The effect of inactive vitamin D treatment versus active vitamin D on bone metabolism indexes and PTH in hemodialysis patients

Background and Objective: Renal osteodystrophy is one of the most important complications of ESRD (End Stage Renal Disease). Prescription of calcium is essential in these patients. The aim of this study was to determine the Comparison of treatment effect of active vitamin D versus passive vitamin D on bone metabolism indexes and PTH in hemodialysis patients.

Methods: In this interventional study, a total of 40 consenting patients was selected and divided in to intervention and control groups using block randomization method (n=20 in each group). Proper counseling had done and a written informed consent obtained before starting the treatment regimen. Setting and conduct: At baseline, for all diseases, tests include PTH, ALP, 25-hydroxy vitamin D and calcium requested and the results in the questionnaire containing demographic and disease information recorded. In the intervention group, patients was divided into three groups based on serum levels of 25-hydroxy vitamin D (mild deficient: > 20 ng/Ml , moderate deficient: 16 - 20 ng/Ml and severe deficient: < 15 ng/Ml), Then patients in mild deficient group received oral Rocaltrol capsule and oral cholecalciferol 50,000 units/week for 4 weeks. Patients in moderate deficient group received oral Rocaltrol capsule every 24 hours and oral cholecalciferol 50,000 units/ every week for 8 weeks and patients in severe deficient group received oral Rocaltrol capsule every 24 hours and oral cholecalciferol 50,000 units/ every week for 12 weeks. Also Patients in control group divided into three groups based on serum levels of 25-hydroxy vitamin D same the control group and recived Rocatrol and placebo. Level of PTH, ALP, 25-hydroxy vitamin D and calcium after the end of the intervention was evaluated in both groups again and the results of this study analyzed.

Results: The results showed that the use of cholecalciferol in patients reduced the level of PTH and increased calcium but did not change in ALP levels. No significant correlation was found between serum calcium, PTH and alkaline phosphatase.but significant correlation was found between serum vitamin D levele.

Conclusion: The use of inactive form of vitamin D in hemodialysis patients can reduce the incidence of these patients to secondary hyperparathyroidism and increase the level of calcium. Therefore, it seems that the use of active and inactive forms of vitamin D in hemodialysis patients is more effective than using the activate form of vitamin D alone in these patients.

Keywords: Secondary hyperparathyroidism, Renal osteodystrophy, Hemodialysis