Exercise may reduce heart disease risk in liver transplant recipients

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New research reveals that metabolic syndrome—risk factors that can lead to heart disease and/or stroke—is common in liver transplant recipients, with rates highest at one year following the procedure. Findings published in *Liver Transplantation*, a journal of the American Association for the Study of Liver Diseases and the International Liver Transplantation Society, indicate that exercise could reduce complications from metabolic disease in patients post-transplantation.

The National Heart, Lung, and Blood Institute suggests that obesity, physical inactivity, and insulin resistance increase risk of metabolic syndrome. According to the NHLBI, patients who have three or more of the following metabolic clinical features would be diagnosed with metabolic syndrome:

- high triglyceride level
- abdominal obesity
- low HDL (good) cholesterol level
- high blood pressure
- high fasting blood sugar

While liver transplantation extends life for those with liver failure and liver cancer, studies show that transplant recipients are at increased risk for heart disease and metabolic abnormalities. In fact, experts suggest that up to 58% of liver transplant patients have metabolic syndrome.

"Metabolic syndrome is highly prevalent among liver transplant

recipients who also tend to be more physically inactive than other patient groups," explains lead author, Dr. Eric Kallwitz from Loyola University Medical Center in Maywood, Ill. "For this reason, our study evaluated physical activity and metabolic syndrome in patients following liver transplantation."

Researchers recruited 204 liver transplant recipients to evaluate their metabolic abnormalities, and exercise intensity and duration following transplantation. There were 112 male and 92 female participants with a mean age of 57 years. Ethnic composition of the group was 45% Caucasian, 27% Hispanic, 24% African-American, and 5% Asian or other background.

Analysis shows metabolic syndrome in 59% of all subjects and in 64% of recipients more than one year after transplant. Liver transplant patients exercised an average of 90 minutes with a mean metabolic equivalent (METS) at 3.6. In all subjects, metabolic syndrome was significantly higher and was associated with lower exercise intensity, older age, and pre-transplant diabetes in patients more than one year following transplant.

Dr. Kallwitz concludes, "Our findings suggest that exercise could help reduce metabolic syndrome complications in liver transplant recipients. Given the early onset of metabolic abnormalities following transplant, an effective intervention such as a structured exercise program during the first year after surgery, may benefit liver transplant patients."

More information: "Physical Activity and Metabolic Syndrome in Liver Transplant Recipients." Eric R Kallwitz, Veronica Loy, Praveen Mettu, Natasha Von Roenn, Jamie Berkes and Scott J Cotler. *Liver Transplantation*; (DOI: 10.1002/lt.23710) Online Publication: July 25, 2013. doi.wiley.com/10.1022/lt.23710

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