

# **SERUM PHOSPHATE AS A MARKER OF CAROTID INTIMAL MEDIAL THICKNESS IN NON-DIABETIC CHRONIC KIDNEY DISEASE PATIENTS**

## **Background :**

Chronic Kidney disease is a significant predictor of cardiovascular mortality. Accelerated atherosclerosis is common in CKD patients and hence more prone for cardiovascular disease(CVD) mortality. Carotid intimal medial thickness (CIMT) is a direct marker of atherosclerosis which can be measured non-invasively using B mode ultrasonography to detect early atherosclerosis.

## **Objectives :**

To study the relation between serum phosphate and carotid artery intimal medial thickness in non-diabetic chronic kidney disease patients and also relationship between other factors such as age, gender, stage of CKD, serum albumin, serum calcium, serum phosphate, haemoglobin, LDL cholesterol, urine protein creatinine ratio, calcium phosphate product, fundus and echocardiographic findings with CIMT.

## **Methods :**

100 non-diabetic CKD patients were subjected to relevant blood investigations, fundus examination, echocardiography and carotid artery doppler and relationship between CIMT and each investigation studied separately.

## **Results :**

In our study we found that serum phosphate and CIMT increased progressively with CKD progression and had an independent positive correlation with CIMT. Positive correlation was also observed for factors such as age, ESR, severity of LV

dysfunction and retinopathy, urine PCR and LDL cholesterol. Negative correlation was observed for albumin, haemoglobin and serum calcium.

**Conclusion :**

Hyperphosphatemia acts as a significant risk factor for accelerated atherosclerosis by inducing vascular smooth muscle cell proliferation thereby leading to increased intimal medial thickness. Therapy aimed at reduction of serum phosphate levels in CKD patients by means of phosphate binders along with treatment of other risk factors can attenuate vascular calcification thereby reducing progression of atherosclerosis and incidence of vascular events.

**Keywords :**

- CKD
- CIMT
- Hyperphosphatemia