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### **Contribution of glomerular filtration rate in cardiovascular risk assessment of a population with low incidence of coronary heart disease**

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**Background and Aim:** Early chronic kidney disease (CKD) has been defined as a marker of cardiovascular risk prevention. This relationship has been little studied in populations with low incidence of coronary heart disease (CHD). Glomerular filtration rate (GFR) could help to improve the performance of cardiovascular risk prediction equations.

**Aim:** To analyze the association between CKD and cardiovascular disease and the performance of GFR in improving the prediction of cardiovascular risk in a population with low CHD incidence.

**Methods:** Population-based retrospective observational cohort study of 1,079,272 people aged 35-74 years. Main exposure: GFR. Outcomes: CHD, cerebrovascular disease, cardiovascular diseases and all-cause mortality. The association between GFR and outcomes was tested with Cox models. The predictive ability of GFR was evaluated by integrated discrimination improvement (IDI) and net reclassification improvement (NRI) indices.

**Results:** The incidence rate of CHD at GFR category G3a remained close to 6% at 10 years. Beginning at GFR category G3a, risk was significantly increased for CHD (HR 1.34 (95%CI 1.22-1.47)), cerebrovascular (HR 1.16 (95%CI 1.06-1.27)) and cardiovascular diseases (HR 1.24 (95%CI 1.16-1.33)). Increased risk of all-cause mortality was significant beginning at CKD stage 3b (HR 2.02 (95%CI 1.79-2.27)). GFR did not increase discrimination and reclassification indices significantly for any outcome: CHD (NRI 0.6%, 95%CI -0.09-1.39), cerebrovascular (NRI 0.3%, 95%CI -0.50-1.05), cardiovascular diseases (NRI 0.01%, 95%CI -0.51-0.54) and all-cause mortality (NRI 0.3%, 95%CI 0.59- 1.10).

**Conclusion:** in general population with low incidence of CHD and CKD from GFR category G3a, impaired GFR was associated with an increased risk of cardiovascular diseases; however, the incidence of CHD of 6% at 10 years raises questions to consider this population automatically at high cardiovascular risk. The addition of GFR in a cardiovascular risk function did not improve prediction of CHD.