News
Office of Medical Information
The University of Texas Southwestern Medical Center at Dallas
5323 Harry Hines Boulevard Dallas, Texas 75235-9060 214/688-3404

May 16, 1988

CONTACT: Mary Alice Rogers
Office: 214/688-3404
Home: 214/221-2826

****UT researchers find freeze treatment prevents blindness in premature babies

DALLAS -- Freezing the front part of the eye may prevent blindness in very low birth weight premature babies suffering from a potentially blinding disorder. The treatment was proven successful in a study at The University of Texas Southwestern Medical Center at Dallas and 22 other medical centers.

The condition, retinopathy of prematurity (ROP), usually develops when the infant is between 4 weeks and 14 weeks old. It affects the developing blood vessels of the retina -- the light-sensing tissue at the back of the eye -- causing them to grow and branch excessively, leading to bleeding, scarring or retinal detachment. About 2,600 babies are affected by the disease in the United States annually. About 650 of them go blind.

Dr. George Sanborn, associate professor of ophthalmology at UT Southwestern, screened and treated patients using cryotherapy -- freeze treatment -- in the neonatal intensive care unit at Parkland Memorial Hospital. He said the technique reduces the risk of blindness.

"If the eyes aren't treated, a certain percentage go on to blindness," he said. "Cryotherapy reduced the number of children who go blind because of ROP by about 50 percent."

Officials of the National Eye Institute, which sponsored the $9.6-million trial, said those results were so promising that researchers stopped taking new patients into the study and sent an alert to 2,300 pediatric ophthalmologists and other specialists Feb. 12. The alert recommended that they refer potential patients to one of the study centers.

In the study, 3,862 premature babies were examined. Of these, 291 developed severe retinal damage, and 172 were treated in one eye. Of the untreated eyes with progressive disease, 43 percent got worse, usually deteriorating to legal blindness or 20/200 vision, researchers said. However, only 22 percent of the treated eyes deteriorated to blindness. Generally, 50 percent of the ROP cases get better without treatment, eventually to have sight better than legal blindness.

The results of the study were to be published in the April issue of Archives of Ophthalmology and the May issue of Pediatrics. The reports were to be detailed so other centers and hospitals could perform the procedure, National Eye Institute officials said.

Cryotherapy applied to the sclera (white of the eye) near the front freezes the area of the eye without blood vessels and stops the abnormal blood vessels from growing excessively. It creates a ring of scar tissue that slows or stops the growth of these vessels. Retinal scarring from cryotherapy may cause some loss of the infants' peripheral vision but it does not affect the central part of the retina responsible for vision that will be needed for reading, writing and

(More)

other everyday tasks, researchers believe.

However, long-term effects of cryotherapy have not been established. "We're looking at immediate improvements," Sanborn said. "That's more critical than waiting 10 years to find out what will happen. We know we've decreased the babies' chances of going blind by 50 percent. We just don't know what this will mean in the future."

Babies tested in the study will be followed for at least three years to check long-term effects.

All the premature infants in the study were at least 28 days old, weighed less than 2.76 pounds at birth, had no other major eye or systemic abnormalities and had severe ROP. Babies who developed severe ROP in one eye were randomly assigned to receive cryotherapy in the affected eye or no treatment. Babies with both eyes affected by ROP received cryotherapy in one eye while the disease process was monitored in the other to determine its natural course.

Now that a treatment for ROP is being tested, the causes of the condition can be studied. "No one is really sure what causes ROP. A paper published in 1985 suggested bright lights in nurseries may have been the cause," Sanborn said.

Although they may not know what causes ROP, Sanborn said researchers do know what isn't causing today's cases. "Previously, it was thought that high levels of oxygen used to save premature infants caused the damage. We've found the cause is not that simple. The key seems to be low birth weight. That's the common factor in all ROP babies."

In the early 1950s, researchers discovered ROP can arise from premature babies getting too much oxygen in incubators. After doctors more closely monitored oxygen use, the cases of blindness dropped from 2,000 annually to fewer than 30, according to Dr. Carl Kupfer, National Eye Institute director.

However, for unknown reasons, the condition began to rise again in the last decade as medical advances helped keep more low-weight infants alive, indicating prematurity and small size were separate risk factors of the condition.

"Unfortunately, this increased survival of very small premature infants has also increased their risk of developing retinopathy of prematurity," Kupfer said. "Cryotherapy is the most significant treatment advance since the disease was first recognized more than 40 years ago."

###

Distribution: AA,AB,AC,AC1,AF,AF1,AG,AG1,AH,AI,AK,AK1,ADM,ADM1,SL

Note: The University of Texas Southwestern Medical Center at Dallas comprises Southwestern Medical School, Southwestern Graduate School of Biomedical Sciences and Southwestern Allied Health Sciences School.