

Adipose Insulin Resistance Relates to Perturbed Renal Hemodynamics in Obese Youth with and without Type 2 Diabetes

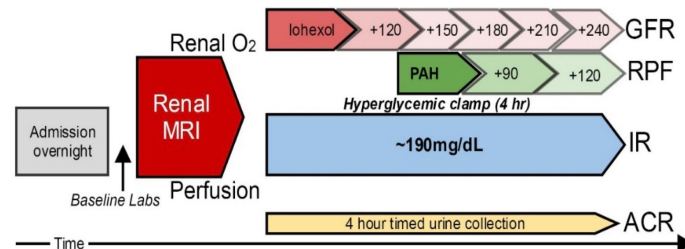
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Objectives

- There is a need to better understand the pathophysiology of early diabetic kidney disease (DKD) in youth with type 2 diabetes (T2D).
- The objective of this study was to compare intrarenal hemodynamic function between obese youth with and without T2D and relate these measures to adipose insulin resistance (IR).

Methods

- We assessed insulin sensitivity and kidney function in obese youth with and without T2D.

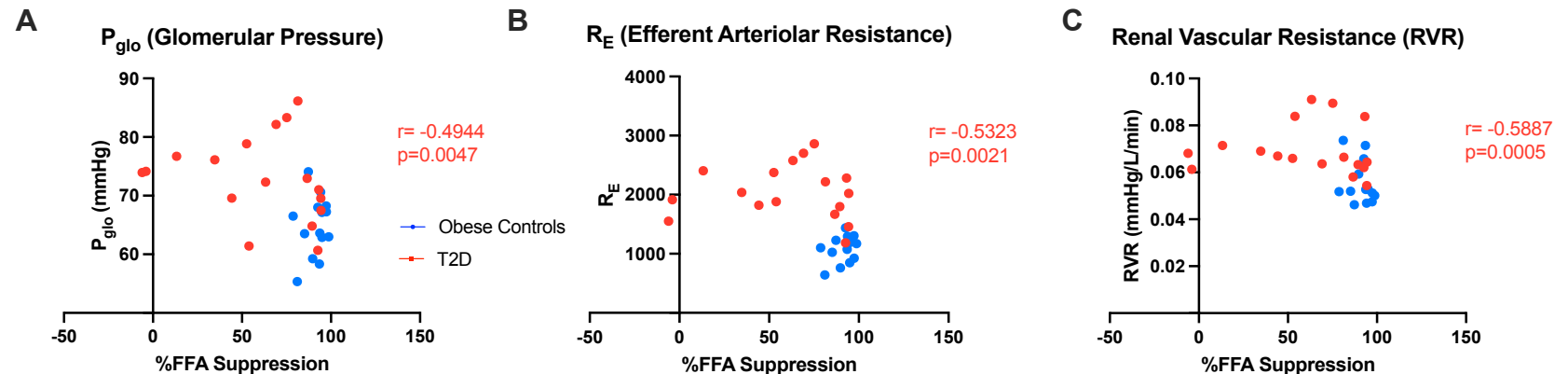
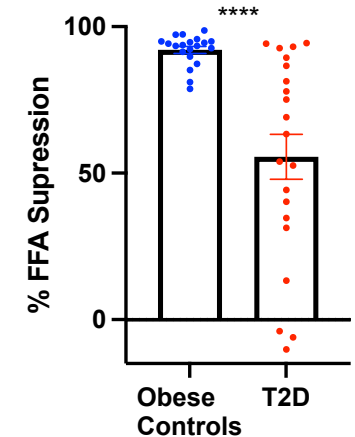


- Gomez equations were used to calculate parameters of intrarenal hemodynamic function.
- Statistical comparison was done using the nonparametric Mann Whitney test, and correlations were determined using nonparametric Spearman's rho.

Results

- FFA suppression was attenuated in youth with T2D compared to obese controls (55.6% vs. 92.1%, $p < 0.0001$) (right), indicating **adipose IR**.
- Impaired FFA suppression was associated with higher intraglomerular pressure, higher efferent arteriolar resistance, and higher renal vascular resistance (below).

Variable	Obese Controls (n=20)	T2D (n=31)
Age (years)	15.3	15.8
BMI (kg/m ²)	38.2	35.6
HbA1c (%)	5.5	6.9
Female	30%	58%



Conclusion: Impaired FFA suppression was associated with perturbed renal hemodynamic parameters, indicating a potential role for adipose tissue IR in the development of early DKD.