The impact of pre-dialytic chronic kidney disease or diabetes on the risk of colorectal cancer depends on sex

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Objectives: Although both chronic kidney disease (CKD) and diabetes mellitus (DM) have been considered as risk factors for colorectal cancer (CRC), there is no study for the sex-different risk of CRC in patients with both CKD and DM compared with control, CKD, and DM, respectively.

Methods: Using data from the National Health Insurance Service-Health Examination Cohort in Korea, we conducted 1:2 matched case-control study (matched by age, sex, and date of health examination). The hazard ratio (HR) of CRC risk was estimated by cox-proportional hazard model considering with potential risk factors.

Results: The total 146,547 populations were divided into 4 groups; control (n=97,698), CKD-/DM+ (n=17,700), CKD+/DM- (n=22,643), and CKD+/DM+ (n=8,506). During the median follow-up period of 10.7 years, the incident rate of CRC in the disease group was significantly higher than that in the control (223.3 in CKD-/DM+, 234.3 in CKD+/DM-, and 285.4 in CKD+/DM+ group vs. 179.2 per 100,000 person-years in control). When comparing the cumulative incidence of CRC, adjusted HR of CRC incidence in CKD-/DM+, CKD+/DM-, and CKD+/DM+ compared to the control were 1.32, 1.26, and 1.43, respectively, in men and were 1.38, 1.39, and 2.00, respectively, in women. However, the HR for CRC incidence was significantly increased in CKD+/DM+ group compared with CKD-/DM+ or CKD+/DM- group in women, while this pattern was not observed in men.

Conclusions: Based on our results, in women, both CKD and DM significantly increases the risk of CRC compared to CKD or DM alone. However, this phenomenon is not observed in men.