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## The Metabolic Syndrome and Risk of Chronic Kidney Disease

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Chronic kidney disease (CKD) functions as a critical risk enhancer within the Cardio-Kidney-Metabolic (CKM) health continuum, acting as a determinant of heightened cardiovascular disease and mortality. This session provides an integrative overview of the pathophysiological frameworks and epidemiologic evidence that link metabolic syndrome to CKD. The primary drivers of this renal impairment are adiposity and insulin resistance, which characterize metabolic syndrome. These drivers initiate a cascade of damage, beginning with renal hyperfiltration and maladaptive glomerular hemodynamics. Visceral adiposity contributes to mechanical compression of the renal parenchyma and promotes lipotoxicity via ectopic lipid deposition, leading to oxidative stress and podocyte injury. Simultaneously, insulin resistance exacerbates these insults by fostering a pro-inflammatory environment and stimulating neurohormonal overactivity, including renin-angiotensin-aldosterone system (RAAS) overactivation. Building upon these pathophysiological insights, this session reviews the epidemiologic evidence demonstrating the robust association between metabolic derangements and renal decline. Ultimately, key risk factors are identified to provide a strategic framework for preventing CKD development within the CKM continuum.

**Keywords:** Obesity, CKD, Metabolic syndrome, Risk factors