

**#0076**

## **The Connection Between Diabetic Kidney Disease and Heart Failure in Individuals with Type 2 Diabetes Mellitus**

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**Abstract**

**Background:** A growing body of evidence suggests that type 2 diabetes mellitus (T2DM) may contribute to the development and deterioration of heart failure (HF) with either reduced or preserved ejection fraction. Meanwhile, diabetic kidney disease (DKD) worsens HF outcomes. This study investigates the DKD-HF association in T2DM patients.

**Methods:** Three patient groups were studied. Group one consisted of 20 T2DM patients without HF, with an average age of  $62.6 \pm 10.0$  years, diabetes duration of  $3.9 \pm 2.5$  years, HbA1c of  $7.0 \pm 1.2\%$ , creatinine of  $99.0 \pm 19.0$   $\mu\text{mol/L}$ , estimated glomerular filtration rate (eGFR) of  $64.0 \pm 16.0$   $\text{mL/min/1.73m}^2$ , albumin/creatinine ratio (ACR) of  $25.0 \pm 21.0$   $\text{mg/g}$ , and ejection fraction (EF) of  $58.0 \pm 4.0\%$ . Group two included 15 T2DM patients with HF with reduced EF (HFrEF), while group three consisted of 15 T2DM patients with HF with preserved EF (HFpEF).

**Results:** Comparison of ACR in urine and eGFR across these groups revealed significant differences. T2DM patients with HFpEF exhibited lower eGFR levels ( $48.0 \pm 18.0$ ) compared to those without HF ( $64.0 \pm 16.0$ ) and those with HFrEF ( $48.0 \pm 9.0$ ) ( $p < 0.05$ ). Additionally, ACR was higher in T2DM patients with HFpEF ( $115.0 \pm 110.0$ ) than those without HF ( $25.0 \pm 21.0$ ) and those with HFrEF ( $76.0 \pm 73.0$ ) ( $p < 0.05$ ).

**Conclusions:** We found that the signs of DKD were the most pronounced in the group of patients with T2DM and HFpEF, which could suggest an important role of DKD in the pathogenesis of HFpEF in patients with T2DM.