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Recipient Obesity on Deceased donor Kidney Transplantation Outcomes: Overlooked threats to Allograft dysfunction and DGF

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Objectives: As the prevalence of obesity increases globally, appreciating the effect of recipient obesity on graft outcomes is of increasing importance. However, the impact of recipient body mass index (BMI) on kidney transplant outcomes has been controversial. This study is designed to investigate the effect of recipient BMI on short and long-term outcomes of patients undergoing deceased donor kidney transplantation (KT).

Methods: Among initial 789 patients, total 743 patients receiving deceased donor KT between 2005 and 2019 among 3 multi-centers were included in the study. Patients were divided according to their body mass index (BMI) into underweight (BMI< 18.5; N=47), normal weight (BMI≥ 18.5 to BMI< 25 kg/m2; N=488), and obese (BMI≥ 25kg/m2; N=208) groups. Their clinicopathological characteristics, graft functions, graft survival rates and delayed graft function (DGF) were analyzed retrospectively.

Results: Obesity was associated with deterioration of allograft function. Kidney function was significantly lower in obese group compared with underweight and normal BMI groups after 3 months to 3 years follow up after kidney transplantation (3 months follow up p= 0.005, 1year p= 0.009, 3year p=0.034 respectively). Furthermore, multivariate analysis showed that recipient obesity (BMI ≥ 25) was an significant prognostic factor for delayed graft function (DGF) (OR 1.24; 95% CI, 1.011–1.438; P= 0.042). Though statistically insignificant, the death-censored graft survival rate tends to be lower in obese group. However, when using the cox proportional hazards model, the trends between recipient obesity and death-censored allograft failure disappeared, after adjustment for important covariates.

Conclusions: In conclusion, recipients' obesity increases the risk of allograft dysfunction and it is also found to be statistically significant prognostic factor for DGF. Death-censored graft survival rate tend to be negatively associated with recipients' BMI level. Therefore, appropriate risk-adapted information concerning BMI should be provided to patients and efforts to improve recipients' obesity should be taken in advance to KT.

Figure1. Allograft function & Recipients' BMI