

RADIONUCLIDE TESTS AID MANAGEMENT OF ARTIFICIAL HEART PATIENT

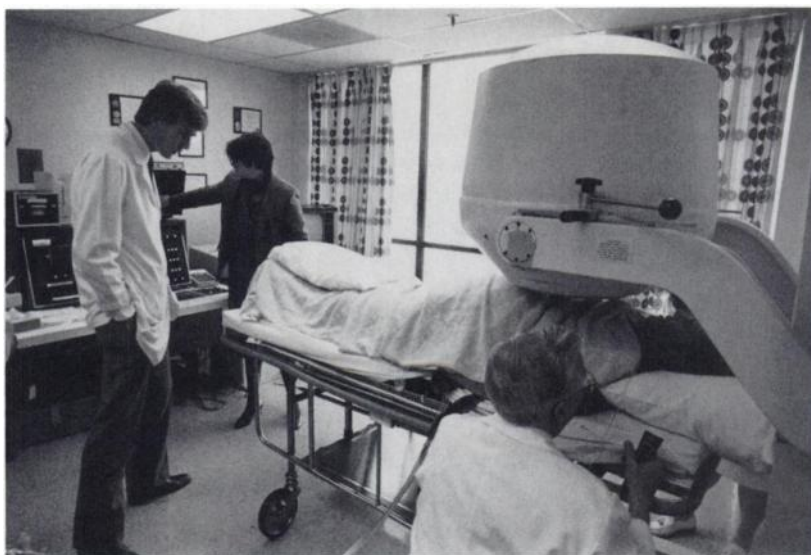
William Schroeder, the second artificial heart recipient, was also the recipient of two nuclear medicine procedures during his immediate post-operative period—a radionuclide angiogram and a labeled platelet study.

The patient underwent a first-pass radionuclide angiogram to determine ejection fraction and “wall motion.” Because of the change in cardiac anatomy, it was necessary to slightly change the patient-gamma-camera orientation, explained George H. Zenger, MD, chief of nuclear medicine at Humana Hospital-Audubon.

The mechanical heart is somewhat larger than the patient's own heart, with a slightly different configuration of the chambers. The patient's own auricles were retained and sutured to the implant. The two artificial ventricles each have a diaphragm attached to an aluminum cup at the bottom of the cavity. When air is pumped into the cup, the diaphragm moves upward and forces the blood out of these ventricles.

Dr. Zenger and nuclear medicine technologists Jenny Stoecker and Joyce Rueff found the best position for ejection fraction measurement was obtained by a left anterior oblique (LAO) for the left chamber, and a right anterior oblique (RAO) with a 15-degree change in angulation for the right chamber.

A paper published by Andrew Taylor, MD, who was Dr. Barney Clark's nuclear medicine physician at the University of Utah, gave the Humana team a head start in finding the most effective angles for the scans. One minor difference in procedure was that Dr. Clark, who received the first



William DeVries, MD, (left) who performed the heart implant operation, looks on as his patient William Schroeder undergoes a nuclear medicine procedure, supervised by George Zenger, MD, (right) as technologist Debbie Lorenz (center) operates the camera console.
(Courtesy of Humana Hospital-Audubon)

implanted mechanical heart in 1983, was evaluated with a gated study, whereas a first-pass procedure was performed on Mr. Schroeder.

After Mr. Schroeder's implant, which took place on November 24, 1984, his medical team was interested in correlating the heart's measured ejection fraction with the theoretical ejection fraction calculated from the volume of air pumped into the chambers. Both measurements were 64 percent.

After the patient's stroke, the nuclear medicine group performed a labeled platelet study to determine if the event was due to embolization. Mr. Schroeder's platelets were labeled with the help of Jeffrey Clanton, RPh, a nuclear pharmacist from Vanderbilt, using indium-111 oxine. Although no increased uptake in the heart was shown, this result does not rule out that emboli may have arisen

from the heart, explained Dr. Zenger.

Except for possibly a repeat angiogram before Mr. Schroeder leaves the hospital, his medical team does not anticipate further radionuclide tests at this time. ■

DOT RULING

The Dept. of Transportation has recently struck down several state-imposed restrictions on the transport of radioactive materials. Acting in accord with the Hazardous Materials Transportation Act, the DOT preempted local laws that were contradictory to the agency's regulations, or were too restrictive. Conversely, the DOT agreed with other local rules if the shipper could meet them without undue burden. ■