INTRODUCTION AND AIMS: Obesity is a well-known risk factor for developing chronic kidney disease (CKD), even though this anthropometric characteristic confers a survival benefit among patients that require dialysis. The relationship between body...
mass index (BMI) and the rate of progression of CKD has been less well studied. This study aims to determine the relationship between BMI and progression of CKD adjusted for major confounding factors.

METHODS: Retrospective, observational study in a cohort of adult patients with CKD stage 4-5 not yet on dialysis. Patients with recent acute kidney injury or those with glomerular diseases or vasculitis under immunosuppressive therapy were excluded. The slope of the regression line of eGFR (MDRD) over time (ml/min/1.73m²/year) was used to assess the rate of renal failure progression. Patients were divided into 3 subgroups according to BMI: <25, 25-30, and >30 kg/m².

RESULTS: The study group consisted of 915 patients (mean age 65±14 years, 48% women) with a median follow-up time of 23 months. Mean eGFR slope was 3.35±4.44 ml/min/1.73m²/year. A BMI of 25 kg/m² represented the cut-off point below which the progression of CKD turns out to be faster. The mean decline of renal function in this subgroup was significantly faster than the rest of the patients: 4.41±4.77 vs. 3.06±4.31 ml/min/1.73m²/year (p<0.0001). These 196 patients with a BMI<25 kg/m² were significantly younger, with less comorbidity, well controlled blood pressure with less medication, lower markers of malnutrition and inflammation, and similar proteinuria, although the number of current smokers was significantly greater. Both BMI as a continuous and as a dummy variable (BMI below 25 kg/m²) were significant and independently associated with the rate of progression of CKD (β = 0.103; p<0.001, and β = -0.121; p<0.0001, respectively) in multivariate linear regression analysis adjusted for age, sex, comorbidity, CKD etiology, blood pressure, proteinuria, and prescribed medication.

CONCLUSIONS: While obesity is a risk factor for developing CKD, being thin is independent and significantly associated with a faster progression of CKD at later stages. This association cannot be explained by age, sex, comorbidity, malnutrition-inflammation, and it is independent of CKD etiology, blood pressure or proteinuria.