

# **TEXAS MEDICAL CENTER**

## **Ophthalmologist encouraged by new treatment**

### **Drug therapy for retinopathy of prematurity**

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When Dr. Helen Mintz-Hittner began her career as a pediatric ophthalmologist and researcher more than 35 years ago, there was nothing those in her field could do to protect their tiniest of patients from blindness.

Retinopathy of prematurity, an eye disease that can occur in premature babies, has become a leading cause of blindness among children worldwide.

The more small infants survive, the more retinopathy of prematurity is observed.

It usually occurs in babies born before 30 weeks' gestational age.

The disease begins with disorganized growth of retinal blood vessels and can result in scarring and retinal detachment.

Treatments have surfaced over the years, but they damage the peripheral portion of the eye to save the most important central portion.

Now Mintz-Hittner is administering a new treatment that is far less likely to cause complications.

### **A long journey**

"It really has been a journey," said Mintz-Hittner from The University of Texas Health Science Center at Houston Medical School, who led a multi-center clinical trial at 15 hospitals in five states on the drug therapy.

"It's a very gratifying thing to see the progress made over the last 30 years."

Mintz-Hittner published the study Feb. 17 in The New England Journal of Medicine.

The traditional treatment for retinopathy of prematurity, laser therapy, can result in loss of the visual field and nearsightedness.

It is expensive, takes about two hours, requires a laser qualified ophthalmologist, and the baby must be intubated, which is definitely a clinical setback, Mintz-Hittner said.

The drug treatment, utilizing intravitreal bevacizumab (Avastin) injections causes the abnormal blood vessels to disappear within a week and normal blood vessels to continue to grow out a few weeks later. The process is inexpensive, takes about two to three minutes, can be done by a general ophthalmologist and can be done at the bedside without intubation.

The treatments' ease and affordability make it an ideal option in Third World countries, where retinopathy of prematurity is epidemic, Mintz-Hittner said.

Before it was used to treat eye disease, Avastin was used to slow growth in rapidly advancing cancers that had spread to other parts of the body.

### **Also used for adults**

More recently, ophthalmologists started administering Avastin in small doses to treat adult eye diseases, including age-related macular degeneration and diabetic retinopathy.

Physicians were reluctant to try it with pediatric eye disease, however, because of concerns about potential toxicity.

Mintz-Hittner felt the risk:benefit ratio justified performing a randomized clinical trial, and now Avastin has proven to be beneficial without any recognized negative effects.

"It really was a labor of love among the ophthalmologists who participated," Mintz-Hittner said.

Participating physicians treated 150 babies between March 2008 and August 2010. Half of the infants received laser therapy; half were treated with the medication, which is injected directly into the eye after a few drops of anesthetic are administered.

"Lasers are a destructive process," said Mintz-Hittner, who also is an attending physician at Children's Memorial Hermann Hospital and the Robert Cizik Eye Clinic.

"This is a very direct treatment right to the source causing it. It's more effective, results in fewer complications and is easier on the baby."

Data on the outcomes of 143 of the infants enrolled in her study showed that, among infants with zone 1 disease - when babies are most at risk of treatment failure - the disease recurrence rate was 3 percent with drug therapy and 35 percent with laser therapy.

The zone refers to the area of blood vessels in the eye.

In zone 1 disease, the drug therapy resulted in mild anatomical retinal abnormality in one eye of 31 infants. The laser treatment resulted in a mild structural abnormality in 16 eyes and severe abnormality in two eyes of 33 infants.

The potential of this drug therapy is huge, said Dr. Robert Feldman, chairman of the Department of Ophthalmology and Visual Science at UTHealth.

"I think this is really a breakthrough," he said. "This is going to change how these children are cared for across the country and the world."

## **More definitive later**

The study results will be more definitive in five years, Feldman added, when the babies in the study are old enough for accurate eye exams.

Mintz-Hittner, a Montrose resident who grew up in Houston and attended Rice University, is among several in her family to pursue a career in medicine.

She was inspired to go into ophthalmology by her grandfather, who put her through Baylor College of Medicine, but died totally blind. After seeing the impact of blindness in his life, she decided to devote her work to protecting vision in others.

Because she also was interested in caring for children, she focused on pediatric ophthalmology.

Now that the study is complete, Mintz-Hittner is eager to get the word out about the drug therapy to parents, especially those of infants with zone 1 retinopathy of prematurity, while they are still in the neonatal intensive care unit and can directly benefit from this treatment.

"It's a very aggressive disease; it would be worthwhile to ask for this treatment."

Mintz-Hittner said she is confident the drug therapy is already available nationwide, and will be used by increasing numbers of ophthalmologists this year.

"Most ophthalmologists, once they use it, won't want to use laser therapy anymore. It is obvious it's going to catch on right away. The first time you use it, it's kind of a wow experience."

For more information on Mintz-Hittner's study, visit [www.nejm.org/toc/nejm/364/7](http://www.nejm.org/toc/nejm/364/7), and click on "Efficacy of Intravitreal Bevacizumab for Stage 3+ Retinopathy of Prematurity" or "Bevacizumab for Retinopathy of Prematurity."

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