

medical sciences notes

ORGANS

Heart Transplant Expected Soon

The way is clear for transplanting a healthy human heart into the body of a person with a diseased heart, a Stanford University surgeon says.

"Although animal work should and will continue, we are nonetheless at the threshold of clinical application," Dr. Norman E. Shumway says in an interview appearing in the Nov. 20 issue of the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*.

The ideal donor would be a relatively young patient dying of causes unconnected with heart disease, Dr. Shumway says. If the heart can be removed within a half hour after the donor's death it can be resuscitated without damage.

The major problem is choosing an appropriate recipient. He predicted that the first human transplant will probably be in a patient undergoing open heart surgery whose normal heart beat cannot be restored when he is taken off the heart-lung machine.

Other possible recipients are children with congenital abnormalities for which there is no surgical therapy and for whom the available life-sustaining measures are not satisfactory.

IMMUNOLOGY

Live Measles Vaccine Advised

Children should not be vaccinated against measles with killed virus vaccine, the American Academy of Pediatrics warns.

If children already have been inoculated with the killed vaccine they should be given live weakened vaccine as soon as possible. The academy says that some youngsters who were given killed vaccine developed reactions such as a rash, high fever, edema and pneumonia.

BLOOD TYPES

Babies Can Get Blood Tolerance

Tolerance to Type A blood has been achieved in newborn babies with Type O blood, an Oregon immunologist reports.

Dr. Bernard Pirofsky, professor of medicine at the University of Oregon, injected 16 newborns in Mexico City with the different type of blood. Ten months later they showed virtually no antibodies against Type A.

If they needed transfusions they could accept this type of blood as well as Type O with which they were born.

By receiving the different type of blood just after birth, the babies developed tolerance before their antibody systems began working, a report in the Nov. 17 issue of *MEDICAL WORLD NEWS* declares. Dr. Pirofsky also has injected Type A blood into the amniotic fluid in three cases before birth, and found no antibody at all to this type after the babies were six months old.

RADIOLOGY

Disposable X-ray Tube Tested

A disposable X-ray tube powered by a laser beam is being tested experimentally.

The disposable tube is intended for examinations where exceptional sharpness of the image is vital, Dr. Michel Ter-Pogossian of Washington University, St. Louis, told the convention of the Radiological Society of North America in Chicago.

Disposable elements of the tube are inserted into a radiation-proof metal jacket. The laser beam is directed through the wall of the tube to produce a stream of electrons, and the electron beam thus created is directed against a thin tungsten target. The atomic collision and reaction will make a beam of X-rays based upon a tiny focal point.

The tube is designed to operate only once for an exposure of millionths of a second.

BRAIN RESEARCH

Interrupted Blood Flow

Every surgeon knows that brain cells are extremely sensitive to stoppage of the blood supply. In the operating room, the flow cannot be halted for more than a few minutes or irreparable damage will occur. A crude explanation in the past has been the cut-off of oxygen.

Now Dr. Kendal Dixon of the department of pathology at Cambridge University in England suggests a different theory. He explains that when blood stops flowing, the resulting damage to the brain seems to occur primarily in the dendrites—tiny fernlike fibers that branch off from the nerve cells to carry messages from one neuron to another.

Dr. Dixon suggests that an interrupted blood flow causes the dendrites to break down. The dendrite branches, like all living cells, are covered by a thin cell membrane that needs a constant supply of energy in the form of adenosine triphosphate or ATP—a molecule produced in blood cells from food and oxygen. If blood supply is cut off for a few minutes the membrane begins to fall apart.

Still another explanation for brain damage due to interrupted blood supply was given recently by Japanese experimenters (SN: 11/5/1966). They attributed irreversible brain damage to destruction of the microcirculatory channels and demonstrated that if these channels were kept open, a cat brain could be revived even after it was frozen.

ELECTRON PROBE

Titanium Discovered in Lung Tissue

Titanium has been discovered in living tissue for the first time through use of a \$100,000 electron probe at the Biodynamics Research Corporation Laboratories, Rockville, Md.

Since titanium has never before been found in any human tissue, the possibility of its being harmful has not yet been verified. The element has been present in one-third of the human lung samples studied at the corporation.

Metallurgists and geologists are already using the electron probe, but it has been applied to medical problems only recently. Dr. A. J. Tousimis, with Jon C. Hagerty and Thomas R. Padden of Biodynamics and Dr. William G. Banfield of the National Cancer Institute reported findings on titanium.

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