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**OPEN HEART** 

### Frozen Heart Valves Replace Plastic Ones

Ever since 1952 when Dr. Charles A. Hufnagel successfully planted a plastic heart valve in a patient, scientists have been testing a variety of synthetic devices for heart repair. During the last two years, frozen human and animal valves have drawn increasing attention from scientists who now feel that, in many cases, these valves are superior to synthetic ones in open heart surgery.

The advantage of the frozen valves over plastic ones is that they virtually eliminate problems of blood clotting which occur after heart surgery in 10 to 40 percent of cases.

The human body apparently does not recognize the frozen valves as foreign bodies and therefore does not launch an immunological attack against them. One of the major obstacles in transplanting other organs, such as kidneys, is that the body will not tolerate them. The main disadvantage of the natural valves is that installation takes up to twice as long as plastic valves. Surgeons feel open heart operations should be completed as quickly as possible. Plastic valves come in varying sizes with neat loops that make them easy to attach to the heart. Midway through the operation, when he knows what size he needs, the surgeon simply selects one of several previously sterilized plastic valves and sews it in place. The frozen ones have to be trimmed to fit after the patient's defective valve has been removed, and sewing them in place takes longer and requires greater skill.

In an effort to overcome this handicap, Dr. Nina Braunwald of the National Institutes of Health, Bethesda. Md., developed a combination device. using a calf valve mounted on a synthetic ring for easy installation. So far. she reports success implanting these devices in calves but has conducted no human experiments.

According to Dr. John W. Kirkland of the University of Alabama Medical Center, Birmingham, one of the leading heart surgeons in the United States, "Many imponderables remain-but some researchers, including a pioneer in Auckland, New Zealand, share my belief that use of donor valves is preferable in many cases." The New Zealand surgeon has had success with them in 400 patients, reporting no trouble in some instances as long as four years after the operation.

Dr. Kirkland told the meeting of the Georgia Heart Association that he has successfully used frozen valves in 50 patients.

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