

# medical sciences

Gathered at the annual meeting of the American College of Surgeons held last week in San Francisco

## ANTIHEMOPHILIC FACTOR

### Spleen called production site

Absence of antihemophilic factor, generally a genetically determined trait, results in hemophilia, the bleeders disease that afflicts an estimated 20,000 to 100,000 American men.

There has been debate over whether the spleen makes or merely stores and releases AHF; new evidence supports the hypothesis that the spleen is the site of synthesis.

If the spleen-synthesis idea proves to be true, spleen transplants would be at least a theoretical cure for this disorder in which blood fails to clot.

Previous attempts to answer the storage or synthesis question have involved spleen transplants in dogs and studies of spleens perfused in the laboratory for up to five hours. None has been conclusive. Now, Dr. Glenn L. Kelly and colleagues at the University of Colorado Medical Center in Denver report that they have perfused pig spleens for as long as four days and noted a gradual increase in levels of AHF, suggesting that the clotting protein is being manufactured in the spleen. Additional support of their supposition comes from the fact that when puromycin, a drug known to inhibit protein synthesis, was added to the pig spleen, there was no further rise in AHF levels, indicating the drug had blocked further AHF synthesis.

## CARDIAC SURGERY

### Hormone aids heart patients

Recent studies of patients with congestive heart failure suggest that a hormone called glucagon increases heart output without inducing dangerous irregular beats. Glucagon, produced in the pancreas, normally is secreted by the body in response to low levels of blood sugar and, with insulin, maintains sugar balance.

Dr. Michael J. Levine and co-workers at the Albert Einstein College of Medicine in the Bronx reported successful use of glucagon in tests with 22 critically ill postoperative patients. "The response was striking," he says. Twelve of the 22 showed increases in cardiac output. Only one had a significant heart rate increase and none developed arrhythmia or seriously irregular beats. More than half of the patients also experienced a favorable increase in the uptake of oxygen from the blood into heart tissue after receiving the hormone following surgery. Glucagon is also useful in reversing abnormal patterns of oxygen consumption in patients with generalized infections and cirrhosis of the liver.

## ULTRASOUND

### Lung clots detected

Lung clots are the third most frequent cause of death among hospitalized patients. Using ultrasound, Drs. George Hricko and Allan L. Toole of the Yale-New Haven Medical Center have developed a rapid and accurate technique for identifying these emboli early.

Clots present a characteristic echo pattern that they find is detectable as soon as two minutes after a clot lodges in the lung. An ultrasound lung scan, they report,

picks up clots that are otherwise undetectable or that could be found previously only by tests that can take days to show positive results. In the ultrasound scan, frequencies are reflected when a transmitted beam hits tissue of different density and acoustical impedance. The reflected signal is picked up by a transducer-receiver and displayed on a cathode-ray oscilloscope.

## BLOOD CLOTS

### Umbrella keeps clots out

If early diagnosis and surgical removal of lung clots can spare some patients who might otherwise die, keeping clots from the lungs in the first place is better still. To this end, Dr. Kazi Mobin-Uddin of the University of Miami has designed what he calls a leaky umbrella device that can be placed in a vein that carries blood from the legs, where many clots originate, to the heart and from there to the lungs. In a 20-minute procedure under only local anesthesia, the one-inch umbrella made of a steel spring coated with porous Silastic cloth is inserted closed into the vein through a catheter and opened inside the blood vessel. In 50 patients, it has successfully allowed blood to pass while screening out clots. The procedure, Dr. Mobin-Uddin says, is considerably safer than major surgery.

## BURNS

### Treatments for infection

Bacteria are a deadly threat to individuals who receive burns over a large portion of the body. Too frequently, these patients die two or three weeks after being burned, often from generalized infection caused by the common pseudomonas bacteria. Research teams from New York and Cincinnati reported approaches to this problem.

From preliminary studies of a pseudomonas vaccine tested so far on 62 individuals, Dr. Kenneth E. Schemmer and co-workers at the University of Cincinnati College of Medicine conclude that administration of the vaccine shortly after injury significantly reduces mortality due to pseudomonas infection.

The vaccine, made by Parke, Davis & Co., is produced from purified extracts of the bacteria. Harmless in themselves, the extracts stimulate the body to mount an immune response to the invading pseudomonas.

In burn patients, who normally have a lowered immune capacity, immunization with small doses of vaccine within the first six days of burn resulted in a good immune response. In patients started after six days, more frequent and more massive doses also stimulated antibody production. In one group of 32 vaccinated patients, none died of pseudomonas infection, whereas previously the death rate would have been about 18 percent.

Also reporting on burn deaths due to infection, Dr. Stephen V. Flagg and colleagues at the Institute of Reconstructive Plastic Surgery, New York University Medical Center, warned against the practice of applying antibiotic ointments, creams and pastes directly to the burned tissue. Such therapy, he says does not necessarily have a favorable effect and may in fact be deleterious.

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