

# Extreme BMI cause for concern in liver transplantation

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A recent study by doctors at the University of Washington explained that patients who are significantly underweight or very severely obese prior to liver transplantation are at increased risk of death following transplantation surgery. These findings, from the largest known observation of liver transplantation at the extremes of BMI, are published in the August issue of *Liver Transplantation*, a journal published by John Wiley & Sons on behalf of the American Association for the Study of Liver Diseases.

The research team led by André A. S. Dick, M.D., Department of Surgery, Division of Transplantation, University of Washington investigated the impact of pre-transplantation Body Mass Index (BMI) on post-liver transplantation patient survival. The doctors hypothesized that individuals at the extremes of BMI were at increased risk of death following [liver transplantation](#). In this study, patients with BMI

When compared with the control group, the underweight patients had a higher retransplantation rate due to graft failure and were more likely to die from hemorrhagic complications or cerebrovascular accidents. Previous studies in Japan and Korea have shown a relationship between low BMI (

After transplantation, the very severely obese patients experienced higher rates of death due to infectious complications and cancer. The authors propose that one mechanism for this apparent immune deficiency is the presence of diabetes in patients with BMI > 40 kg/m<sup>2</sup>. Previous studies show that diabetic patients are at increased risk of infectious complications after surgical procedures, and supplemental immunosuppressive medication may further exacerbate this process. "An appropriate weight-based immunosuppressive regimen, careful management of severely obese patients' co-morbidities (diabetes, hypertension) and aggressive facilitation of weight reduction can

optimize the health of these patients and potentially improve patient outcomes," suggest the researchers.

For patients who are severely obese, past protocol was to resolve their co-morbidities and help them achieve [weight loss](#) prior to transplantation. "A better approach might be to transplant these patients sooner by not requiring weight loss or working with the United Network for Organ Sharing (UNOS) for a policy change to assign additional Model for End-Stage Liver Disease (MELD) points for severe obesity, as is done for patients with hepatocellular carcinoma," concluded the authors. "Aggressive management of the patients' co-morbid factors and posttransplantation weight loss is a must." The researchers also recommend a posttransplantation immunosuppressive regimen favoring less immunosuppressive medications without steroids and low dose tacrolimus based on the ideal body weight.

In patients who are underweight the authors recommend "close follow-up with a nutritionist. If the patients are unable to meet their caloric intake prior to transplantation, they should then be admitted to the hospital for aggressive nutritional supplementation such as tube feedings. This aggressive regimen is continued after transplantation." The doctors also suggest a more aggressive immunosuppressive regimen with higher doses of tacrolimus and mycophenolate mofetil.

More information: "Liver Transplantation at the Extremes of Body Mass Index," André Dick, Austin Spitzer, Catherine Seifert, Alysun Deckert, R.L. Carithers, Jorge Reyes, James Perkins, *Liver Transplantation*, August 2009. [www3.interscience.wiley.com/jo.../122525885/abstract](http://www3.interscience.wiley.com/jo.../122525885/abstract)

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