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Supplemental

Table S1. The list of the studies investigating the role of serum leptin in KTR.

Author (year)	Sample size/study design	Mean age	Correlations	Findings
Muras-Szwedziak et al. (2019) [1]	25/ follow up 3mo KTR vs CKD	46.9 ± 11.8	Positive with CRP	The impact of physical activity on adipokines
Marchelek-Mysliwiec et al. (2019) [2]	56/ cross-sectional KTR vs HD vs control	55.0 ± 12.4	Positive with BMI, BF, Klotho protein; negative with adiponectin	KT is associated with the increase of leptin, FGF23 and Klotho proteins
Dedinská et al. (2018) [3]	70/ follow up 6mo	46.7 ± 11.1	Positive with TG, PTDM, AR	Leptin is associated with PTDM and AR
Małgorzewicz et al. (2016) [4]	183/cross-sectional	51.7 ± 13.6	Positive with BMI and BF %; negative with LBM, eGFR	Leptin correlated with BMI and BF%, LBM and eGFR
Fonseca et al. (2015) [5]	40/follow up 7 days	ND	Positive with BMI, gender, age, DGF	Graft function was a strong determinant of leptinemia
Małgorzewicz et al. (2014) [6]	80/cross-sectional	52.4 ± 14.0	Positive with duration of KTX, BMI and BF%; negative with SGA	Increased BMI, abdominal obesity, and high leptin concentration are aggravated by time after transplantation and deterioration of graft function
Shu et al. (2014) [7]	280/cross-sectional	43.5 ± 12.7	Positive with MS, gender, BM, WC, BMI, hypertension, Cr, glucose, HbA1c, TG, uric acid	KT recipients with MS were associated with significantly higher serum leptin levels
Rafieian-Kopaei et al. (2013) [8]	72/cross-sectional	44 ± 12	Positive with gender; negative with duration of KTX	An inverse association between serum leptin and duration of renal transplantation
Nicoletto et al. (2012) [9]	32/ follow up 5 years	41.5 ± 11.4	Positive with BMI, gender, BF%, HOMA	Leptin levels and HOMA decrease in the immediate post-transplant period and remain reduced for at least 1 year
Teplan et al. (2012) [10]	70/follow up 12mo	ND	Positive with BF	An increase of body fat was associated with leptin
Lee et al. (2010) [11]	55/cross-sectional	40 to 61 years	Positive with WC, BMI, BF, TG, hs-CRP), TSF, midAFA	Serum leptin concentration correlates positively with MS in KT recipients
Molnar et al. (2010) [12]	993/cross-sectional	51 ± 13	Positive with age, MIS; negative with eGFR	MIS correlated significantly with all measures of nutritional status
Kovesdy et al. (2010) [13]	979/cross-sectional	50.9 ± 12.8	Positive with PTH; negative with vitD	Higher leptin levels were associated with higher PTH and lower vitamin D levels
Souza et al. (2007) [14]	32/ follow up 12mo KTR vs control	41.5 ± 11.4	Positive with BF, HOMA	Pretransplant leptin levels reduced after KT
Agras et al. (2005) [15]	41/cross-sectional	16 to 55 years	Positive with BMI, BMD	Elevated leptin levels are associated with increased BMD in KT recipients
Malyszko et al. (2005) [16]	27/cross-sectional	30 to 67 years	Positive with BF%, trunk fat, LBM, Cr, urea	Leptin levels are associated with graft function and BF
El Haggan et al. (2004) [17]	41/follow up 6mo	43.7 ± 10.4	Positive with BF, BMI, CRP	Pretransplant leptin levels reduced KT
Kayacan et al. (2003) [18]	34/ follow up 6mo KTR vs control	29 ± 9	Positive with BF%, HOMA	HOMA and BF% were found to be associated with leptin level
Kagan et al. (2002) [19]	25/cross-sectional KTR vs HTR vs LTR	46.0 ± 2.6	Positive with BMI, gender, Cr, CrCl	Leptin shows correlation with gender, BMI, kidney function, insulin and cortisol levels
Baczkowska et al. (2000) [20]	28/follow up 12mo KTR vs control	39.2 ± 10.6	Positive with BMI	Body weight and BMI was associated with increased leptin level
Kokot et al. (1998) [21]	40/ follow up until discharge from the hospital	34.3 ± 1.6	Positive with BMI; negative with age	Leptin levels reduced after KT

Howard et al. (1997) [22]	45/ cross-sectional KTR vs HD vs PD vs control	25 to 70 years	Positive with BMI, gender	Hyperleptinemia contributes to the anorexia and poor nutritional status in ESRD

CRP – C reactive protein; BMI – body mass index; BF – body fat, FGF23 – fibroblast growth l delayed graft function; KT – kidney transplantation, KTR – kidney transplant recipient; HTR – heart transplant recipient; LTR – liver transplant recipient; HD – hemodialysis; PD – peritoneal dialysis; K – healthy controls; CKD – chronic kidney disease; SGA – Subjective Global Assessment; TG – triglycerides; PTDM – post-transplant diabetes mellitus; AR – acute rejection; HOMA – homeostasis model assessment; MS – metabolic syndrome; BM – body mass; WC – waist circumference; Cr – serum creatinine; CrCl – creatinine clearance; TSF – triceps skinfold, AFA – arm fat area; MIS – malnutrition inflammation score; PTH – parathyroid hormone, vitD – vitamin D; BMD – body mineral density, ESRD – end-stage renal disease; ND – no data.

Table S2. Correlation between various variables and leptin levels.

	Pre-transplant leptin concentration		Post-transplant (after 6 months) leptin concentration	
	r	p-value	r	p-value
Weight, kg	0.252	0.042	0.305	0.013
BMI, kg/m^2	0.564	<.001	0.601	<.001
WC, cm	0.357	0.003	0.462	0.001
Body fat, %	0.643	<.001	0.757	<.001
Fat mass, kg	0.614	<.001	0.703	<.001
Muscle mass, kg	-0.194	0.119	-0.197	0.114
Albumin, g/L	-0.218	0.080	-0.148	0.238
PTH, pmol/l	0.316	0.010	0.278	0.024
GNRI	0.407	0.008	0.551	<.001
MIS	-0.257	0.038	-0.150	0.232
HGS, kg	-0.312	0.011	-0.212	0.089

BMI – body mass index, WC – waist circumference, GNRI – geriatric nutritional risk index, MIS – malnutrition inflammation score, HGS – handgrip strength.

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