CKD-MBD

Circulating Sclerostin as a Marker of Bone Health and Disease

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In recent years study, rare human bone disorders led to the identification of sclerostin that regulates the important signaling pathways in bone formation. Sclerostin is a soluble inhibitor of wnt signaling that bind to the LRP5/6 co-receptors and impede formation of an active wnt receptor complex. Sclerostin antagonizes the bone formation by repressing differentiation and proliferation of osteoblasts. It also promotes osteoblast apoptosis. In experimental animal model, blocking sclerostin action by a specific antibody induces more rapid repair of bone loss and an osteoanabolic effect. In human bone, sclerostin expression is restricted to osteocytes, but osteoclasts, osteoblasts, and bone lining cells do not express sclerostin. It is suggested that sclerostin plays a significant role in the pathogenesis of renal osteodystrophy. Large number of studies report that circulating sclerostin level measured in predialysis CKD and dialysis patients is correlated with their demographic or biochemical parameters. More recently, sclerostin was also shown to be expressed in calcifying vasculature in CKD patients. Therefore, we review here the current knowledge of the regulation of sclerostin, mechanism of action, and its potential as a circulating marker of bone health and disease in CKD patients.