100-Year-Old Liver Transplants

Increasing the age of liver donors could lead to longer lives and shorter organ waiting lists.

October 17, 2022 By Laura Schmidt

Researchers from the University of Texas (UT) Southwestern Medical Center in Dallas and the biotech firm TransMedics in Andover, Massachusetts, studied transplanted livers that have reached a cumulative age of more than 100 years to try to understand how they remained healthy for so long. These livers are known as centurion livers.

The cumulative age of the livers is the sum of the total initial age at transplant and the duration of post-transplant survival.

The research was presented at the Scientific Forum of the American College of Surgeons Clinical Congress 2022 and could help expand the use of older livers for transplants.

Between 1990 and 2022, only 25 transplanted livers out of 253,406 in the United Network of Organ Sharing STARfile were deemed to be centurion livers.

“We looked at pretransplant survival—essentially, the donor’s age—as well as how long the liver went on to survive in the recipient,” said lead study author Yash Kadakia, a medical student at UT Southwestern Medical School, in an American College of Surgeons news release. “We stratified out these remarkable livers with over 100-year survival and identified donor factors, recipient factors and transplant factors involved in creating this unique combination where the liver was able to live to 100 years.”

Researchers saw a significantly higher average age for donors of centurion livers (84.7 years) compared with donors of non-centurion livers (38.5 years). For livers to make it to 100, the reseachers anticipated identifying older, healthier doors. Sure enough, centurion liver donors had lower rates of diabetes and fewer donor infections.

Health care professionals generally do not utilize livers from older donors. “If we can sort out what is special amongst these donors, we could potentially get more available livers to be transplanted and have good outcomes,” said study coauthor Christine S. Hwang, MD, FACS, an associate professor of surgery at UT Southwestern Medical Center.

Over 11,000 people are on the liver transplant waiting list. Using older liver donors more frequently could potentially help reduce this long list.

“Livers are incredibly resilient organs,” said Kadakia. “We’re using older donors, we have better surgical techniques, we have advances in immunosuppression and we have better matching of donor and recipient factors. All these things allow us to have better outcomes.”

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