MEDICINE

Ultraviolet May Stop TB

Spread of airborne tuberculosis germs may be halted through use of ultraviolet light. Trial of method in mental hospitals urged.

➤ ULTRAVIOLET LIGHT, sometimes called man-made sunshine, should be given a trial as a weapon to stop the spread of tuberculosis, in the opinion of Dr. Max B. Lurie, tuberculosis researcher and associate professor at the Henry Phipps Institute of the University of Pennsylvania.

Mental hospitals, where there is a good deal of tuberculosis and where an adequate controlled investigation could be made, would be good places to give it a trial, he points out.

Dr. Lurie's recommendation is based on his studies with rabbits. These showed that a 73% mortality was prevented by ultraviolet irradiation.

In these experiments a manifold or chamber was separated in the middle by a fine wire mesh screen. On one side of the screen was a run for rabbits artificially infected with highly virulent tuberculosis germs. These rabbits shed in their urine tuberculosis germs that were projected into the air by the movement of the animals. The air was in this way contaminated with tuberculosis germs as it is by humans with tuberculosis germs in their sputum.

On the other side of the screen were normal litter mates of highly inbred rabbits of uniform high and low inherited resistance to tuberculosis. There was no possibility of contact between the tuberculous rabbits and the healthy ones but they all breathed the same air. A wall from floor to ceiling separated the healthy rabbits into two groups. On one side of the wall the air was irradiated with ultraviolet light.

At the end of a year, 11 of 15 rabbits in the room without ultraviolet light were dead. None of 15 in the irradiated room got tuberculosis, though they also breathed air from the TB rabbit room.

The reasoning which led to the rabbit experiments runs like this: Inhaling tuberculosis germs is the most important way in which these germs spread from the sick to the well, in humans as well as rabbits. A single germ, or bacillus, of maximum virulence for the animal under test is enough to cause tuberculosis and death of the animal, if the bacillus gets into a terminal air passage in a lung. No other way of the germ getting into the body, including injection into the blood stream, is fraught with so much danger for the individual.

Only bacilli of a certain diameter can get into the ends of the airways in the lungs. These bacilli are the invisible isolated ones that float in the air and drop very slowly to the ground. And it is precisely these air-borne isolated bacilli that are most sensitive to ultraviolet light.

Ultraviolet light has been tried a number of times as a method of stopping the spread of various disease germs in the air. The results, Dr. Lurie points out, have been inconclusive. But the diseases in these trials were chiefly ones in which the portal of entry for the germs is not the terminal air passages of the lungs, where only minute particles can penetrate. Instead, these germs are ones whose portal of entry is the upper breathing tract where large-sized germs may lodge.

"It is evident," Dr. Lurie states, "that ultraviolet light may affect but slightly the living germs within large particles temporarily discharged into the air.

"However, it may be very efficient against isolated tubercle bacilli floating in the air, the most potent agent causing pulmonary tuberculosis."

Dr. Lurie's study was aided by grants from the Commonwealth Fund, the National Tuberculosis Association and the U. S. Public Health Service and is reported in the BULLETIN OF THE NATIONAL TUBERCULOSIS ASSOCIATION (Oct.).

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ANGOLA COLOBUS MONKEYS—These rare and lively monkeys of the New York Zoological Society huddled together on a cool, fall morning to provide this study. The long-haired animals come from tropical Africa.

MEDICINE

High Blood Pressure Reduced by Chemicals

➤ SULFUR-HYDROGEN containing chemicals of a particular make-up, including the anti-war gas chemical BAL, can temporarily reduce high blood pressures in both humans and laboratory animals, Dr. Henry A. Schroeder of Washington University School of Medicine in St. Louis reports to the journal SCIENCE (Oct. 26).

The chemicals are those in which the SH, or sulfhydryl, groups occur on the ends of chains of two or three carbon atoms in the chemical molecule. The anti-war gas chemical known as BAL, short for British anti-lewisite, is one such. Others are sodium thioglycolate, beta-mercaptopropionic acid, cysteine, mercaptosuccinic acid and mercaptopyruvic acid.

These chemicals also counteracted the blood-pressure raising effects of such chemicals as adrenalin in laboratory rats.

In humans with high blood pressure, BAL lowered the blood pressure for one and a half to four hours, though this chemical usually raises blood pressure in normal persons. Repeated doses kept the blood pressure down for several days in a few persons. These chemicals do not affect normal blood pressures in either humans or laboratory animals.

"The application of these findings to the control of human hypertension (high blood pressure) deserves further study," Dr. Schroeder states.

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