. Kennedy, L. F. Greene, W. G. Braasch, E. N. Cook, P. A. O'Leary, E. T. Ceder, L. A. Brunsting and F. A. Figi.

*Science News Letter, September 29, 1945*

#### MEDICINE

## Blood Pressure Chemical

High blood pressure believed due to lack of essential substance like lack of insulin in diabetes. Search for practical replacement medicine.

► PATIENTS with serious high blood pressure, known medically as essential hypertension, may in future be taking regular doses of a new medicine to keep the blood pressure at safe levels just as diabetics today take regular doses of insulin to stay healthy.

This blood-pressure-lowering chemical is not yet ready for general use, but steps leading to its development have been taken by Drs. Arthur Grollman and Tinsley R. Harrison of the Southwestern Medical College in Dallas, Tex.

The incretory substance, as Dr. Grollman terms it, was first discovered in the kidneys. Medical men long ago believed the kidneys played a part in the development of high blood pressure, but the idea that these organs which act primarily as filters and waste handlers produce a chemical essential for maintaining normal blood pressure is relatively new. High blood pressure results, Dr. Grollman believes, when these organs are damaged so that they cannot produce this essential substance.

The substitution treatment, when it is ready for use, will help patients of all ages because it corrects the fundamental defect that causes the high blood pressure, replacing the substance which the patient's own kidneys fail to produce.

Right now Dr. Grollman is searching for a way to make this hormone generally available to the million or more essen-

tial hypertension patients in the nation. When made by extracting it from kidneys, 100 pounds of hog kidneys are needed to supply one day's dose for one patient.

Since the patients would have to go on taking the extract daily throughout life, this is obviously not a practical source.

The effective agent may also be prepared from the liver oils of certain fishes. Supplies of these fish liver oils are also somewhat limited and are needed as sources of vitamin A and vitamin D. (It is not the vitamins but another chemical in the oil which lowers blood pressure.) Certain plant oils may also ultimately be a source from which the compound may be made, Dr. Grollman stated in a report to the third annual hormone conference at Mont Tremblant, Canada.

If patients rush to the drug store to get one of the fish liver oils now marketed for their vitamin content, they are doomed to disappointment, Dr. Grollman warned. These oils do not contain the chemical in enough amount, if they contain it at all, to lower blood pressure.

Even with an abundant supply, patients would soon find it difficult to take nearly two ounces of oil daily, which is what would be required. So Dr. Grollman hopes the chemical itself can be extracted and put into a pill or some pleasant form of medicine.

*Science News Letter, September 29, 1945*

#### CHEMISTRY

## Some Dried Vegetables Keep Better Than Others

► DEHYDRATED corn and sweet potatoes keep well, scientists of the U. S. Department of Agriculture found in studies of dehydration and prolonged storage of several common vegetables. Along with dehydrated beets and green beans, these four vegetables keep better than dehydrated white potatoes. But carrots, housewives should note, become poor or inedible sooner than any of these vegetables.

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