

中文題目：身體質量指數與腎功能的關聯性受慢性腎病期別與貧血影響：對腎功能肥胖悖論的解釋

英文題目：The Association between Body Mass Index and Renal Outcome is modified by CKD stages and anemia: An Explanation of Obesity Paradox for Renal Outcome

作者：沈峯慶¹，張哲銘^{1,2}，黃尚志^{1,2}，洪啟智^{1,2}

服務單位：¹高雄醫學大學附設醫院內科部；²高雄醫學大學附設醫院腎臟內科

Background: Obesity-related nephropathy is associated with renal function progression. However, obesity paradox for renal outcome, referring to the association of high body mass index (BMI) with low risk of renal outcome, is found in some studies, especially in advanced chronic kidney disease (CKD). Central obesity is an explanation of obesity paradox for all-cause mortality. Whether obesity or central obesity is still associated with renal outcome (defined as renal replacement therapy and 50% decline of estimated glomerular filtration rate) in advance CKD patients is not clear.

Methods: We conducted a cohort study including 3605 Asian patients to investigate the characteristics of patients at all CKD stages (CKD stage 1-5) according to various BMI categories (G1-G6: 15-20, 20-22.5, 22.5-25, 25-27.5, 27.5-30 and 30-35 kg/m²) and to determine the influence of BMI, CKD stage, anemia and central obesity on renal function deterioration. The patients were enrolled in the Integrated CKD Care Program Kaohsiung for Delaying Dialysis in Kaohsiung Medical University Hospital. The demographic features were recorded at the first visit, and the medical history was recorded using a chart review. The model was adjusted for age, gender, eGFR, log-transformed urine protein and creatinine ratio, cardiovascular disease, smoker, cancer, severe liver disease and hypertension.

Results: In competing risk Cox regression model, high BMI (BMI 27.5-35 kg/m²) was associated with renal outcome in CKD stage 1-3 (HR [95% confidence interval; CI]; BMI G5 [1.51; 1.01-2.26] and G6 [1.58; 1.00-2.51]) but not in CKD stage 4-5 (BMI G5 [1.02; 0.84-1.25] and G6 [1.04; 0.83-1.31]). High BMI was associated with renal outcome in hemoglobin \geq 11 g/dl (BMI G5 [3.04; 1.79-5.18] and G6 [2.64; 1.53-4.55]) but not in hemoglobin $<$ 11 g/dl (BMI G5 [1.01; 0.74-1.38] and G6 [1; reference group]). High waist-to-hip ratio was not associated with renal outcome.

Conclusion: We concluded that obesity is still associated with renal outcome in CKD patients with early CKD stages or without anemia.