PUBLIC HEALTH

Triggers for Catching Cold

Tests upon thousands of volunteers to show whether grandma was right when she warned you could catch cold by sitting in drafts or by getting wet feet.

➤ GRANDMA SEEMS to have been right. You may be able to catch cold by getting your feet wet and sitting in a draft.

In an investigation that involves tests upon thousands of volunteer human "guinea-pigs," Dr. Winston Harvey Price, 31-year-old biochemist of the Johns Hopkins School of Hygiene and Public Health, Baltimore, is making a new approach to disease fighting that promises better prevention and treatment of such virus ills as 'flu, typhus and colds.

The $1,000 Theobald Smith award, a top annual prize in medicine, was presented to Dr. Price by the Eli Lilly and Co., Indianapolis, at the meeting of the American Association for the Advancement of Science in Berkeley, Calif.

Dr. Price hopes to put grandma's idea on sound scientific footing by discovering the mechanism through which wet feet start a cold in the head, or an attack of influenza.

His studies of another sickness, typhus fever, show that germs may lurk in the body for years without causing trouble. Then something reactivates them and disease sets in.

The 'flu virus and other viruses such as those that cause colds or common-cold-like ailments may lurk in human lungs, noses and throats without causing any symptoms until something comes along to activate the viruses, Dr. Price thinks. That something may be wet feet or cold drafts.

More than 150 different viruses have recently been isolated from human noses and throats by other scientists. The persons harboring these viruses were many of them quite well, but some did have common cold symptoms.

In the case of typhus fever, the germs, called rickettsia, can be reactivated in laboratory animals by doses of ACTH and cortisone acetate, Dr. Price discovered.

Human beings also may harbor typhus fever germs in their bodies for long periods after having the disease. Then when something reactivates the germs, they get sick with what is called Brill's disease.

Dr. Price tried his ideas on human "guinea-pigs." A group of 28 human volunteers who had typhus in Russia, Poland or Lithuania 20 years or more ago before coming to this country is now cooperating in his studies.

They let him give them ACTH and cortisone acetate, as he gave it to the laboratory animals, to see whether this would reactivate the typhus germs. The two hormone drugs did not have this effect in the human guinea pigs.

However, from these experiments, Dr. Price learned something new and more important about antibodies. This finding may change our ideas about vaccines in some diseases.

Antibodies are the substances formed in the body to fight off invading disease germs. They usually are quite specific, a different kind of antibody being formed for each different kind of disease germ.

After a person has had a germ-caused sickness, his blood will have antibodies to this disease for a long time, if not for life. Vaccines give protection by stimulating antibody production, though without causing disease.

Some volunteers who got ACTH to see whether it would reactivate typhus fever germs in their bodies did not come down with typhus, but the antibodies in their blood disappeared. After about three months, they began slowly to appear again.

This, Dr. Price thinks, means that having antibodies circulating in their blood is not the sole reason why people who have had typhus fever or anti-typhus vaccine are immune to the disease. The antibodies are important, but there must be another more important mechanism for disease protection.

It may be the breakdown of this mechanism that lets you "catch cold" when you have been sitting in a draft or getting wet feet.

Dr. Price and associates now have under way a big investigation involving about 1,000 volunteers among medical students, graduate nurses, student nurses and undergraduate students of Johns Hopkins University. In April, the investigation will be expanded to include another 1,000 living on an isolated island in the Chesapeake Bay.

These 2,000 human guinea pigs will be followed every two weeks throughout the year, some for as long as five years, Dr. Price hopes.

To SCIENCE SERVICE, Dr. Price expressed primary interest in:

1. What causes an epidemic of a respiratory disease agent, whether it be the common cold, influenza, atypical pneumonia or one of the ARD or APC viruses?
2. Where is the virus between epidemics?
3. What determines resistance and susceptibility to these agents? Dr. Price already has evidence, at least in some instances, that it is not circulating antibodies.

"Circulating antibodies are certainly of very great importance," Dr. Price said. "However, they are by no means the whole story in resistance. Certainly there are one or more unknown factors which also play a role in whether a person will be resistant or susceptible."

In most investigations, Dr. Price pointed out, research people wait until there is an epidemic. Then they isolate the agent and study it. He feels that in order to understand how epidemics come one must study the agent both in epidemics and in inter-epidemic periods.

Dr. Price also wishes to find out whether activation of latent respiratory agents does play a role in the natural history of the infective agent.

For example, someone might have influenza and harbor the agent in his lungs for six months or so and, then, under certain stimulus, the agent would become activated and that would begin the epidemic.

Experiments with laboratory animals are being started to discover what is the activating agent. Dr. Price wants to know what actually happens if you get your feet wet and then come down with influenza. Is it the release of some hormone? Or what?

If we could find out, we might do something about it other than wearing overshoes in wet weather.

Other investigators have not been able to show that wet feet or cold reduces resistance to influenza or other respiratory diseases. There has been little work on a laboratory basis.

Dr. Price is also continuing his investigations of arthropod-borne disease germs, such as the tick-borne Rocky Mountain spotted fever rickettsia, and the louse- and flea-borne typhus fever viruses.

He is trying to find whether a lysogenic arthropod-borne virus exists. If so, it would be the reservoir for viruses betwen epidemics. A lysogenic virus is one which is tied to its host cell very closely.

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DR. PAUL B. SEARS—New president-elect of the American Association for the Advancement of Science, Dr. Sears is a professor of botany at Yale University. Dr. Sears, a Science Service trustee, is noted for his studies on vegetation and climatic history based on the analysis of pollen, and for his work in conservation.