

TUBERCULOSIS

New vaccine under way

BCG (Bacille Calmette-Guerin) vaccine against tuberculosis is used throughout the world and is compulsory in most countries. But the United States rejects the vaccine on the grounds that, being composed of living bacilli, it turns the patient tuberculin positive, and thus makes the tuberculin test useless for diagnosis.

A new vaccine, which is a purified extract of a non-living antigen, may be ready for human trials and ultimately acceptable to public health experts. Dr. Alfred J. Crowle of the University of Colorado, who has spent 17 years of research on the vaccine, reports that sufficient animal tests have been done to permit investigation of the agent in man. The vaccine, extracted by trypsin from killed tubercle bacilli, gives animals the same degree of immunity as does BCG, but is more stable and does not induce allergy or turn the patient positive.

Dr. Crowle says the vaccine has been tested in some humans at the university, but that more extensive human trials will be conducted abroad.

SALIVA

New diagnostic tool

Dental scientists are now using saliva, like blood and urine, to diagnose disease. According to Dr. Stephen Wotman of the Columbia University School of Dental and Oral Surgery in New York City, saliva can reflect disturbances in hormone-secreting glands because hormones act on the salivary glands, changing the chemistry and flow rates of their secretions.

The dental researcher contends that salivary analyses can detect tumors of the adrenal glands because tumors make the glands excrete more aldosterone hormone. However, diagnosis of tumors must be differentiated from other forms of aldosteronism that may be present.

Saliva analysis is also indicated postsurgically, Dr. Wotman notes, because it is quicker than the expensive and time-lengthy test, not always available.

THERAPY

Pressure suit stops bleeding

A pressure suit, or G-suit, is worn by test pilots to avoid blackouts. It applies pressure to the lower body areas to prevent draining of blood from the brain and upper body.

The suit has also been used clinically to stop bleeding in at least one case.

Dr. H. Ward Trueblood, chief resident surgeon of Stanford University Hospital in San Francisco, claims the suit arrested abdominal bleeding overnight during the 10 hours it was worn by a young woman. The patient then resumed normal activity and no signs of bleeding were apparent three months later.

Prior to the pressure procedure, the physician says, the patient had undergone nine operative procedures in an attempt to arrest the bleeding. One of these included ligation, where the arteries supplying blood to the bleeding area are tied off. Dr. Ralph Pelligra, chief of the Medical Services Branch of the National Aeronautics

and Space Administration's Ames Research Center, believes the suit reduced the difference in pressure between the blood within the arteries and the tissue outside them. The reduction was apparently enough to equalize the pressure to the extent that the blood could coagulate normally. According to the NASA scientist, the center is now studying ways in which pressure suits can be applied to other clinical problems.

ARTERIOSCLEROSIS

Peanuts on the carpet

Cholesterol, a complex fatty acid in animal fats, is believed to play a role in arteriosclerosis, in which fat is deposited on the inside walls of arteries causing them to thicken. For this reason, many consumers have switched from animal fats to vegetable fats such as corn oil and peanut oil, which contain no cholesterol.

But a growing number of scientists suspect that peanut oil has an arteriosclerotic effect and claim that tests with monkeys suggest that peanut oil may cause more damage to arteries than butterfat.

Dr. Robert W. Wissler of the University of Chicago Medical School reports that the arterial walls of monkeys fed peanut-oil diets more than doubled in thickness and showed more extensive thickening than those of monkeys on butterfat diets. Peanut oil comprised one-fourth of the calories in a diet fed to monkeys for 40 weeks.

When behenic and arachidic acids, uncommon saturated fatty acids that make up about four percent of peanut oil, were removed from the oil, less fat was deposited in the arteries.

CANCER

A single virus theory

Many scientists believe that viruses cause cancer. A more interesting question for some is whether cancer is caused by a number of viruses or by one virus-like particle, called a C particle or C-type RNA (SN: 10/4, p. 308).

Dr. Robert J. Huebner of the National Institutes of Health's Special Virus Cancer Program says a concerted, massive effort should be conducted on this question to determine whether separate vaccines would be needed to prevent various malignancies, or just one agent to repress C particles.

Results of Dr. Huebner's studies will be published in the November PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES to be issued sometime in January or February.

The NIH scientist believes that all humans are born with a C particle that is controlled by a repressor agent. If the repressor stops working, the C particle is activated and the result is cancer.

Such things as aging, radiation and sunlight can weaken the repressor, causing the C particle to proliferate. Thus, C particles would be the only cause of cancer, but other factors might aggravate it.

Because people are born with C particle, they would have natural immunity against it and thus reject a vaccine. He contends that the answer is to find the repressor agent, and inject that to control cancer.