

MEDICINE

Special Treatment Makes Beef Blood Safer for Transfusion

Substances in the Plasma Which Might Cause Clumping Can Be Removed by Previous Absorption on Human Cells

BEEF BLOOD serum and plasma can be made safer for transfusion to human patients by a method of pretreatment with human red blood cells announced by Dr. Arnold J. Kremen, of the University of Minnesota Medical School, at the meeting of the American College of Surgeons in Boston.

Substances in the beef blood plasma and serum which might cause dangerous clumping or equally dangerous dissolving of the red cells in the patient's blood can be removed by previous absorption on human blood cells, he found.

Beef serum treated in this way caused reactions to transfusions in 24.5% of the patients, compared to reactions in 52% following transfusions with the untreated beef serum. With untreated beef plasma there were reactions in 66% of the patients.

Reactions to beef serum or plasma transfusions consisted of chills, fever, hives, backaches, and stomach and intestinal upsets. In the entire groups of about 100 patients, three had severe anaphylactoid reactions. There were no deaths. About 60% of all patients developed delayed serum sickness.

Science News Letter, November 15, 1941

New Test for Goiter

DIAGNOSIS of overactivity of the thyroid gland in the neck, commonly thought of as goiter, may be improved by a new test, according to results with it reported by Dr. Marvin Smith, Dr. Willis H. Jondahl and Dr. Alton Ochsner, of Tulane University of Louisiana School of Medicine.

The test will be most valuable, it appears, in those patients with overactive thyroid glands who do not show a goiter and whose basal metabolic rate is normal, instead of being higher than normal. In such cases, with only a few symptoms to suggest thyroid gland disease, doctors may fail to diagnose the condition accurately and to give proper treatment. The result may be irreparable damage to other organs whose activity

is influenced by the thyroid gland which is the pacesetter for many body processes.

The test, which is based on findings of Dr. T. L. Althausen, of San Francisco, is made by giving the patient a little more than an ounce of galactose dissolved in water. Galactose is a sugar-like substance. The speed with which this chemical appears in the blood and the degree to which it accumulates there shows whether or not the patient has an overactive thyroid gland.

Thyroid glands of patients with a positive galactose test, even though they did not show other signs of increased thyroid activity, showed under the microscope signs characteristic of overactive thyroid glands.

Science News Letter, November 15, 1941

War Victims Saved

PATIENTS with broken bones in which the skin and other tissues are also broken open and infected with germs, a common condition in war injuries and automobile accidents, may be saved by sulfanilamide crystals implanted in the wounds, Dr. N. Kenneth Jensen, of the University of Minnesota Medical School, reported.

In 126 cases of such injuries, technically termed compound fractures, not a single case of dreaded gas gangrene and only four wound infections occurred when sulfanilamide crystals were placed directly in the wound. Without the sulfanilamide, but with the same treatment otherwise, gas gangrene developed in 7.3% of cases and other wound infections developed in 27%.

Science News Letter, November 15, 1941

Vitamin C Helps Healing

WOUNDS heal poorly after an operation and are likely to break open when the patient has been getting too little vitamin C, the vitamin found in tomatoes, citrus fruits and other fruits and vegetables, Dr. John B. Hartzell and Dr. William E. Stone, of Wayne

University College of Medicine, reported.

Healed wounds in guinea pigs that had been deprived of vitamin C had only one-fifth the strength, that is, could withstand only one-fifth the pull on them, of wounds in laboratory animals that had been getting a normal amount of this vitamin.

Science News Letter, November 15, 1941

Surgeons Use Plastic

ONE of the newer plastics, vinyl resin in acetone, painted or sprayed onto the patient's skin before an operation, helps to keep germs out of the wound, Dr. Michael DeBakey and Dr. E. J. Giles, of Tulane University of Louisiana School of Medicine, announced at the meeting of the American College of Surgeons.

Complete sterilization of the skin before the first cut is made, to avoid danger of wound infection, is the aim of every surgeon, but is difficult to achieve. Even with all the usual precautions, a resident flora of germs remain a "constant potential source of infection," the New Orleans doctors pointed out.

Vinyl resin, familiar to most people as a waterproof coating for fabrics and for its use in safety glass in automobiles, when used as a skin covering before operations has the following advantages: 1. Bacteria cannot get through it; 2. Bacteria are killed by it; 3. It is transparent; 4. It sticks to the skin; 5. It is elastic; 6. It can be easily cut through; and 7. It is not irritating.

Science News Letter, November 15, 1941

Cuts Appendicitis Deaths

DEATHS from acute appendicitis with perforation or rupture of the appendix have been reduced to less than five out of every 100 by the use of sulfathiazole in addition to immediate operation, Dr. Edward S. Stafford, of the Johns Hopkins University School of Medicine, reported.

Immediate operation when the appendix has ruptured reduced the deaths to 10% of all cases with perforation, which is lower than the average mortality reported from the so-called delayed treatment, Dr. Stafford found from an earlier study of patients operated at the Johns Hopkins Hospital.

During the two years since that study was reported, sulfathiazole has been used in addition to immediate operation. The death rate for this (*Turn to page 316*)

has been used for many years. It is effective but expensive. It converts the mercaptans to odorless sulfur compounds which, however, remain in the gasoline and act as "poisons" that reduce the effectiveness of tetraethyl lead in raising its octane rating.

The new process removes the mercaptans from the gasoline—takes them away entirely—by dissolving them out. The gasoline thus has already higher anti-

knock qualities than untreated or "sweetened" gasoline and requires less ethyl to raise it to the desired standard.

The solvent contains caustic soda, commonly used to clean drain pipes, and methanol, an alcohol much used as an anti-freeze in automobile radiators. After use, the solvent is itself purified and can be used over and over again.

Science News Letter, November 15, 1941

MEDICINE

Vitamin K May Help Control Hemorrhage in Tuberculosis

Vitamin Relieves Prothrombin Deficiency, Found in About a Half of Patients Proportional to Sickness

THE anti-bleeding vitamin K may help to check hemorrhage in patients with tuberculosis of the lungs, Dr. R. F. Sheely, of the White Haven, Pa., Sanatorium, reports (*Journal, American Medical Association*, Nov. 8).

In four patients given doses of this vitamin after they had had hemorrhage, the bleeding was checked fairly quickly, judging by the fact that within a day or two after the vitamin treatment the sputum was no longer streaked with blood.

Vitamin K acts to check bleeding by stimulating production of prothrombin, a substance necessary for the normal

clotting of blood that is shed. A significant deficiency of prothrombin was found in 51 of 106 patients with active and chronic pulmonary tuberculosis, Dr. Sheely reports. The sicker the patient, the greater was the prothrombin deficiency. Dr. Sheely believes that the prothrombin deficiency in tuberculous patients can be relieved by injections of vitamin K. This would also increase the tendency to clotting of the blood, which would help to control spontaneous hemorrhage and would also help to prevent hemorrhage if surgical operations needed to be performed on the patients.

Science News Letter, November 15, 1941

PUBLIC HEALTH

Pneumonia Mortality Declined During Influenza Epidemic

A DECLINE in pneumonia deaths during an influenza epidemic occurred, for the first time on record, during the winter of 1940-1941, statisticians of the Metropolitan Life Insurance Company announce.

A minimum figure for pneumonia deaths below which further sizable reduction is unlikely is being approached, their studies indicate.

Fatal pneumonia cases are now concentrated in young children and comparatively old people. Many of the deaths, about one-fourth in the opinion of attending physicians, were due to

complicating diseases with pneumonia.

Sulfa drug treatment seems to have largely replaced serum treatment, the study showed. Sulfathiazole was the favorite drug last winter, but sulfadiazine is likely to be used far more widely this coming season. Bacteriological studies to determine the germ responsible for the pneumonia in each case seem to have been largely abandoned in urban centers.

Delay in calling doctors was frequent in the fatal cases of pneumonia. Even among older people with chronic disease more are dying of pneumonia than

need to, and many people still suffer attacks of pneumonia which might be prevented.

"Further reduction in pneumonia mortality is attainable and worth fighting for," the statisticians conclude from their studies.

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recent series is under 5%, less than half that of the earlier series.

The great danger in appendicitis when the appendix ruptures is that of peritonitis from germs which escape from the appendix. Sulfathiazole helps the body to fight this germ attack as it helps fight such germ attacks as pneumonia.

Science News Letter, November 15, 1941

Iodine Without Thyroid

UPSETTING previous ideas of how the body uses iodine, a chemical known to be essential to health, Dr. Asher S. Chapman, of the Mayo Clinic, has discovered that the body can use this element even when the thyroid gland has been removed.

Thyroxine, the powerful hormone produced by the thyroid gland, contains iodine and it has generally been thought that the effects of iodine on the body and the body's need for it were determined by this gland.

Animals whose thyroid glands had been removed, Dr. Chapman found, lost more weight, utilized their food more poorly, drank more water and had a significantly lower basal metabolic rate when kept on diets very low in iodine than when given adequate iodine.

The body, it appears, from these studies, not only can use iodine when there is no thyroid gland to turn it into thyroxine for stimulating various body processes but may even make a compound like thyroxine in tissues other than the thyroid gland.

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● RADIO

Thursday, November 20, 3:45 p.m., EST

On "Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Morton C. Kahn, of Cornell University Medical College, will discuss the prevention of tuberculosis.

Listen in each Thursday.

Monday, November 24, 9:30 p.m., EST

Science Clubs of America programs over WRUL, Boston, on 6.04 and 11.73 megacycles.

One in a series of regular periods over this short wave station to serve science clubs, particularly in high schools, throughout the Americas. Have your science group listen in at this time.