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Circulating Platelet Derived Microparticles are Associated with Cardiovascular Disease According to Glomerular Filtration Rate

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Purpose : Microparticles are membrane vesicles released from many different cells. Platelet derived microparitcles (PMP) of these is formed by platelet activation and evacuation of cellular membrane. It had been PMP was increased in acute coronary syndrome, diabetes, hypertension, etc. We examined PMP level, homocysteine, CRP of cardiovascular disease (CVD) risk factors in patients performed coronary angiography and whether these risk factors are associated with coronary artery occlusive disease (CAOD). Also, we investigated whether PMP level is associated with cardiovascular disease in more than moderate renal failure patients.

Methods : Seventy-one patients (male 30, female 41) performed coronary angiography form Sep. to Oct. 2006 were enrolled. We divided patients to two groups according GFR (group 1; GFR ≥60 mL/min/1.73, group 2; <60 mL/min/ 1.73). Homocysteine, CRP, PMP, biochemical variables were sampled before coronary angiography and measured in all study patients.

Results : The mean age of group 1 (male 20, female 20) was 55.5±10.3 years. Group 1 included CAOD 20, DM 10, hypertension 14 patients, respectively and the means of PMP, homocysteine, CRP, LDL-Cholesterol were 1629.3±1010.2/uL, 8.7±2.9 umol/L, 0.4±1.3 mg/dL, 125.1±28.4 mg/dL. The mean age of group 2 (male 10, female 21) was 67.0±10.1 years. Group 2 included CAOD 17, DM 8, hypertension 26 patients, respectively and the means of PMP, homocysteine, CRP, LDL-Cholesterol were 1119.4±615.1/uL, 12.8±4.1 umol/L, 0.4±0.7 mg/dL, 118.7±35.0 mg/dL. In group 1, PMP level (1930.7±1079.5/uL vs 1327.9±859.3/uL) was significant difference ($p<0.05$) and homocysteine, CRP, LDL-C were not significant differences between CAOD and non-CAOD. In group 2, PMP level, homocysteine, CRP, LDL-C were not significant difference between CAOD and non-CAOD.

Conclusion : We suggest that PMP may be not associated with cardiovascular disease in chronic renal failure patient more than moderate renal failure. Further studies are necessary to demonstrate the cause that PMP is not associated with CAOD in renal failure.