



Mid Atlantic Regional Chapter of the American College of Sports Medicine

Annual Scientific Meeting, November 2nd - 3rd, 2018
Conference Proceedings
International Journal of Exercise Science, Issue 9, Volume 7



Obesity and Functional Status Predict Liver Transplant Waiting-List Death

Breiana L Hummer MS, Gloriana Rivas BS, Allison Baragona MD, Ian R Schreiber MD, Kathryn H Schmitz PhD, FACSM, Jonathan G Stine MD. The Pennsylvania State University College of Medicine, Milton S. Hershey Medical Center, Hershey, PA

In the US, organ demand for life-saving liver transplantation greatly outweighs supply. While the relationship between obesity and transplant outcomes remains controversial, impaired functional status pre-transplantation is an established predictor of waiting-list and immediate post-transplantation mortality. Whether or not functional status is compounded by obesity remains unexplored. **Purpose:** We aimed to evaluate the risk of transplant waiting-list death and post-transplantation survival based on both obesity and functional status. **Methods:** Data from adult patients wait-listed for liver transplant between February 2002 and September 2016 were obtained with permission from United Network Organ Sharing. Patients were categorized into one of four groups: Non-Obese and Normal Functioning (NONF), Obese and Normal Functioning (ONF), Non-Obese and Impaired Functioning (NOIF) or Obese and Impaired Functioning (OIF). Competing risks cox proportional hazards models were constructed to assess risk factors for both waiting-list mortality and post-transplantation survival. **Results:** Of the 110,303 subjects, 36.0% were NOIF, 28.2% NONF, 21.1% OIF and 14.6% ONF ($p < 0.001$). In general, subjects with impaired functional status had more severe disease (e.g., greater rates of hemodialysis, higher MELD scores). Unadjusted waiting-list mortality was significantly different and greatest for NOIF 24.5% followed by 22.3% OIF. Unadjusted one- and three-year survival was also the lowest in the NOIF group 82.9%. When compared to NONF, OIF had the greatest adjusted waiting-list mortality (HR 1.33, 95% CI 1.30-1.36, $p = 0.026$) followed by NOIF (HR 1.29, 95% CI 1.27-1.32, $p < 0.001$). NOIF had the greatest adjusted post-transplantation mortality with a HR 1.10 (1.10-1.15, $p < 0.001$). OIF had similar survival to the reference group. **Conclusion:** Liver transplant recipients who are obese with impaired functional status have a significantly greater risk of waiting-list death but similar survival to normal weight, normal functional status recipients. Our findings suggest that pre-habilitation with exercise intervention with the goal of improving both functional status and obesity may improve waiting-list mortality in liver transplant candidates. Future prospective study is needed to validate this important finding.

Conflicts of Interest:

No conflicts of interest relevant to the proposed work but Dr. Stine has research support from TARGET Pharma Solutions, Inc and has served as a consultant for Bayer