Painless Myocardial Ischemia Is Associated with Mortality in Patients with Chronic Kidney Disease

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Commentary
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Myocardial ischemia in the absence of overt pain (chest pain or its equivalent) is a common and familiar problem, but its frequency and significance in non-dialysis patients with CKD is not well known. Wetmore and colleagues conducted a retrospective observational study of ‘painless myocardial ischemia’ (PMI) in 356 subjects undergoing percutaneous coronary intervention between 1999 and 2001. Myocardial ischemia was provoked (as a part of the procedure) by balloon dilatation of a coronary atherosclerotic lesion and bare metal stent insertion. Ischemia with and without pain was determined. Among the 252 patients without CKD, PMI was relatively uncommon (25%), but PMI was observed more commonly in the 104 patients with CKD (43%). Among those with 109 patients with PMI, 41% had CKD and 59% did not. The frequency of PMI increased with the severity of CKD. Advanced age, male gender, or lower eGFR were independently associated with a greater risk for PMI. Beta blocker use was lower in the subjects with CKD and PMI (19/45–42%) compared to those with CKD and no PMI (37/59–63%) – this intriguing observation needs further validation. Patients with both PMI and CKD had poorer survival. The mechanism underlying enhanced PMI in CKD is unclear, but might relate to a selection bias, autonomic neuropathy or even to lower renal clearance of endogenous or exogenous analgesic opiates. The results need to be replicated in a more recent cohort to examine the influence of non-bare metal stent insertion on outcomes in those subjects with PMI and CKD. Since arrhythmias can be a consequence of myocardial ischemia, patients with sudden cardiac death (without chest pain) might be erroneously assigned to a non-coronary artery disease causation in the presence of PMI and CKD. The frequency of such sudden cardiac death among the patients having CKD with and without PMI was not reported. This would be an interesting question for future studies.

Questions remain to be addressed. These include:
1) Does beta blocker usage really alter the frequency of PMI in CKD?
2) What are the mechanisms underlying enhanced PMI in CKD?
3) What is the influence of non-bare metal stent insertion on outcomes in subjects with PMI and CKD?
4) What is the frequency of sudden cardiac death among patients having CKD with and without PMI?

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