



RISK FACTORS OF EXCESSIVE WEIGHT GAIN AFTER RENAL TRANSPLANT : INSIGHTS FROM A SINGLE-CENTER STUDY



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INTRODUCTION

A significant proportion of patients experience weight gain after renal transplant due to factors such as correction of uremia, increased appetite, corticosteroid use, and sedentary state during the postoperative period.¹ Obesity and its adverse metabolic effects may contribute to poorer outcomes following renal transplantation.²

OBJECTIVE

This study seeks to identify the risk factors contributing to weight gain following renal transplantation.

METHOD

Data was collected retrospectively from electronic medical records for patients who underwent renal transplant surgery in Hospital Kuala Lumpur over a five-year period (April 2018 to March 2023). Baseline characteristics and parameters including co-morbidities, mode of kidney replacement therapy (KRT) and dialysis vintage before transplant, transplant type, immunosuppressant (IS) regime, and graft function were documented. Additionally, weight changes at three months post-transplant were assessed, defining excessive weight gain (EWG) as an increase of 5% or more from baseline weight before and after transplant.

RESULTS

A total of 254 renal transplant patients with a mean age of 34.5 years, and males predominating (135 males, 119 females) were recorded. The average baseline weight was 57.4kg with a BMI of 21.97kg/m². At three months post-transplant, the average weight increased by 2.21kg (4.4%), with 41.7% experiencing EWG. Significant associations were observed between female sex and EWG ($p < 0.001$, OR = 1.6). Peritoneal dialysis patients faced a higher risk of EWG compared to those who were on haemodialysis ($p = 0.010$, OR = 2.6). Living related renal transplant recipients were also more susceptible to EWG compared to cadaveric transplant recipients ($p < 0.001$, OR = 1.4). Race analysis revealed varying rates of weight gain, with Indians exhibiting the highest proportion of EWG (46.2%). Age analysis reveals higher weight gain among younger recipients. Other parameters including dialysis vintage, IS regime, primary disease of end stage kidney disease and comorbidities were not significantly correlated with weight gain.

CONCLUSION

Weight gain after renal transplant is influenced by multiple factors including gender, pre-transplant dialysis mode, and transplant type. Personalized management strategies such as optimized medication, raising awareness for self-care, increasing physical activity, and adherence to healthy diet are crucial in mitigating obesity and associated complications among transplant recipients with these risk factors.

Table 1 : Patient's characteristics and association with excessive weight gain.

	Total n (%)	No Weight gain >5% (n = 148) No. (%)	Weight gain >5% (n=106) No. (%)	OR (95% CI)	Chi-Square	P value
Gender	Male, 135 (53.1)	93 (68.9)	42 (31.1)			
	Female, 119 (46.9)	55 (46.2)	64 (53.8)	1.6 (1.2-2.1)	13.36	<0.01
Type of transplant	Living, 202 (79.5)	101 (50.0)	101 (50.0)	1.4 (1.2-1.6)	27.73	<0.01
	Cadaveric, 52 (20.5)	47 (90.4)	5 (24.4)			
Graft function	Immediate graft function, 232 (91)	129 (55.6)	103 (44.4)	1.1 (1.0-1.2)	7.81	0.05
	Delayed graft function, 22 (8.7)	19 (86.4)	3 (13.6)			
Mode of KRT before transplant	Haemodialysis, 195 (87.8)	116 (59.4)	79 (40.5)			
	Peritoneal Dialysis, 27 (12.2)	9 (33.3)	18 (66.7)	2.6 (1.2-5.5)	6.59	0.10
Underlying Diabetes	Yes, 14 (5.5)	8 (57.1)	6 (42.9)	1.0 (0.4-2.9)	0.01	0.93
	No, 240 (94.5)	140 (58.3)	100 (41.7)			
Post transplant DM	Yes, 22 (8.7)	14 (63.6)	8 (36.3)			
	No, 232 (91.3)	134 (57.8)	98 (42.2)	1.0 (0.9-1.1)	0.29	0.59
Immunosuppressant	Tac/MMF/Prednisolone, 190 (74.8)	110 (57.9)	80 (42.1)			
	Tac/mTOR/Prednisolone, 64 (25.2)	38 (59.3)	26 (40.6)	1.0 (0.9-1.2)	0.43	0.83

Figure 1: Numbers of patients in BMI categories before and after renal transplant

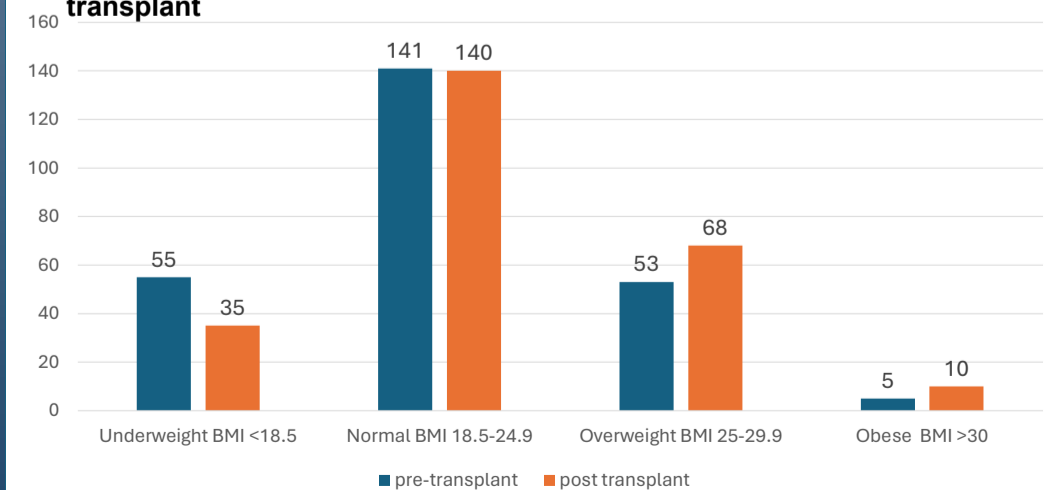
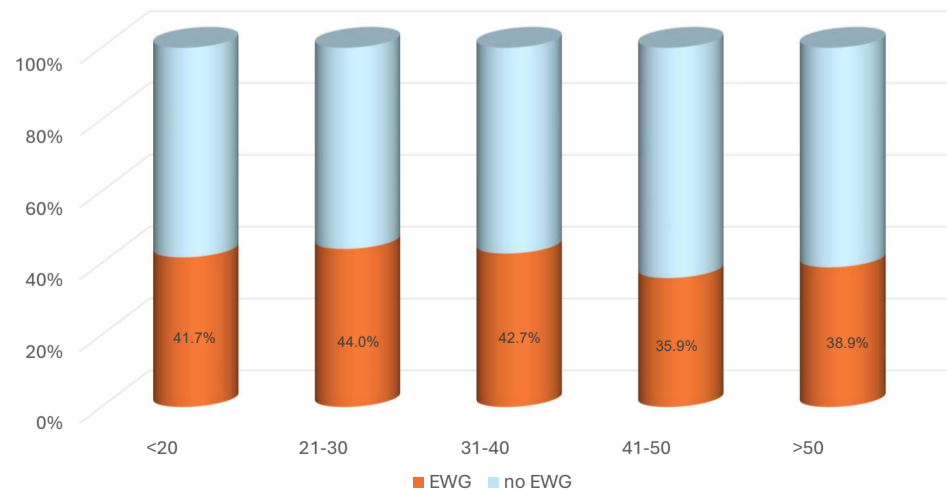


Figure 2 : Age of transplant recipient and EWG



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