medical sciences

Gathered at the meeting last week of the American Medical Association in New York

EPIDEMIOLOGY

Drug ignorance charged

Physicians, according to Dr. Dennis Slone, need to know a lot more about the side effects and efficacy of the drugs they prescribe.

In charging his colleagues with failure to become knowledgeable about drugs, Dr. Slone, associate director of clinical pharmacology at Lemuel Shattuck Hospital in Boston, agreed with a Department of Health, Education and Welfare task force report that earlier this year criticized physicians' prescribing habits.

A detailed drug surveillance program begun in 1966 at Shattuck and later joined by three other Boston hospitals provided Dr. Slone with evidence not only of doctors' need for greater knowledge but of the fact that an epidemiological study can lead to new medical insights.

About 4,200 patients who had received a total of 44,339 drugs were the subjects of the study, which produced data on the frequency with which certain drugs are prescribed, commonest indications for drug therapy, age and disease of patients and side effects. "In 29 percent of the cases the physician said he did not know and could not estimate what effect the drug had," Dr. Slone reported. Further, "approximately one in 20 patients suffered side effects, of which 20 percent were considered major—that is, the reaction was thought to be life-threatening, required prolonged hospitalization, or seriously complicated preexisting disease."

Some of the drug reactions ended in the patient's death. Most of them were due to potassium chloride, which is prescribed for potassium deficiency though it apparently "has never been put through classical pharmacologic studies of absorption or distribution."

Another finding of the survey was that women of childbearing age who have type O blood are a third as likely than those with other blood types to develop thromboembolism. This finding came from the discovery that the anticoagulant drug, heparin, was prescribed more often for women who have blood types A, B and AB.

ANESTHESIOLOGY

Lung-lining molecules

A film of molecules in the watery solution lining the lungs may be the mechanism by which the body absorbs large amounts of gas, including gases from the air and anesthetic gases in hospitals. Dr. Bernard Ecanow, an anesthesiologist at Presbyterian-St. Luke's Hospital in Chicago, reports that current theories of how gases pass through the lungs and into the blood may have to be modified. It was thought that the gases dissolved first in the watery solution. But, Dr. Ecanow says, "This solution can't dissolve sufficient gas rapidly enough to furnish the body with the large amount required."

Instead, he and his co-workers postulate, lung surface molecules, which are in this aqueous lining, come together to form a film which can absorb gas in large quantities. This film is formed during half of the cycle of lung expansion and contraction. During the other half, the surface molecules separate, releasing dissolved gas into the blood.

Further, Dr. Ecanow suggests, small insoluble particles which accumulate on the lung lining from smoking or breathing polluted air will interfere with the ability of the film of molecules to absorb oxygen and release it to the body. "Thus, disease conditions such as emphysema develop," he says.

TRANSPLANTATION

Cooley plans new plastic heart

Within five weeks, Houston transplant surgeon Dr. Denton A. Cooley plans to make a second attempt to keep a patient alive with a totally implantable artificial heart.

"If you have a dead heart and a live body and a live central nervous system, I can see no moral objection to utilizing the artificial heart," Dr. Cooley told the American Medical Association.

Dr. Cooley has been criticized for an operation last April in which he placed an artificial heart, allegedly designed by Dr. Domingo Liotta for Dr. Michael DeBakey, in a patient who died 35 hours after a second operation during which he received a human heart (SN: 4/19, p. 375).

In the aftermath of the experiment, Dr. Liotta was dismissed from Dr. DeBakey's staff, and Dr. Cooley recently announced that he was shifting from full-time to part-time status at Baylor University.

The first artificial heart, Dr. Cooley said, did not pump strongly enough. "The output was somewhat marginal," he says.

The chambers and pumping mechanism of the new heart, developed by Dr. Liotta, have been redesigned. Compression will work in four directions instead of one according to Dr. Cooley.

PEDIATRIC

Hyperbaric chamber for spinal defects

Tiny high-pressure oxygen chambers reduce infection and speed healing in babies with myelomeningocele, a hernia-like protrusion of cord and membrane that arises through a defect in the spine. Dr. Ernest S. Mathews of New York University School of Medicine reports that surgery wounds heal 60 percent faster in babies treated with oxygen from the four-inch strap-on chambers that fit closely around the area of the defect.

Scientists working with hyperbaric chambers noticed that scratches heal very rapidly, Dr. Mathews says. This observation lead Dr. Boguslav Fischer to devise the chambers which Dr. Mathews has now used on 11 infants. The infants started treatment six hours to four days after birth. Two to seven days later tests showed in all 11 patients that no infective bacteria were present in the area.