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The Association among Carotid IMT, PWV and Recurrent Access Failure in Hemodialysis Patients

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Objectives : Patients with chronic kidney disease (CKD) or end stage renal disease (ESRD) have an increased risk of cardiovascular mortality and morbidity. We aimed to compare the value of IMT with tests such as coronary CT and Pulse wave velocity(PWV) as predictors of cardiovascular risk in ESRD patients undergoing maintenance dialysis and examine their association with cardiovascular disease.
Methods : We enrolled 100 patients receiving HD over three months from single outpatient HD clinic. Amputee patients were excluded from this study. All patients underwent carotid doppler for evaluation of IMT. BaPWV is measured by recording pulse waves of both arm and both ankles from the pressure signal obtained by measuring 4-extremitiy blood pressure.
Results : The median age was 66 years (interquartile range 58-76 years). Of 100 patients, 51 patients were male.(50.5%) The median duration of hemodialysis was 47.5 months (range 31.3-89.1 months). There were no significant differences between high IMT group and low IMT group in sex, hemodialysis vintage, end-stage renal disease etiology, and type of vascular access. However, age was significantly older in the high IMT group. IMT was significantly associated with PWV. (hazard ratio [HR] 2.109; 95% CI 1.037-4.291, P = 0.039). After adjusting for age, sex and presence of diabetes, IMT was independently associated with PWV (HR 2.110, 95% CI 1.036-4.298, P = 0.040). The risk of recurrent vascular access failure was higher in the high IMT group (HR 1.615, 95% CI 1.460-5.669, P = 0.034).
Conclusions : IMT was associated with PWV and recurrent access failure. Thus IMT may be suggested as a potential predictor of vascular access failure.