Medical Xpress

Study shows increase in liver transplantation for hepatoblastoma

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Liver transplantation for hepatoblastoma, the most common liver malignancy in children, is on the rise because more tumors are being detected earlier, improving outcomes for these sick patients, according to a Children's Hospital of Pittsburgh of UPMC study.

Results of the study, led by Rakesh Sindhi, M.D., co-director, Pediatric Transplantation at the Hillman Center for Pediatric Transplantation at Children's Hospital, are published in the February issue of *Surgery*.

Dr. Sindhi and the group observed outcomes in 35 children with hepatoblastoma who received transplants over three decades at Children's Hospital, making this the largest published single center experience in the United States. Nearly twice as many patients received liver transplants for the malignancy at Children's Hospital in the most recent decade compared to the previous two decades. This observation led the group to ask whether the incidence of this malignancy and of liver transplantation for hepatoblastoma has increased in the United States, thereby posing additional challenges in allocating the scarce resource of pediatric livers available for transplantation, and whether increased use of liver transplantation has improved post-transplantation outcomes for children diagnosed with this form of cancer.

To evaluate national trends, the researchers reviewed data from the National Cancer Institute's Surveillance, Epidemiology and End Results (SEER) registry representing 9.451 percent of the U.S. population from 1975 to 2007; the United Network for Organ Sharing (UNOS) from

1988 to 2010; and Children's Hospital from 1987 to 2011.

The group found that estimated hepatoblastoma cases in the United States increased four-fold between 1975 and 2007, liver transplantation for hepatoblastoma during the last two decades increased 20-fold between 1988 and 2010, with 153 liver transplants occurring in the last 5 years, and hepatoblastoma surpassed other inoperable liver malignancies requiring liver transplantation from 2.8 percent to 7.5 percent.

"For several years, it has been recognized that many children with hepatoblastoma were born early. Advances in the care of premature babies, and their increased survival as a result, is an important reason for the increased incidence of this tumor," said Dr. Sindhi.

Estimates suggest that more than six in 10 children with hepatoblastoma can be cured with surgical removal of the mass after chemotherapy. Liver transplantation is appropriate if the tumor is confined to the liver, but cannot be removed safely because of its location or involvement of many parts of the liver. Three of four children treated with transplantation can be cured.

Recurrences usually occur within the first two years after transplantation in one-sixth of children undergoing liver transplantation. Recurrences are more common if the liver tumor was accompanied by spread to other organs before transplantation, or if the tumor was less responsive to chemotherapy. Remarkably, if the tumor outside the liver is removed completely with either chemotherapy or surgery before transplantation is undertaken, half of such children can still be cured with liver transplantation. In this regard, hepatoblastoma tumors are very different from the liver cancer that can develop in adult and older age groups. They also found that hepatoblastoma tumors with "anaplastic" or highly aggressive tumor cells were less likely to recur after liver transplantation than what has been reported previously after surgical resection.

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