Mechanistic effects of Semaglutide on kidney disease in type 2 diabetes: The REMODEL trial

ISN INTERNATIONAL SOCIETY OF NEPHROLOGY

Adults with T2DM and CKD (n=106)

Mean age 65±10 years

24% females

Mean eGFR 51±10 mL/min/1.73m2

Median UACR 187 mg/g

Subcutaneous Semaglutide (1mg once weekly)

2:1

Placebo

52 weeks

Renal biopsy N=33

Summary of outcomes of semaglutide

Kidney damage and function

40% lower UACR

12 mL/min higher creatinine clearance

Reduced kidney fat

25% decrease in perirenal fat volume

13% decrease in sinus fat volume

Hemodynamics and fibrosis

Reduction in renal arterial resistive index

Stable apparent diffusion coefficient

Glomerular endothelial cell transcriptome alterations

Downregulation of genes in metabolic, inflammatory, and fibrotic pathways

Conclusion: In participants with T2D and CKD, semaglutide reduced kidney fat, improved glomerular hemodynamics, and ameliorated endothelial injury through metabolic reprogramming and mitigation of inflammation and fibrosis.

Katherine Tuttle, et al

Visual abstract by **Kajaree Giri**
𝕏 @KajareeG

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