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## **Obesity, metabolic syndrome, and CKD**

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Obesity is a major health problem worldwide. Unsurprisingly, obese persons have increased risk of developing type 2 diabetes mellitus, cardiovascular disease, cerebrovascular accident, and malignancy, leading to high cardiovascular and all-cause mortality rates. Many studies have shown that obesity is also associated with the development of incident chronic kidney disease (CKD). In addition, metabolic syndrome is also common in CKD patients and also a significant predictor of the development of cardiovascular disease. Interestingly, recent studies have identified a unique subtype of obesity called metabolically healthy obesity, which has distinct features of low metabolic burden such as better lipid and inflammatory profiles, lower insulin resistance, and lower blood pressure than traditional obesity. Notably, early studies showed that obese persons without metabolic disturbances were reported to have a comparable cardiovascular risk to non-obese persons without metabolic disturbances. However, long-term observational studies have shown that these people eventually had more cardiovascular events and death, raising concern on the hazard of obesity itself. In this session, I'll present our recent epidemiologic studies regarding this issue. First study examined the association between obesity, metabolic abnormality, and CKD progression in patients with CKD showing that obesity itself can have an unfavorable impact on kidney function, and metabolic disturbances can modify the relationship between obesity and renal outcomes in patients with CKD. In second study, we were particularly interested in dynamic changes of obese-metabolic phenotypes over time and further explored this association in healthy adults without kidney disease. Finally, we studied whether weight loss can be helpful to prevent the development of CKD.