

MEDICINE

Hormones and Antibiotics

Combining antibiotics and hormones found effective for combating disease germs. Mold drugs are now entering the war against cancer.

► THE NEW way to treat serious infections is to use both an antibiotic, such as penicillin, and one of the hormones famous as anti-arthritis drugs, cortisone, hydrocortisone or corticotropin (ACTH).

Success with this double-barreled attack on disease germs was reported by half a dozen doctors from different parts of the country at the Second Annual Symposium on Antibiotics held in Washington under the sponsorship of the U. S. Food and Drug Administration and the journal, *Antibiotics and Chemotherapy*.

Heretofore, doctors have considered it dangerous to give the hormones to patients with infection. This was because laboratory animals with infections usually died if given these hormones.

The hormones, however, have two effects which should be helpful in fighting infections: 1. a profound anti-inflammation effect; and 2. a non-specific antitoxic effect that acts to counteract poisons from disease germs.

The advantages of the hormones can be realized if they are given with a suitable antibiotic and if certain other precautions are observed, Dr. Laurance W. Kinsell of the Highland Alameda County Hospital, Oakland, Calif., reported.

Experience during the past four years, he said, shows that giving the corticoid hormones results in "rapid and striking clinical improvement" with lessened toxicity of the system. If antibiotics are given at the same time deaths and sickness can be lessened without any untoward effect of the corticoid.

A high-calorie, high-protein, high-potassium and low-sodium diet must be given at the same time. Corticotropin must be given at least one day longer than cortisone, to prevent any residual damage to the adrenal glands. And the antibiotics must be given for at least three days after all hormones have been stopped to protect against any spread of the infection that might result from residual effects of the hormones.

Dr. Kinsell's hospital now uses this treatment as a routine for all patients with non-tuberculous meningitis; for very weak patients with generalized peritonitis or any patient with peritonitis of more than 24 hours duration, and for any patients with an infection where it seems probable death will occur before the antibiotics have time to do their work.

"Dramatic" improvement following this treatment in five patients severely sick with infectious mononucleosis was reported by Drs. Edward L. Quinn, David Bunch and Muriel Carson of the Henry Ford Hospital, Detroit.

Prompt relief of symptoms with improvement or cure in 22 of 24 external eye infections followed this treatment, Capt. Robert W. Neidlinger of Brooke Army Hospital, Fort Sam Houston, Tex., reported.

Ointments and lotions containing both antibiotics and hydrocortisone have proved valuable in treating certain skin conditions, particularly where pus is a complication of the eruption, Dr. Harry M.-Robinson Jr. of Baltimore said.

Mold Drugs for Cancer

► ANTIBIOTICS ARE entering the war against cancer. These chemicals belong to the group of mold remedies, so called because the first one, penicillin, comes from a mold. Heretofore they have been famous for the number of germ diseases and infections which they can stop.

The new phase of the antibiotic era was discussed at the same symposium.

Puromycin, one of the newer antibiotics, slows the growth of one kind of breast

cancer transplanted into mice, a team of scientists from Lederle Laboratories, American Cyanamid Company, Pearl River, N. Y., reported.

One part of the molecule, the aminonucleoside portion, has the cancer-arresting activity, Drs. P. L. Bennett, S. L. Halliday, J. J. Oleson and J. H. Williams of Lederle have found.

Following this lead, they have tested a number of similar amino acid compounds and have found five that have equal or better anti-cancer activity in laboratory animals.

Puromycin comes from one of the *Streptomyces* soil organisms of the same general family that earlier yielded streptomycin.

Trial in human cancer patients of another antibiotic was also reported to the meeting. This is a new antibiotic, actinomycin C. Its anti-cancer activity in mice and results of trial in 15 human patients were described by Drs. John B. Field and Miss Francoise Costa and Miss Angela Boryzka of Schenley Laboratories Inc., New York.

Other new antibiotics reported include: fungichromin and fungichromatin from Sharpe and Dohme, division of Merck and Co., Inc., West Point, Pa.; spiramycine from the Rhone-Poulenc Laboratories, Paris, France; etamycin from Bristol Laboratories, Inc., Syracuse, N. Y.; griseoviridin and viridogrisein from Parke, Davis and Company, Detroit; pleomycin from Sharpe and Dohme; anisomycin and PA-105 from Chas. Pfizer and Co., Inc., Brooklyn, N. Y., and



HEART SILHOUETTES—The silhouettes of hearts can aid doctors in the diagnosis of heart defects, as Dr. J. Scott Butterworth demonstrates here. The outlines on the screen give clues to troubles. The screen can then be folded so the heart model can be studied, thus allowing a check of the diagnosis by silhouette against the easier-to-see faults of the model.

celesticetin from the Upjohn Company, Kalamazoo, Mich.

Amebic infection, known to the layman as amebic dysentery, and the widespread infection of the female genital tract, trichomoniasis, are being effectively attacked by some of these antibiotics.

Antibiotic Clears Acne

► SMALL DAILY doses of an antibiotic called Tetracycline, or tetracycline, brought good results in patients with acne that had not been helped by other treatments such as sulfur-resorcin lotion, carbon dioxide slush, X-rays and hormones.

Of 75 patients, one-third got "excellent improvement," another third got "good" improvement and one-third only fair improvement, Drs. William C. King and M. Allen Forbes Jr. of the University of Texas Medical Branch, Galveston, reported at the Second Annual Symposium on Antibiotics.

The patients have been observed from one to three months and most are still under observation.

Why such small doses of the antibiotic give such good results is not known. Bacteriological studies now under way will, the scientists hope, give the answer to this question.

Parrot Fever Epidemics

► THE DANGER of humans getting parrot fever, or psittacosis, from parakeets and other birds can now be eliminated, it appears from a report made at the symposium.

The report came from one of the foremost authorities on parrot fever, Dr. K. F. Meyer and his associate, B. Eddie, of the George Williams Hooper Foundation, University of California, San Francisco.

The way to stop this disease threat to humans, Dr. Meyer and associate found, is to have breeders treat their birds with either chlortetracycline or tetracycline. These two antibiotic drugs are better known as Aureomycin and Achromycin. Aureomycin is regularly used to cure humans who contract the disease from birds.

The California investigators gave twice daily injections of Aureomycin or Achromycin to 181 parakeets for 14 days from flocks known to be infected with latent psittacosis. All of the birds who were sacrificed proved free from psittacosis, and no evidence of infection was found in their offspring.

A related disease known technically as ornithosis can similarly be stopped from spreading to humans by treating squabs in breeding establishments, the California scientists found.

Squabs in various stages of natural acute and latent ornithosis, which proved fatal to 50% of untreated birds held under observation as controls, were freed from the infection when injected three times a day for 25 days.

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Whole *milk* can be stored in the home freezer for as long as six weeks without losing its flavor.

TECHNOLOGY

Tin Cans Tailor-Made

Although all tin cans look pretty much alike, they actually are designed especially for the product they will contain, involving many fields of research.

► TO THE casual observer one tin can looks like any one of the other 35,600,000,000 used in the U. S. each year, but actually this ubiquitous container is by no means a simple product to develop and manufacture.

Virtually every type of metal can is tailor-made for the item it is destined to package. Its development involves research into metallurgy, chemistry, engineering and a host of other technical aspects. One of the most recent examples, a container which was years in development, is American Can Company's flat top can for soft drinks.

This can, too, looks almost identical to many other tin cans, but it required the efforts of many engineers, scientists and laboratory researchers to perfect.

First, there was research with suppliers of tin plate to obtain the correct chemical and physical properties of the steel, proper gauge and tensile strength, and the optimum amount of tin.

Then, new interior can coatings were developed to protect the quality and flavor of the soft drinks. Even the profiles of the can ends, where five folds of metal make an airtight seal, were redesigned for added strength against internal pressures.

An interesting part of the soft drink can's architecture is the "nine-tab" construction along the side seam where the body of the can is joined together with outside solder. These tabs overlap on the edges of the seam and make the can so strong that under test the solid part of the can's metal body will stretch before the seam itself breaks. Yet these tabs are barely visible to the eye.

The can company also had to make sure that the high-precision manufacture of this can—some parts fabricated to tolerances of one-thousandth of an inch—would be capable of economical mass production at speeds of 450 cans per minute on a single production line.

Quality control checks are made constantly along the entire manufacturing line. One of the factory tests is a "blow-up" method performed by a large device that measures the side seam strength of the can under various internal pressures well above those that would ever be attained commercially.

Another highly sensitive instrument, capable of weighing small pieces of tin plate at weights as low as one-thousandth of a milligram, helps maintain accurate coating control. Still another chemical test is made to determine the degree of manufacturing quality of can interiors and even the most minute scratch can be detected.

Although it is called a "tin" can, the average food can is made up of less than two percent tin and more than 98% steel.

This unique container not only continues as the backbone of the packaging field, but also has revolutionized the marketing of such products as beer, coffee, paint and motor oil.

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