

# ON THE SERUM LEVELS OF LEPTIN AND ADIPONECTIN DURING THE FIRST WEEK AFTER KIDNEY TRANSPLANTATION: A REPEATED-MEASURES PROSPECTIVE STUDY

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## OBJECTIVES

Based on the growing evidence that leptin and adiponectin are removed from the circulation primarily by the kidney, this prospective study was designed to:

- ▶ Examine the longitudinal changes of leptin and adiponectin during the first week after kidney transplantation (KTx);
- ▶ Test the hypothesis that higher levels of leptin and/or adiponectin could be early biomarkers of delayed graft function (DGF = dialysis requirement during the first post-transplant week).

## PATIENTS and METHODS

### Study Sample:

- 40 Adult patients undergoing deceased or living KTx

### Measurements of leptin and adiponectin levels:

- ▶ 2h before KTx (day0)
- ▶ 1<sup>st</sup>, 2<sup>nd</sup>, 4<sup>th</sup> e 7<sup>th</sup> days post-KTx

5 measurements/patient

### Statistical Analysis

- ▶ Bivariate (*t*-test)
- ▶ Multivariable (linear mixed model, ROC curves and linear regression)
- ▶ Software SPSS, version 21

## RESULTS

<b>Donor</b>	Age (years old, mean ± SD)	51 ± 11
	Living donor (n, %)	11 (28)
<b>Recipient</b>	Age (years, mean ± SD)	49 ± 15
	Sex (n, %)	26 (65)
	Time on dialysis (years, mean ± SD)	4.4 ± 4.7
<b>Post-KTx</b>	Previous KTx (n, %)	2 (5.0)
	<b>DGF</b> (n, %)	18 (45)
	Acute rejection (n, %)	10 (25)

Fig. 1

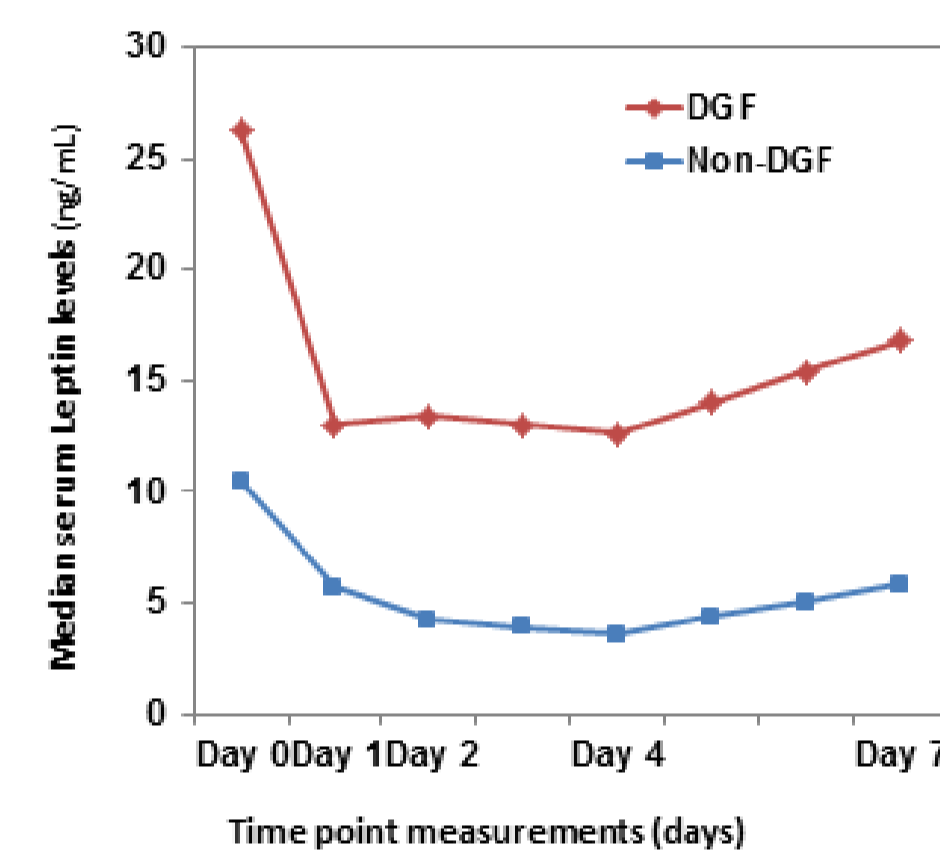


Fig. 2

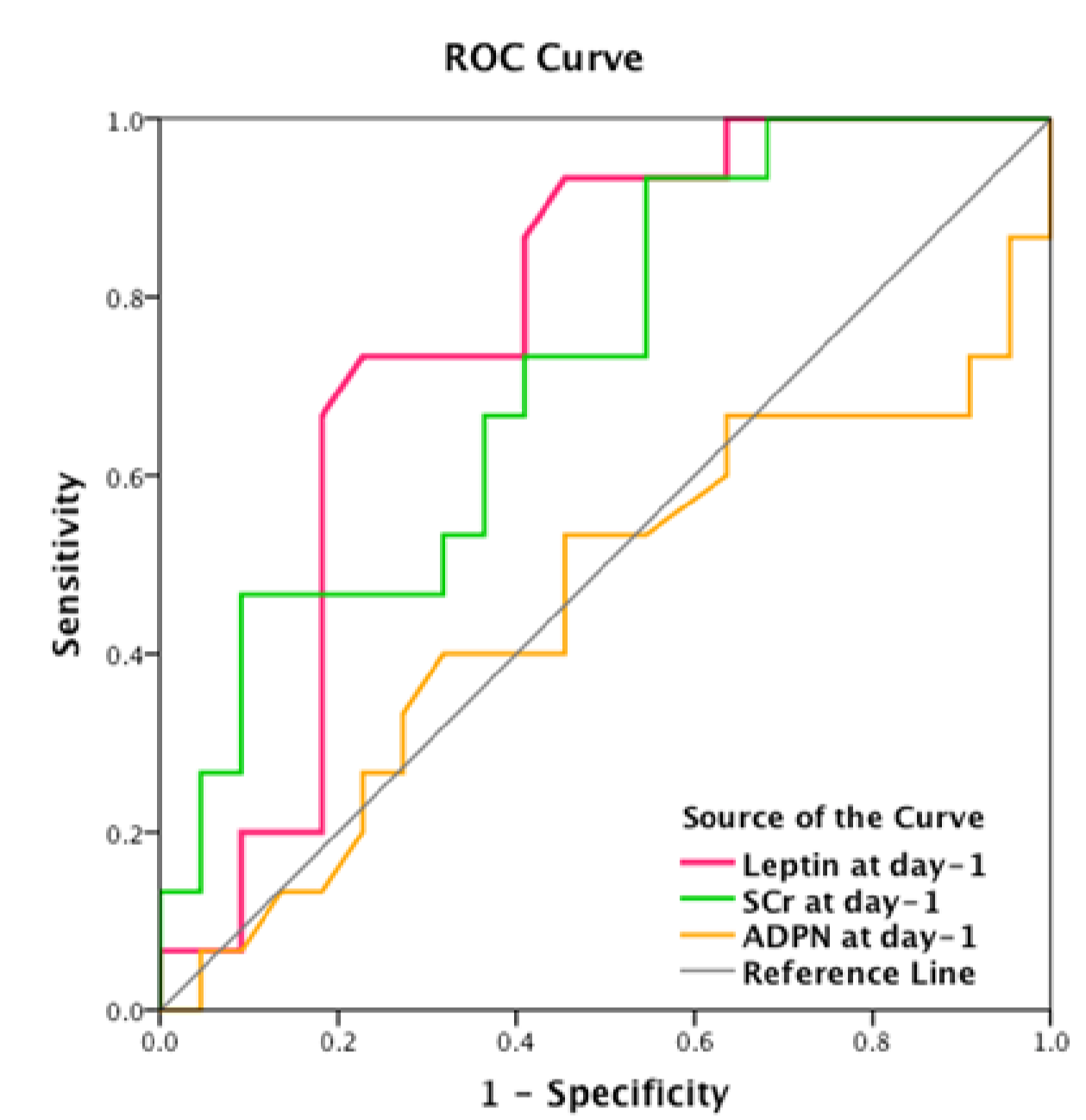
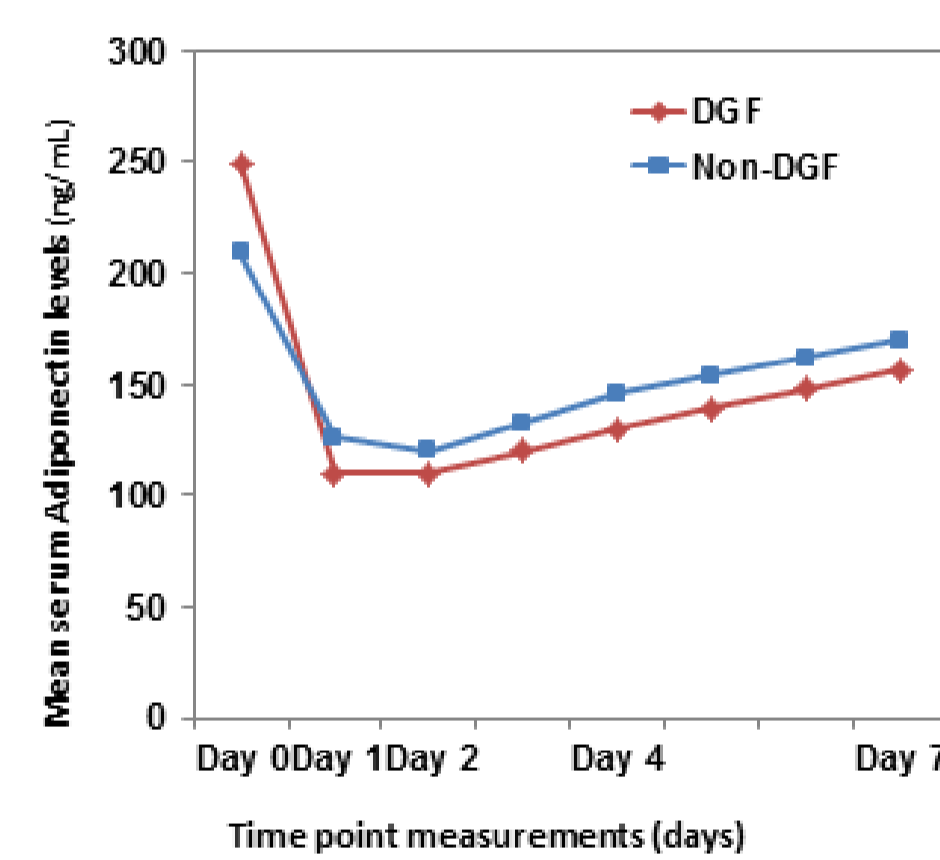


Fig. 3

- ▶ Pre-transplant serum leptin and adiponectin levels ranged from 0.8 to 265 ng/mL (median=14.7 ng/mL), and from 81 to 348 ng/mL (median=224 ng/mL), respectively.
- ▶ At post-transplant day-1, leptinemia and adiponectinemia declined by approximately 43% and 47%, respectively.
- ▶ At all times studied after KTx, the median leptin levels were significantly higher in patients developing DGF (n=18), but not the adiponectin levels. Shortly after KTx (8-12 h), leptin values were significantly higher in DGF recipients in contrast to patients with promptly functioning kidneys, approximately two times higher when controlling for gender and BMI, the other variables associated with leptin changes during the first post-transplant week. (Fig. 1 and 2)
- ▶ On day-1, leptin predicted DGF (AUC-ROC=0.76), with a performance slightly better than serum creatinine (AUC-ROC=0.72), even after correcting for BMI (AUC-ROC=0.73). (Fig 3)

## CONCLUSIONS

- ✓ Circulating levels of leptin and adiponectin decline following KTx.
- ✓ The decline of leptin levels, but not adiponectin, depends on the function of the kidney allograft. Female gender and higher BMI were de other independent predictors of leptinemia.
- ✓ Renal graft function is an independent determinant of leptin levels, which slightly outperformed serum creatinine in predicting the occurrence of DGF.

## References

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