CARDIOVASCULAR EVENTS AND MORTALITY IN KOREAN PATIENTS WITH CHRONIC KIDNEY DISEASE: RESULTS FROM KNOW-CKD cohorts

Hyunjin Ryu1, Eunjeong Kang1, Joongyub Lee3, Jayoun Kim4, Curie Ahn2, Kook-Hwan Oh2
1Department of Internal Medicine-Nephrology, Seoul National University Hospital, Korea, Republic of Korea
2Department of Internal Medicine, Seoul National University College of Medicine, Korea, Republic of Korea
3Department of Preventive and Management Center, Inha University Hospital, Korea, Republic of Korea
4Department of Medical Research Collaborating Center, Seoul National University Hospital, Korea, Republic of Korea

Objectives: There are lack of studies regarding the incidence of major adverse cardiovascular events (MACE) in Asian pre-dialysis population. This study was conducted to analyze the incidences of MACE and death in Korean CKD population, using the data from a multicenter prospective cohort.

Methods: This is a longitudinal analysis from a multicenter prospective cohort study, entitled KNOW-CKD. Among a total 2,238 patients enrolled, 59 patients without follow-up data were excluded and, finally, 2,179 patients were included in the longitudinal analysis. MACE was defined as any of the following events - acute myocardial infarction, unstable angina, receiving percutaneous coronary artery intervention or coronary bypass graft surgery, ischemic or hemorrhagic stroke and congestive heart failure during the follow-up.

Results: Mean age of the study population was 53.6±12.2 years and 38.7% were female. At enrollment, mean eGFR was 53.2±30.7 ml/min/1.73m² and the prevalences of CVD and DM were 6.0% and 33.4%, respectively. During median 4.1 years of follow-up, the incidences of MACE, all-cause death and composite outcome were 17.2, 9.6 and 24.5 per 1,000 patient-year (PY). The incidences of MACE, death and composite outcome were higher in diabetic patients compared to non-diabetics (p<0.001) (Table). The incidence rate increased as CKD stages advanced, for MACE (p=0.001), death (p<0.001) and composite outcomes (p<0.001). (Figure) Using multivariate Cox regressions analysis, male gender, older age (≥ 50 years) and DM were statistically significant risk factors for both MACE and composite outcome. For the composite outcome, the CKD stages G4 (HR 2.3, p=0.025) and G5 (HR 2.3, p=0.004) showed significant increased hazard ratios over CKD stage G1.

Conclusions: The incidences of MACE, all-cause death and composite outcome were 17.2, 9.6 and 24.5 per 1,000 PY, respectively, in Korean non-dialysis dependent CKD patients. Older age (≥ 50 years), DM, and advanced CKD stages were significant risk factors for composite outcome.

Incidence of outcomes according to CKD stages
Table 1. Incidence of outcomes in KNOW-CKD population

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Total (n=2179)</th>
<th>DM (n=728)</th>
<th>Non-DM (n=1451)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composite outcome</td>
<td>24.5</td>
<td>41.5</td>
<td>17</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>All-cause Death</td>
<td>9.6</td>
<td>16.6</td>
<td>6.4</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>MACE</td>
<td>17.2</td>
<td>29.7</td>
<td>11.6</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>