

Disturbed energy metabolism after lung and heart transplantation

Førli L,¹ Bollerslev J,^{1,2} Simonsen S,³ Isaksen GA,¹ Kvamsdal KE,¹ Godang K,¹ Pripp AH,⁴ and Bjørtuft Ø⁵

¹ Medical Department, ² Faculty Division, University of Oslo, ³ Department of Cardiology, ⁴ Section of Biostatistics, Research Services Department and ⁵ Department of Respiratory Medicine. All from: Rikshospitalet, Oslo University Hospital, N-0027 Oslo, Norway.

Background. Over-weight when in combination with other cardiovascular risk factors resulted in lower survival rates after transplantation. The aim of this prospective longitudinal study was to observe leptin, adiponectin and energy intake as predictors of BMI and body composition and as risk factors associated with metabolic syndrome twelve months after transplantation.

Methods. After preoperative baseline investigation 35 lung and 59 heart recipients were followed postoperatively and reinvestigated 2, 6 and 12 months after transplantation. Linear regressions were performed to predict BMI and body composition.

Results. The lung recipients had a substantial weight gain after transplantation. Leptin increased, while there was no change for adiponectin after transplantation. Adiponectin was negatively and leptin positively associated with BMI 12 months after transplantation. Energy intake was a predictor of BMI before transplantation and at 2 months, but not at 12 months after transplantation. In all patients percentage trunk fat increased ($p < 0.001$) and percentage lean mass decreased ($p = 0.002$) after transplantation. At baseline, percentage lean mass was positively associated with adiponectin, while no association with leptin. Twelve months after transplantation, percentage lean mass was not associated with adiponectin, but negatively with leptin. Metabolic syndrome one year after transplantation was associated with overweight, greater weight gain, no difference for energy intake, less percentage lean mass, more body fat, higher leptin and for the heart recipients also lower adiponectin.

Conclusion. Our results might indicate disturbed energy metabolism after lung and heart transplantation where adiponectin and especially leptin were involved. Hyperleptinemi did not lead to diet-induced overweight nor stabilisation of weight.