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POOR SLEEP QUALITY IS ASSOCIATED WITH INCREASED RISK OF LEFT VENTRICULAR HYPERTROPHY IN PATIENTS WITH CHRONIC RENAL FAILURE

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Objectives Poor sleep quality, a novel risk factor of cardiovascular diseases (CVD), is highly prevalent in patients with chronic renal failure (CRF). However, the underlying mechanisms between CVD and poor sleep are unclear. This study aimed to explore the relationship between sleep quality and left ventricular hypertrophy (LVH) in patients with CRF and discussed potential effects of poor sleep on cardiac remodelling in this patient group.

Methods Eighty-two Chronic Renal Failure patients (GFR≤60 ml/min 1.73 m^2) (mean age=46.1±14.4 years, 55 male/27 female) were recruited in this study. The sleep quality was measured by Pittsburgh Sleep Quality Index (PSQI) while blood pressure (BP) was determined by 24-h ambulatory BP monitoring. eGFR were assessed by simplified MDRD equation. The left ventricular end-

diastolic dimension (LVDd), interventricular septum thickness at end-diastole (IVS), LV posterior wall thickness at end-diastole (PWTH) were measured by ultrasonic cardiogram. left ventricular mass index (LVM I) were calculated. Patients were grouped into normal left ventricular (NLV) or left ventricular hypertrophy (LVMI ≥135 g/m^2 (male) or ≥110 g/m^2 (female)).

Results A total of 36 patients were identified as LVH, with a rate of 43.9%. Univariate analyses showed that patients with LVH had poorer sleep quality (PSQI score: 12.43±4.68 vs 9.57±5.11, p=0.009) higher ambulatory systolic mean BP (147.3±16.1 vs 134.9±13.1, p<0.001), and lower eGFR (14.56±13.10 vs 27.40 ±14.58, p<0.001) than patients with normal LV. However, no differences in mean diastolic BP were found between these two groups. Logistic regression analysis revealed that LVH were independently associated with PSQI score (OR=1.13, 95% CI 1.01 to 1.28), eGFR (OR=0.93, 95% CI 0.90 to 0.98) and ambulatory systolic blood pressure (β-coefficient=0.061, p=0.003) after adjustment for PSQI score, age, sex, and ambulatory systolic blood pressure, ambulatory diastolic blood pressure, BMI, eGFR.

Conclusions Poor sleep quality is an independent risk factor of LVH in patients with chronic renal failure. Our finding implies that the association between poor sleep and CVD might be mediated by cardiac remodelling and improvement of sleep quality might reverse this abnormality and subsequent CVD event.