Reviewing the Brazilian protocol for treatment of secondary hyperparathyroidism

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The kidneys play an important role in bone and mineral metabolism. They are the target organs for various hormones involved in controlling calcium and phosphorus levels, in addition to being the site where vitamin D is activated.[1] Therefore, a significant portion of patients with chronic kidney disease (CKD) is expected to present bone and mineral metabolism anomalies, particularly individuals on renal replacement therapy (RRT).[2]

At first, bone and mineral metabolism anomalies were thought to be a specific bone disease related to parathyroid dysfunction, abnormal levels of parathyroid hormone (PTH), and osteitis fibrosa cystica, then called renal osteodystrophy. Recently, however, new bone tissue functions have been described in addition to the known role in locomotion, mineral metabolism regulation, and protection of internal organs. Osteoclasts actively participate in fat metabolism, energy homeostasis, and insulin secretion, all essential functions for the cardiovascular system.[3,4] The bone-vascular axis can be used to explain the high prevalence of vascular calcification observed in CKD patients, who are at increased risk of cardiovascular events and have higher levels of morbidity and mortality.[2,5]

In the last decade it has become widely accepted that bone mineral metabolism anomalies in patients with CKD reach far beyond bone tissue, which led to the introduction of a new concept: chronic kidney disease-mineral and bone disorder (CKD-MBD).[6,7] CKD-MBD is a systemic condition that manifests in the form of PTH, calcium, phosphorus, fibroblast growth factor (FGF-23), and vitamin D alterations, in addition to bone anomalies and extraskeletal calcification.[1,7]

Secondary hyperparathyroidism (SHPT) is one of the most frequent findings in CKD patients. It has been correlated with high turnover bone disease, high risk of cardiovascular calcification, and death. SHPT is considered a modifiable risk factor.[2,4,8] Early therapeutic intervention in CKD patients, administration of new therapeutic agents, and rational use of drugs have been proposed to manage it.

Given that SHPT is a systemic disease, the management of anomalies should be aimed at reducing the risk of cardiovascular events and bone fractures and increasing patient survival.[6,7,9] With these objectives in mind, several clinical guidelines for the diagnosis, prevention and treatment of CKD-MBD have been published.[6-11] Guideline documents have stressed the need to improve CKD patient survival and quality of life, set target ranges for serum phosphorus, calcium and PTH based on survival data of patients on dialysis, in addition to suggesting an order for the events related to patient management, as follows: management of serum phosphorus levels, serum calcium levels, and parathyroid gland function. The guidelines have contributed significantly to a better understanding of CKD-MBD by physicians, health care workers in general, and patients.

The earlier guidelines did not count on randomized controlled trials to describe the outcomes related to CKD-MBD. Most of the recommendations were considered weak or discretionary, and

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relied heavily on expert opinions. In recent years, the outcomes of robust clinical trials have yielded a better understanding of this condition, new medications, and the impact on outcomes of morbidity and mortality in patients with CKD, adding scientific evidence and pushing institutions to constantly upgrade their guidelines for the diagnosis, prevention and treatment of CKD-MBD.[10,11]

Following this logic, in this issue of the Brazilian Journal of Nephrology the Committee for Chronic Kidney Disease-Mineral and Bone Disorder (CKD-MBD) of the Brazilian Society of Nephrology is publishing an update for the Clinical Protocols and Guidelines for the Treatment of Hyperparathyroidism Associated with CKD based on publications and evidence emerged within the last five years, to propose new treatment policies and significant changes in relation to the 2008 Brazilian Guidelines.[12] As mentioned, SHPT is a multifactorial causal factor and a severe complication of CKD that affects multiple organs and tissues, with significant impact on patient mortality. Prevention and treatment require the combination of multiple drugs and surgery at times (parathyroidectomy).

Given the high number of individuals with advanced CKD in Brazil; the more than 100,000 patients on RRT in the country;[13] the high prevalence of mineral metabolism anomalies in CKD populations; the few therapeutic options currently available; and the fact that many patients are still outside the target range recommended for PTH, vitamin D, calcium, and phosphorus levels, it is desirable to continuously update the guidelines and address the impacts disease has on morbidity and mortality, in addition to incorporating new drugs that induce less hyperphosphatemia and hypercalcemia, so as to improve the management of CKD-MBD.

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