



**Mansoura University**  
**Faculty of Medicine**  
**Internal Medicine**  
**Department**

# **EFFECT OF INDIVIDUALIZED NUTRITIONAL COUNSELING ON PHOSPHORUS MANAGEMENT IN MAINTENANCE HEMODIALYSIS PATIENTS**

## **Thesis**

Submitted for Partial Fulfillment of the

*MD Degree in Nephrology*

**By**

**Karem Mohamed Salem**

Assistant lecturer of Nephrology  
Theodor Bilharz Research Institute

## **SUPERVISORS**

**Professor. Hussein Sheashaa**

Professor of Internal Medicine  
Faculty of Medicine-Mansoura University

**Professor. Nagy Sayed Ahmed**

Professor of Internal Medicine  
Faculty of Medicine-Mansoura University

**Dr. Malak Nabil Amin**

Assistant Professor of Nephrology  
Theodor Bilharz Research Institute

**2019**

## SUMMARY

Chronic kidney diseases requires a lot of adjustments in food habits and patient lifestyle . non adherence to dietary advices, drugs, and management plans can led to raised mortality and morbidity in that such group .

Supplying applicable nutritional recommendation to CKD patients should include various diet constituents as fluids, calories, protein, calcium, phosphorus , sodium and potassium for example .

Suitable nutritional counseling (as example: knowledge about phosphate additives, bioavailability of phosphate and phosphorus to protein ratio ) can lead to improved control of level of serum phosphorus in chronic kidney disease patients, and consequently better prognosis.

Nutritional intervention seemed to have a +ve influence on Program of nutritional status, decreased the risk of developing cardiovascular events , and led to rise in satisfaction with present health status , therefore causing better quality of life.

The present study aims to assess the effect of nutritional education, by trained dedicated renal dietitian, on the control of the level of serum phosphorus in ESRD patients on regular hemodialysis.

This study was carried out on 100 chronic hemodialysis patients from New Mansoura International Hospital who were randomly assigned to two groups (1:1)

One group (Control group) received the usual care which was the existing practice in the dialysis unit; the other group (Intervention group) was subjected to nutritional education program by dedicated renal dietitian

All patients included in the study were subjected to the following:

- History taking , Socieodemographic data collection and clinical examination
- Nutritional evaluation using dietary history , 24 hour diet recall sheet , calculation of Malnutrition Inflammation Score with assessment of anthropometrics measurements :
  - ✓ Body weight
  - ✓ Body Mass Index
  - ✓ Mid upper arm circumference
  - ✓ Triceps skinfold thickness
  - ✓ Mid arm muscle circumference
- Laboratory investigations including
  - ✓ Serum albumin.
  - ✓ Complete blood picture.
  - ✓ Blood urea (Pre/post) and serum creatinine.
  - ✓ Lipid profile (Cholesterol - Triglycerides)

Ferritin and Transferrin saturation )

✓ Parathyroid hormone

- All the patients were followed up for 3 months through which nutritional education strategy was applied to the ( intervention group )
- Then re-evaluation of the initial clinical, anthropometric measurements and laboratory data were done

**The main finding of current study can be summarized as follows:**

- Analyzing the effect of interventional nutritional education on control of serum phosphorus level , the mean  $\pm$  SD of phosphorus showed a significant improvement among intervention group (phosphorus mean  $\pm$  SD:  $3.56 \pm 0.95$  mg /dl) compared to the control group (phosphorus mean  $\pm$  SD:  $4.50 \pm 1.40$  mg/dl) at the end of the study. (p: 0.021).
- The Percent change of serum phosphorus level was  $-13.8 \pm 21.41$  in intervention group while  $8.43 \pm 35.89$  in control group. The incidence rate of high phosphorus level ( $\geq 5.5$  mg/dl) at the end of the follow-up was significantly lower among the intervention group.
- As regards patient original level of education, the level of illiteracy was high among the patients as more than half of them were non-educated. The educational level was related to the high phosphorus level ( $> 5.5$  mg/dl ). Among the intervention group 75 % of patients were illiterate while 25 % were educated. On the other side, the level of education was equally distributed among patients with phosphorus level  $< 5.5$  5 mg/dl , where half of the patients were illiterate and the other half received an education

intervention (Ca x ph mean  $\pm$  SD: 33.78 $\pm$ 12.04) versus the control group (Ca x ph mean  $\pm$  SD: 38.13 $\pm$ 16.27), (p=0.04)

- A part from the nutritional assessment , we found that the mean Dry weight was 73.65 $\pm$ 15.92 and 71.12 $\pm$ 15.75 kg at baseline and after nutritional education respectively with no statistical difference , The serum cholesterol and triglyceride levels were significantly lower among the intervention group at the end of the study while there was no significant effect of nutritional education on serum albumin and protein levels at the end of the study and also the MIS score was significantly reduced among the intervention group compared to the control group at the end of the study
- Regarding other anthropometric measures, patients in the intervention group had a significantly lower waist circumference and higher MAMC compared to the control group at the end of the follow-up