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Prevalence and characteristics of people with a high body mass index across the kidney disease spectrum: a population-based cohort study

Gurleen Sahi¹, Jennifer Reid^{2,3}, Michael Chiu⁴, Louise Moist⁵, Kyla Naylor^{2,6,7}, Saverio Stranges⁶, Kamel Omer¹, Amanda Vinson⁸, Janet Madill⁹, and Kristin K Clemens^{10,6,3}

¹Schulich School of Medicine and Dentistry, Western University

²ICES

³ICES Western

⁴Division of Nephrology, Department of Medicine, London Health Sciences Centre, Western University

⁵Division of Nephrology, Department of Medicine, Schulich School of Medicine and Dentistry, Western University

⁶Department of Epidemiology and Biostatistics, Western University

⁷Lawson Health Research Institute and London Health Sciences Centre

⁸Faculty of Medicine at Dalhousie

⁹Brescia University College, Western University

¹⁰Schulich School of Medicine and Dentistry, Western University

The prevalence of obesity is growing globally and has major health implications, particularly for those with chronic kidney disease (CKD). People with obesity have a higher risk of CKD progression and face barriers to transplantation. Studies on the epidemiology and outcomes of obesity in the Canadian CKD population are lacking.

This population-based cohort study included adults aged 18 and over with a hospital encounter in London, Ontario, Canada from 2010 to 2019 where height and weight were recorded. They were stratified into CKD stages 1-5 (by estimated glomerular filtration rate (eGFR)), dialysis or renal transplant status and by body mass index (BMI) using Canada Obesity Guidelines. Outcomes included prevalence of BMIs by CKD stage, and CKD progression and transplant outcomes across BMI classes.

Our cohort included 198,151 patients. The prevalence of BMI ≥ 30 kg/m² grew as eGFR declined (i.e., 37% in stage 1, 41.5% in stage 3b, 40.9% in stage 4) but fell in end-stages (i.e., 37.4% in Stage 5, 38.8% in dialysis, 38.5% in transplant recipients). CKD progression and kidney failure appeared more frequent in those with a BMI ≥ 30 kg/m². In a smaller sample, we noted that end-stage patients with a BMI ≥ 30 kg/m² were less frequently transplanted, but experienced post-transplant complications less often.

This study revealed that high BMI is a prevalent issue in the Canadian CKD population and may influence kidney outcomes and transplant candidacy. This data will help inform clinical trials to create and study weight loss interventions for those with CKD and obesity.

