

Management of Mineral and Bone Disorder among Hemodialysis (HD) Patients in Lebanon: Impacting Clinical, Quality of Life (QOL) and Cost Outcomes.

Abstract

Background: Mineral imbalance and bone disorder are common among HD patients. With the failure of the kidney, the excretion of serum Phosphorus (P) decreases. Hyperphosphatemia ensues when dietary P is in a positive balance relative to the excreted serum P. Chronic disruption of P balance will effect calcium balance and thus lead to uncontrolled secretion of PTH, hypertrophy of parathyroid gland and excessive mobilization of Calcium (Ca) and P from the bones. Bone homeostatis is disturbed resulting in osteodystrophy. The increase in serum Ca and P levels and thus Ca* P product can lead to metastatic calcification in bone, joint, and tissue. Muscle cramps, cardiovascular disease (left ventricular hypertrophy, cardiac calcification, etc), skin problems, decreased quality of life and patient mortality may also occur.

Significance: The aim of the proposed study is to assess the effect of implementing Self Management Focused Counseling (SMFC) on improved compliance by HD patients and achieving osteodystrophy management targets. This is accomplished through applying medical nutritional therapy (MNT) by a trained dedicated dietitian (Full Intervention) or specialty-training the existing hospital dietitians (Partial intervention), compared to existing practice (control).

Methods: This is a controlled prospective study, randomized at the HD unit level. Over 730 patients at twelve HD units in Lebanon will be included. HD units will be pooled into small (30–49 patients), medium (50 – 99 patients) and large (≥ 100 patients). Selected units will be randomly assigned into two groups (A and B) of six units each, taking unit size into consideration: One large, 3 medium and two small units in each group. Patients in group A units will be divided based on dialysis session they attend into full intervention sessions or control sessions. All patients in group B units will be in the partial intervention.

Interpretation of results: HD-specialized MNT in the full intervention group is expected to result in significantly improved clinical and quality of life outcomes and reduced cost of care.