medical sciences

Gathered at the 54th Clinical Congress of the American College of Surgeons in Atlantic City, N.J.

NUTRITION

Intravenous feeding does it all

A group from the University of Pennsylvania School of Medicine in Philadelphia has demonstrated that it is possible not only to maintain patients with intravenous feeding, but also to achieve growth and good healing.

Most intravenous feeding constitutes a starvation diet, approximately 500 calories a day when the average resting adult need is at least 1,500. The Pennsylvania group, led by Dr. Stanley J. Dudrick, has been concerned with maintaining patients with chronic gastrointestinal disease, who can take nothing by mouth, over long periods. More than 200 patients so far have been fed entirely by vein, for periods ranging from 15 days to a year. Normal growth, development and activity have been achieved even in infants.

The normal, 500-calorie intravenous intake given hospital patients is in the form of a 5 percent glucose solution. The Pennsylvania group gives a solution consisting primarily of 20 percent glucose, 5 percent amino acids derived from animal protein, and 5 percent vitamins, minerals and trace elements.

TECHNIQUE

Plastic drape superior to cloth

Drapes are used in surgery to isolate the surgical site from the rest of the patient's body and reduce the likelihood of self-contamination. Though it is the time-honored choice of materials, cloth has been recently opposed because it allows the passage of some bacteria. (It has been shown that bacteria under certain conditions can move through 75 layers of moist toweling.)

Plastic sheeting has been rejected in the past because it was believed that it would lead to overheating of the patient. A group at the Veterans Administration Hospital and the University of Nebraska, in Omaha, report development of a plastic drape which does not lead to overheating. The new drape consists of rayon fibers bonded to both sides of a polyethylene film. The material has the appearance, feel and draping qualities of cloth but the impermeability to bacteria of plastic. Operating room tests show no appreciable temperature rise in the plastic-draped patients.

RADIOLOGY

Tantalum outlines the bronchi

Iodinated oils and barium compounds are used extensively in radiology as contrasts. Ingested or injected, they coat the target organ with an X-ray-opaque layer that shows up detail.

The use of these compounds to outline the airways of the lungs is limited, however, because they are irritating to the bronchi. Coughing may spoil the X-ray photograph and, worse, the irritation may decrease respiratory function in an already distressed patient.

Dr. Walter G. Wolfe of the Cardiovascular Research Institute of the University of California in San Francisco reports that metallic tantalum makes a good contrast medium for outlining the bronchi. From 0.5 to 1 milliliter of finely powdered metal (particle size about 2 microns) is puffed into the lungs through a tube.

The tube is placed into selected airways, economizing on the use of the medium. And since tantalum metal is about 20 times as X-ray opaque as iodinated oil, only a small amount is needed.

THORACIC SURGERY

Clots removed through catheter

At present the only way to remove a life-threatening blood clot in the lungs is through major surgery involving stoppage of circulation and heart-lung bypass. Such a procedure can be traumatic and is poorly tolerated by critically ill patients.

A team at the National Heart Institute's surgery clinic in Bethesda, Md., reports that lung clots have been removed from dogs via a catheter tube without interrupting circulation.

Dr. R. Darryl Fisher reports that two groups of six dogs each were given pulmonary emboli by injecting clots. In one group the chest was opened and a specially designed Teflon-reinforced silastic catheter of 8 millimeter inside diameter was inserted via the vena cava into the pulmonary artery. In the second group the chest cage was left closed, a cardiac catheter was inserted into the pulmonary artery through the iliac vein, and the larger experimental catheter inserted over the cardiac catheter, using it as a guide. With the tip of the catheter near the emboli, the latter were removed in both groups by a gentle suctioning and flushing procedure.

CLOTTING

Dextran unsticks platelets

Major fractures, such as those of the hip, often are complicated by clotting. Such clots in major blood vessels can break loose, move to the lungs, block circulation and kill. There is a high incidence of mortality from thromboembolism in such injuries, especially among the fracture-prone elderly.

Dr. Harvey M. Wichman of the University of Louisville School of Medicine reports that dextran, a class of branched polymers of glucose, aids in the prevention of thromboembolism, apparently by reducing blood platelet adhesiveness. Platelets are involved in clotting.

Thirty-eight patients with hip and long bone fractures were given 500 milliliters of dextran solution intravenously daily before, during and after the operations on their injuries. Fifty-seven patients served as controls and got 500 milliliters of saline solution.

There were seven cases of pulmonary embolism in the control group. Four more control patients developed thrombophlebitis without clots reaching their lungs. There was no evidence of thromboembolism in the treated group, nor were there any side effects from the dextran.