Editorial

Proteinuria as a Marker for Cardiovascular Disease

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Indian J Cardiovasc Dis Women-WINCARS 2018;3:215–216

Chronic kidney disease (CKD) poses a major noncommunicable health problem in India and worldwide and is associated with significant morbidity and mortality. In CKD patients, premature mortality occurs due to cardiovascular disease (CVD).[1,2] A variety of pathophysiologic mechanisms have been proposed to explain the relationship between renal and cardiovascular disease.[3] Proteinuria is not only a marker of renal injury but is also an independent risk factor for cardiovascular morbidity and mortality. There is substantial evidence that proteinuria can be used as a therapeutic target for cardiovascular risk reduction.

Proteinuria is classified into microalbuminuria, albuminuria, and proteinuria.[4] Dipstick-positive proteinuria and albumin-to-creatinine ratio (ACR) are proven as predictors of CVD.[5,6]

Jee et al demonstrated that fasting sugar along with blood pressure and lipid abnormalities were found to be independent predictors for the development of proteinuria.[7] Farasat et al, in the Baltimore Longitudinal Study of Aging, confirmed the association between albuminuria and blood pressure.[8] Fort et al showed that metabolic syndrome alone had a similar effect on proteinuria.[9] Parving et al demonstrated the association of diabetes and proteinuria in Asian and Hispanic patients.[10]

The Prevention of Renal and Vascular End-stage Disease (PREVEND)[11] and the Heart Outcomes Prevention Evaluation (HOPE) studies[12] showed that cardiovascular adverse events were associated with proteinuria. Hypertensive patients with microalbuminuria had higher chances of developing coronary artery disease (CAD) than hypertensive patients without microalbuminuria.[13]

Accumulating evidence suggests that microalbuminuria is associated with increased mortality in patients with diabetes with or without renal dysfunction.[14,15]

The Strong Heart Study[16] and ALOFT study[17] confirmed an association between albuminuria and abnormal ventricular function and dimension. Association of proteinuria with clinical outcome in patients with heart failure were studied in the Candesartan in Heart Failure-Assessment of Reduction in Mortality and Morbidity (CHARM)[18] and the Prospective Randomized Enalapril Study Evaluating Regression of Ventricular Enlargement (PRESERVE) study.[19]

Importance is given not only for the detection of proteinuria but also for the treatment with renin-angiotensin-aldosterone system (RAAS) inhibitors[20]. Ramipril in Heart Outcomes Prevention Evaluation (HOPE) and mini HOPE study and losartan in Losartan Intervention For Endpoint reduction in hypertension (LIFE) study resulted in significantly reduced cardiovascular risk in participants with renal impairment.[21–23] In the Ongoing Telmisartan Alone and combination with Ramipril Global Endpoint Trial (ONTARGET) combination of telmisartan and ramipril resulted in greater reduction in proteinuria but significant increase in adverse events.[24]

In this issue, Kodali et al reports that proteinuria is a marker for CVD in patients with stage 5 CKD. The major limitation of this study is that they have taken already known cases of CAD, rather than following these patients for the development of CAD. However, the most important aspect of this study is that the study populations are only females for whom there are limited studies. This study by Kodali et al will add more information to the existing literature.[25]

Conflict of Interest
None declared.

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DOI https://doi.org/10.1055/s-0039-1683950

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