

A SYSTEMATIC REVIEW OF VASCULAR CALCIFICATION INHIBITORS IN CHRONIC KIDNEY DISEASE

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Chronic kidney disease involves the association of increased cardiovascular mortality due to multifactorial progressive arterial stiffness initiated by the disbalance between inducers and inhibitors of vascular calcification. This systematic review aims to give a comprehensive overview of serum levels of inhibitors of vascular calcification in patients with chronic kidney disease and to present possible exogenous inhibitors under research. We conducted an elaborate search in PubMed and Web of Science in August 2023, November 2023, and March 2024 to identify current research. The PRISMA flowchart was followed, and the systematic review was entered into the PROSPERO database. For this systematic review, we screened 430 articles, of which 177 were eligible. Referred serum levels of different inhibitors – fetuin-A, vitamin D, FGF-23, klotho, osteopontin, matrix GLA protein, osteoprotegerin, magnesium, and sclerostin are collected in this review. Several hitherto sparingly studied substances may have rousing information for following research with a perspective towards better treatment options; these are collected in the supplementary table. Despite low evidence, many substances are still under research, mostly studies in vitro, and demonstrate beneficial effects against vascular calcification. The knowledge and current situation should urge further studies to prevent, decelerate or treat the condition to improve patient's quality of life. The possibilities to promote the protective impact of vascular calcification inhibitors in favour of rebalancing the process by effective therapy could arouse research and collaboration.

Figure 1: Search strategy of Systematic Review. (From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71)

