Women Less Likely to Receive Liver Transplants Than Men

Body size differences were responsible for almost 20% of the sex disparity.

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Sex disparities in liver transplantation continue to favor men, according to a study published in the journal Surgery.

While racial disparities in transplant allocation have mostly been eliminated, sex disparity remains a problem. Women tend to live longer after a transplant than men, but they have a lower chance of receiving one. Earlier studies have shown that liver transplantation rates vary between the sexes, but it is not yet known whether body size, regional differences or other factors are responsible.

Michael Darden, PhD, of Johns Hopkins University, and colleagues were interested in studying three possible drivers of sex disparity in liver transplantation. First, genetic differences between men and women could affect the Model for End-Stage Liver Disease (MELD) score, which is used to establish the severity of chronic liver disease and helps identify people most in need of a transplant. Second, regional socioeconomic differences may affect the likelihood of receiving a transplant.

Finally, a size mismatch between smaller female recipients and livers from larger donors may be a contributing factor. While a larger person can receive a small liver, the reverse is not really possible. Since men tend to have larger abdominal cavities, the size issue is more likely to affect women.

The researchers analyzed data from the United Network for Organ Sharing, which coordinates liver allocation nationwide, on liver transplantations and outcomes from 1995 through 2012. The final study population included 150,149 people on the waiting list for a transplant. Given the variability of the data, the researchers developed different models that accounted for age, race, body mass index and other variables.

The team found that women were 4.8% less likely to be on the receiving end of a liver transplant. Across 11 different allocation regions, this difference remained constant.

After the use of MELD scores began in 2002, transplant rates increased by 3.5%, largely influenced

by more men getting transplants. The team found that MELD scores increased the sex disparity from 2.1% to 4.9%. The researchers suggested that men and women with the same MELD scores might still have different odds of receiving a new donor liver.

So while MELD and regional differences were not found to affect the sex disparity in liver transplantation, size differences were at play.

For instance, when comparing the tallest women with the shortest men, the disparity was 2.2%. On the other hand, when comparing the shortest women with the tallest men, the disparity increased to 7.0%.

When comparing men and women by weight, the heaviest women were 2.4% more likely to get a transplant than the lightest men. On the other hand, the heaviest men were 14.3% more likely to receive a transplant than the lightest women.

Pairwise comparisons between men and women of various sizes suggest that disparities in favor of men increase with the ratio of male-to-female size. After adjusting the data for weight, body mass index, region, race and other factors, the disparity fell by 19% to 3.9%.

"Our results document persistent sex disparity in liver transplantation, only 19% of which is explained by size differentials between men and women," wrote the researchers.

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