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The quality of kidney and liver donations is fundamentally important for the longevity of transplants and the health of recipients. That's why it's critical to know which organs are suitable for transplantation, as well as to use techniques that preserve an organ's function after donation. Several studies published in the BJS (*British Journal of Surgery*) address these issues and offer ways to maximize the use of donated organs.

In the first study, Rajeev Desai, MRCP, of NHS Blood and Transplant, in the UK, led a team that assessed transplants from 17,639 donors, including 61 donors with cancer who were considered to have an unacceptable/high risk of transmitting cancer through their donated organs. The researchers found no cancer transmission in 133 recipients of organs from these 61 donors. At 10 years after transplantation, the organs from donors with

unacceptable/high risk provided each recipient with more than 7 additional years of survival on average.

“The findings of our research indicate that the perceived risk of certain organ donors to their recipients is likely to have been over-estimated. Organ donors with a history of certain types of cancers who are excluded from transplantation in fact pose very little risk of cancer transmission to their recipients,” said Dr. Desai. “These organs can be transplanted with very little risk to their recipients, resulting in significant improvement in the survival and health of the recipients.”

In another study, Olivier Detry, MD, PhD, of

the University of Liége, in Belgium, and his colleagues revealed excellent results from liver transplants from deceased donors who were older than what is usually recommended. The study looked specifically at donation after circulatory death (DCD), in which circulation, heartbeat, and breathing have stopped (as opposed to brain death, in which all the functions of the brain have stopped). A total of 70 DCD liver transplants were performed at the investigators' institution: 32 from donors aged 55 years and younger, 20 from donors between 56 and 69 years, and 18 from donors aged 70 years and older.

Organ and patient survival rates were not different at one and three years after transplantation between the three groups.

“The use of DCD donors over the age of 60 is highly controversial, but we showed that excellent results could be expected if the cold ischaemic time is limited to less than 6 hours,” said Dr. Detry. Cold ischaemic time represents the time between the chilling of an organ after its blood supply has been cut off and the time it is warmed by having its blood supply restored. “As the population of Western countries is ageing, we will have to consider older donors even more often in the future,” said Dr. Detry.

In a third study, investigators uncovered the importance of reducing cold ischaemic time for donor organs after circulatory death to preserve the energy status of the organs. Thamara Perera, FRCS, of Queen Elizabeth Hospital Birmingham, in the UK,

and his colleagues used microdialysis, a novel technique to study the differences in basic energy metabolism between organs from DCD and brain death donors. They found that livers from DCD had depleted energy reserves during cold storage and that livers that failed after being transplanted showed severe energy depletion. “The importance of these findings is the ability to predict possible organ failures and unwanted outcomes before performing the actual transplant,” said Mr. Perera. “The study also questions the suitability of organ preservation techniques that are currently in place.” Modified preservation techniques to minimize organ injury related to energy metabolism may improve the quality of donor organs after circulatory death.