Targeted tumor therapy can be effective in pediatric liver cancer patients, say researchers

Jacksonville, Fla. (June 30, 2020) -- For pediatric liver tumor patients whose disease may be resistant to chemotherapy, there are few other therapeutic options available. A study published in the July issue of the journal *Pediatric Blood & Cancer* details the treatment of two young patients with hepatoblastoma (HB) who responded well when given transarterial radioembolization utilizing yttrium-90 (TARE-Y90) as front-line curative therapy, leading to liver resection and remission. Researchers at Nemours Children's Health System found the use of TARE-Y90 in children with liver cancer to be a viable alternative to liver transplantation. Nemours has a clinical trial of TARE-Y90 underway.

For the study, the liver tumor researchers used TARE-Y90 as part of primary curative therapy for the pair of pediatric liver tumor patients with HB. A single treatment with TARE-Y90 has a lower toxicity profile when compared to chemotherapy.

"TARE-Y90 is used commonly in adults and has been shown to be superior to transarterial chemoembolization," said lead researcher, Nemours Children's Health System's Dr. Howard Katzenstein, Division Chief of Hematology/Oncology at Nemours Specialty Clinic, Jacksonville. According to Katzenstein and fellow investigators, Dr. Allison Aguado (interventional radiologist) and Dr. Stephen Dunn (director of liver transplant surgery) primary liver malignancies are rare, accounting for 1 percent of childhood cancers, and are often treated with surgical resection and chemotherapy. If a patient does not respond well to chemotherapy, there are limited therapeutic options, and outcomes are considered poor. Additionally, the almost all of the pediatric data available about the use of TARE-Y90 comes from Dr. Aguado's experience with relapsed disease, said Dr. Katzenstein.

Related to the study, the first patient, age 3, had undergone two treatment regimens without change in the dominant tumor size, and was referred to the Liver Tumor Team at Nemours for assessment. After she was determined to be a candidate for the TARE-Y90, she received outpatient radioembolization treatment targeting cancerous liver tissue by Dr. Aguado. Conventional hepatectomy was performed five months after diagnosis by Dr. Dunn, two months after referral and six weeks after TARE-Y90 treatment. Three weeks after surgery, the patient resumed chemotherapy. "She remains free of disease 31 months from diagnosis with no evidence of tumor," said Katzenstein.

The second patient, also age 3, with HB, was referred to Nemours after three cycles of chemotherapy produced a suboptimal response in tumor reduction.TARE-90 treatment targeted the tumors without complication. Chemotherapy resumed three weeks after treatment. Six weeks after treatment, the patient showed a partial response. He underwent conventional hepatectomy five months after his diagnosis, which was eight weeks after the TARE-Y90 treatment. Now at 21 months since diagnosis, he is in complete remission as well.

TARE-Y90 has the potential to be used for upfront curative therapy, and can benefit young patients because it utilizes less chemotherapy and avoids the need for transplantation.

# # #

About Nemours Children's Health System

Nemours is an internationally recognized children's health system that owns and operates the two free-standing children's hospitals: the Nemours/Alfred I. duPont Hospital for Children in Wilmington, Del., and Nemours Children's Hospital in Orlando, Fla., along with outpatient facilities in five states, delivering pediatric primary, specialty and urgent care. Nemours also powers the world's most-visited website for information on the health of children and teens, KidsHealth.org, and offers on-demand, online video patient visits through Nemours CareConnect. Nemours ReadingBrightstart.org is a program dedicated to preventing reading failure in young children, grounded in Nemours' understanding that child health and learning are inextricably linked, and that reading level is a strong predictor of adult health.

Established as The Nemours Foundation through the legacy and philanthropy of Alfred I. duPont, Nemours provides pediatric clinical care, research, education, advocacy and prevention programs to families in the communities it serves.

For further information: Margot Winick, margot.winick@nemours.org (407) 785-5766
