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The Effects of the Combination of Homocysteine and Cardiac Troponion I on Ischemic Heart Disease with ESRD

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Cardiovascular disease is the main cause of death in chronic renal failure patients on maintenance dialysis.

To evaluate the relationship of Homocystein(Hcy) and cardiac enzymes on ischemic heart disease, we examed Hcy, troponin T (cTnT), troponin I (cTnI), creatinine kinase MB isoenzyme(CK-MB), LDH and CPK in 90 ESRD (32 PD, 58 HD) patients and 43 kidney transplantation (KT) patients. Biochemical markers were measured in serial predialysis blood samples.

The mean patients' age were 48 years (range: 20-75) and 52% were male. Myocardial ischemia was observed in 47% (42/90) of ESRD patients (PD 15, HD 27) and 28%(12/42) of KT patients. High CK-MB, cTnT, cTnI level and hyperhomocysteinemia were observed in 22%(7/32), 22%(7/32), 25%(8/32), 47%(15/32) of PD patients, 26%(15/58), 22%(13/58), 26%(15/58), 60%(35/58) of HD patients and 16%(7/43), 19%(8/43), 16%(7/43), 33%(14/43) of KT patients respectively. The cTnI and homocysteine revealed significiantly higher positive rate in ESRD patients with myocardial ischemia than without myocardial ischemia (0.39 ± 0.25, 21.53 ± 6.92 on PD and 0.54 ± 0.71, 22.16 ± 4.08 on HD) ($p<0.05$). The cTnT and CK-MB revealed no difference in ESRD positive rate between the patients with and without myocardial ischemia. Both cTnI and homocysteine revealed significantly higher sensitivity and specificity than those of cTnI and homocysteine alone. There was a significant positive correlation between c-TnI and homocysteine ($r = 0.58$, $p< 0.001$). In patients with ischemic heart disease, the presences of DM and advanced age were higher than those in patients without ischemic heart disease ($p<0.01$).

Our results suggest that these two parameters of homocystein and cTnI are the potential diagnostic marker for the prediction of ischemic heart disease in ESRD patients.