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Prevalence of chronic kidney disease in heart failure and associated factors

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Objectives: Chronic kidney disease (CKD) is common comorbid in heart failure (HF). There are one or more underlying risk factors that lead to the development of HF, and shares many risk factors with CKD. HF itself is a common cause of CKD and CKD is associated with increased morbidity and mortality in HF. There are lack of knowledge pertaining to CKD risk in Thais HF. Thus, we examined prevalence of CKD and associated factors of CKD in HF.

Methods: Sample was 400 HF from six hospitals in southern Thailand. Median age was 67 years old (IRQ 26-96), 66% was older adults, and 52% were men. Three basic risk groups were classified as sociodemographic (sex, age, and education background). illness characteristics (HFrEF, HFpEF, duration of illness, New York Heart Association [NYHA], and Charlson's Comorbidity Index [CCI]), and clinical presentation (blood urea nitrogen [BUN], serum creatinine [SCr], blood pressure, heart rate, pulse pressure, and fasting plasma glucose). eGFR was calculated based on CKD-EPI equation, which an eGFR of <60 ml/min/1.73m^2 was determined CKD.

Results: Prevalence of CKD was 57%. Associated risk of CKD was sex, age, NYHA class, CCI, and type of heart failure. Women had lower prevalence of CKD (OR 2.81. 95%CI 1.69-4.68). Increments risk were found in late-adult (OR 2.50, 95%CI 1.00-6.23), young-elderly (OR 2.90, 95%CI 1.18-7.14), middle-elderly (OR 5.74, 95%CI 2.39-13.76), and old-elderly (OR 10.07, 95%CI 3.47-29.25), compared with middle-aged adult. Those with NYHA class II-IV had 5-to 7-folds risk of CKD, compared to those with NYHA I. Patients with CCI ≥3 have approximately 4-folds risk, compared to CCI < 2. Those HFpEF had lower prevalence of CKD (OR 0.35, 95%CI 0.15-0.81) compared with HFrEF.

Conclusions: CKD in HF failure was associated with socioeconomic and illness characteristic factors. Specific disease management is needed to be implementing in this high morbid risk heart failure.