MEDICINE

Avert Bleeding to Death

Blood transfusion under pressure into an artery and isolation of a powerful chemical from blood to counteract shock are developments which may aid future patients.

➤ MORE than 100 patients have been saved from bleeding to death on the operating table and others near death from injuries have been restored to life by giving them a second heart temporarily.

The method, together with announcement of isolation from blood of a chemical twice as powerful as adrenalin for fighting shock, were reported by Dr. Irvine H. Page of the Cleveland Clinic Foundation at the American Heart Association meeting in Chicago.

A dog that had stopped breathing for eight minutes, as well as other dogs apparently dead for shorter times, were restored to life by the second heart.

The second heart consists simply of a transfusion of blood under pressure into an artery. Blood transfusions ordinarily are given into a vein without pressure. When a patient has lost a large amount of blood or is in shock from other causes, his blood pressure is so low that the heart cannot pump blood into the body quickly enough, Dr. Page explained. Giving the blood transfusion directly into the artery under pressure primes the pump and starts it going again.

Patients who have stopped breathing will take a deep breath instantly when the blood starts going into their arteries under pressure. Plain tap water or water with salt in it can be used in emergencies if necessary, Dr. Page said.

The blood chemical that is twice as powerful as adrenalin was isolated in crystalline form with the aid of Drs. Maurice Rapport and Arda Green. It is called serotonin, "sero" for blood serum and "tonin" for its tonic effect. Its existence in the body has been known for years, but this is the first time crystals of it have been available.

There is not enough of it yet for use in treating patients. From two tons of blood, the Cleveland scientists got only about as much as a pinch of salt. They are trying now to learn its chemical structure in the hope of being able to make it synthetically.

Patients with coronary heart disease as well as those in shock might benefit if it could be obtained in large enough quantities for treatment. In heart disease its action is to prevent spread of the hemorrhage which caused the clot in the heart's artery.

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ELECTRONICS

Aerial Television Network

➤ TELEVISION'S biggest evening, featuring the Republican convention, was brought to Zanesville, Ohio, a video-less community, with a promise of future air-borne television networks throughout the nation.

A plane flying lazy circles at an altitude of 25,000 feet over the Pittsburgh area rebroadcast the television shows of the big events in Philadelphia. This aerial network video is called "Stratovision" by the engineers of the Westinghouse Electric Corporation and the Glenn L. Martin Company who developed it.

Only eight planes would be needed for a coast-to-coast network between Hollywood and New York, they declared. Fourteen stratovision planes in different locations could give television network facilities to more than half of the nation's area and 78% of the population.

Television and FM (frequency modulation) radio waves travel in a straight line, unlike standard broadcast radio waves. Because of this, television and FM usually do not go beyond the horizon, between 35 and 50 miles distant from the broadcasting equipment.

Costly relay stations or coaxial cable lines, which are not available now in most areas, are possible methods of carrying television network broadcasts. Stratovision broadcasts from planes are hailed as less expensive and more easily and rapidly put into operation.

A single plane can cover an area 500 miles across, equal in size to the states of New York, Pennsylvania and New Jersey. In stratovision, the plane simply becomes, in effect, an ultra-tall television antenna, many miles high.

To link New York with Hollywood, eight stratovision planes strategically located would be used. Proposed spots for the planes include New York, Pittsburgh, Chicago, Kansas City, Curtis, Nebr.; Leadville, Colo.; Salt Lake City and Los Angeles.

Other planes, which might bring in the South, Southwest and Northwest would be flying over Durham, N. C., Atlanta, Memphis, Dallas, Sacramento and Portland, Ore., it has been suggested.

Work on stratovision began late in 1944 and was originated by a young Westinghouse engineer, C. E. Nobles, a 30-year-old Texan. The air-borne television network scheme has since been developed jointly by Westinghouse and Martin.

A modified B-29 plane was used in the demonstration, but future plans call for a special stratovision version of the Martin 2-0-2. The plane will need only 32 minutes to reach station altitude where it can stay for three hours, flying in a three-and-one-half-mile radius circle at 180 miles per hour. A four-man television crew would be needed.

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FLYING TELEVISION STATION ***—This modified B-29 picks up programs from the ground station on the antenna projecting above the tail and re-broadcasts from the long mast-like antenna at the nose of the plane.***

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