Are some patients too heavy for a new kidney?

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In a research review article published in the *American Journal of Nephrology*, Saint Louis University investigators examined data from multiple studies to better understand how obesity, an epidemic in the U.S., impacts kidney transplant patients. The authors report that, even as some connections between weight and health outcomes are unknown or contradictory, there is evidence that obese kidney transplant patients don't do as well after surgery, experiencing more adverse outcomes, including wound infections, delayed graft function, graft failure, cardiac disease and increased costs.

Led by Krista Lentine, M.D., associate professor of internal medicine in nephrology and Betsy Tuttle-Newhall, M.D., director of abdominal transplant at SLU, the authors examined multiple studies and concluded that the health outcomes of patients with higher body mass indices (BMI) are not as good. In addition, they found several areas where more study is needed in order to make clear and consistent recommendations about kidney transplants for heavier patients.

"Lifestyle alterations that seem reasonable to improve health outcomes should be encouraged," Tuttle Newhall said. "Just as we require patients with alcoholic liver disease to stop drinking prior to transplant, it is reasonable to ask kidney transplant candidates to lose excess body fat and attempt to increase lean muscle mass by becoming more physically active and modifying their diet."

Lentine, who also holds an appointment in the Saint Louis University

Center for Outcomes Research (SLUCOR), says the study points the way for future research to fill in gaps in our knowledge about how weight affects kidney transplant patients.

"Current guidelines from the American Society of Transplantation recommend a supervised weight loss regimen including a low-calorie diet, behavioral therapy, and a physical activity plan to achieve a body mass index (BMI) of less than 30 prior to kidney transplantation," Lentine said. "But, these guidelines also note that we don't have enough data to determine if some obese patients aren't appropriate candidates to receive kidney transplants at all.

"For this reason, current acceptable BMI limits for kidney transplant candidates vary across transplant centers."

The authors say future investigations should seek to determine the upper BMI limit at which point kidney transplantation should not be recommended for obese patients. In addition researchers note the limitations of BMI alone as a measure of body fat, and suggest further research using more refined measures.

While obese transplant recipients appear to have worse outcomes compared to normal weight recipients, the authors also note that many obese dialysis patients have better long-term survival after a transplant compared with remaining on dialysis.

In addition, doctors are aware of an "obesity paradox" when it comes to dialysis patients. Kidney patients on dialysis appear to benefit from extra fat, living longer than normal weight patients. Researchers do not know how extra weight provides a protective benefit, but believe that this relative benefit does not occur in transplant scenarios.

The benefit of losing weight prior to a kidney transplant also is

unproven. More study is needed to determine whether intentional weight loss before surgery, including diet, exercise and bariatric surgery, does, in fact, improve outcomes. The current understanding is murky because the available data does not distinguish between weight lost deliberately, through healthy diet, exercise or bariatric surgery, and spontaneous weight loss due to illness.

Bariatric surgery, in particular, needs to be studied further. Dialysis patients face bigger risks from surgery and it is unknown if it serves to offset the apparent risks of obesity when performed prior to a kidney transplant.

"This review showed us where there are gaps in the existing research and where current data is too light to be able to draw solid conclusions," said Lentine. "These gaps are what 'outcomes research' is designed to remedy.

"We've figured out some key questions to ask so that we can help our patients have successful transplants and healthy lives."

BOTTOM LINE

- Obesity appears to affect kidney transplant patients in a negative way, leading to complications during their recovery.
- Kidney patients should know that their weight may affect the success of a transplant and should work with their doctor to manage it in a healthy way.
- Doctors need future studies to examine the upper BMI limit at which kidney transplantation should not be recommended for obese patients, to refine ways of measuring obesity, and to define the benefits of losing weight prior to a kidney transplant.

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