

Obesity and Mortality of End Stage Renal Dialysis and Its Treatment

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DESCRIPTION

In the general population, obesity is a risk factor for *de novo* Chronic Kidney Disease (CKD). Patients with CKD are becoming more and more obese, which could accelerate the course of pre-existing CKD. It is unclear, therefore, if obesity and the onset of End-Stage Renal Disease (ESRD) in CKD patients are related.

Globally, the incidence of obesity is on the rise and has been associated with a number of detrimental health outcomes, including as type 2 Diabetes Mellitus (DM), hypertension, dyslipidemia, Cardio Vascular Disease (CVD), cancer, and a shorter life expectancy. Obesity is also a risk factor for incident Chronic Kidney Disease (CKD) or End-Stage Renal Disease (ESRD), according to a vast number of population-based researches. Increased fat mass itself may have a direct impact on kidney function through glomerular hyper filtration, chronic inflammation, adipokine changes, and a dysfunctional Renin-Angiotensin-Aldosterone System (RAAS), in addition to indirect renal effects mediated by various comorbidities.

Additionally, there has been a significant increase in the frequency of obesity among people with CKD. Contrary to the clear-cut increased risk of ESRD in the general population, research conducted on individuals who already had CKD have produced inconsistent findings. These trials were robust and large, although they were corrected for few factors.

Furthermore, despite the fact that the WHO defines obesity as excess body fatness, BMI was utilized as a stand-in for obesity in the majority of the research. Despite the fact that BMI cannot differentiate between fat and lean mass, people with similar BMIs may have radically different body compositions. Thus, the relationship between obesity and ESRD risk in CKD may be complicated by the limitations of BMI as a marker of adiposity.

Over the past forty years, there has been a rise in childhood obesity of all ages. Between 1975 and 2016, the age-standardized prevalence of obesity grew globally, rising from 0.9% for boys to 7.8% and from 0.7% for girls to 5.6%. Globally, 38.2 million children under five are expected to have been overweight or obese in 2019. Rapid epidemiological shifts from normal weight to overweight and obesity are occurring in developing nations,

with rates resembling those seen decades ago in the United States and Europe. Obesity raises the danger of CKD, DM, and Cardio Vascular Disease (CVD).

One major risk factor for End-Stage Renal Disease (ESRD) and Chronic Kidney Disease (CKD) is obesity. According to some studies obesity is linked to 24%–33% of renal disease cases. Similarly, obesity and the onset and course of Chronic Kidney Disease (CKD) are associated, and even in the absence of renal disease, those with higher Body Mass Index (BMI) are at increased risk of developing proteinuria. Regardless of the underlying nephropathy, obesity is an independent risk factor for the progression of CKD and predicts new-onset CKD. After controlling for baseline comorbidities such hypertension and diabetes, a higher baseline BMI was found to be an independent predictor of End-Stage Renal Disease (ESRD). Childhood and teenage obesity is linked to both CKD and ESRD.

In Europe, the percentage of children receiving renal replacement therapy who were overweight or obese was 20.8% and 12.5%, respectively. A long-term, countrywide population-based study found a clear correlation between teenage obesity and overweight and an elevated risk of all-cause ESRD. Obese adolescents aged 17 years showed a 3.4-fold higher risk of developing non-diabetic ESRD and a 19-fold greater risk of developing diabetic ESRD in a study of 1.2 million adolescents followed for a mean of 25 years. This suggests a significant correlation between elevated BMI in adolescence and both diabetic and non-diabetic ESRD.

Although obesity is linked to environmental, metabolic, and genetic variables, obesity may also be a modifiable lifestyle risk factor for the advancement of Chronic Kidney Disease (CKD). Therefore, maintaining a healthy weight through food and exercise remains the mainstay of treating obesity. Compared to DM management and education, intensive lifestyle interventions reduced the incidence of CKD by 31% in overweight or obese individuals with type 2 diabetes.

Kidney disorders have a substantial correlation with obesity in terms of their onset and progression. Childhood and teenage obesity raises the risk of CKD, hypertension, diabetes mellitus, and mortality in children with End-Stage Renal Disease (ESRD).

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Maternal obesity increases the incidence of both CKD and obesity in her kids, suggesting that exposure to maternal obesity during pregnancy is a significant risk factor for CKD development. Pediatricians should thus be aware of the long-term consequences of maternal obesity on children's renal outcomes. The first-line treatment for childhood and teenage

obesity should be weight loss brought on by increased physical activity and calorie restriction. Changes in lifestyle can lower the risk of CKD by simultaneously improving multiple risk variables. To stop obesity and related chronic conditions from being passed down through generations, evidence-based therapies must be developed.