

## **THE RELATIONSHIP OF ALBUMINURIA AND VASCULAR CALCIFICATION IN TYPE 2 DIABETES**

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**INTRODUCTION:** Cardiovascular disease is the most common cause of mortality in patients with diabetes. Vascular calcification is a major cause of arterial stiffness and may contribute to the progression of vasculopathy in diabetes. Vascular calcification has been studied extensively in diabetes patients with chronic kidney disease, however there is not enough information on vascular calcification in patients with normal renal function.

**AIM:** To investigate the prevalence of vascular calcification in patients with type 2 diabetes and different degrees of albuminuria.

**METHODS:** 61 patients with Type 2 DM and mean estimated creatinine clearance (Cockcroft-Gault) of more than 90 ml/min across the groups were studied. 24 had no albuminuria (NA), 19 had microalbuminuria (MA) and 18 had dipstick positive proteinuria (P). An x ray of the foot was carried out along with a CT scan of the femoral, posterior tibial and dorsalis pedis arteries to assess the levels of calcification in addition to routine haematology and biochemistry.

**RESULTS:** The median Agatston calcification score in the right femoral artery in the NA, MA and P groups was 16.6, 108.7 and 166 respectively. The overall median score was 74.4. The proportion of patients with scores higher than the median were 25%, 58% and 72% in the NA, MA and P groups respectively. There was a significant association between calcification severity and degree of albuminuria ( $p=0.007$ ). In the foot, the proportion of calcification with higher than median scores was 42%, 37% and 44% ( $p=NS$ ) in the NA, MA and P groups respectively. The foot x ray showed presence of calcification (based on scores of 0-4) in 38%, 32% and 50% in the three groups. The P group had longer duration of diabetes ( $13.4 \text{ years} \pm 9.7$ ;  $p=0.014$ ) as compared to NA ( $6.6 \pm 4.9$ ). There was no difference in calcification severity in the smoker and non-smoker groups. The groups did not differ in age, estimated creatinine clearance, serum creatinine, urea, HbA1c, Hb, serum calcium, parathyroid hormone and phosphate.

**CONCLUSION:** Vascular Calcification is highly prevalent in Type 2 DM with normal estimated creatinine clearance. The prevalence of severe calcification increases with the degree of albuminuria.