

INSULIN RESISTANCE ASSOCIATED CHARACTERISTICS IN T1D PATIENTS 20 YEARS AND OLDER IN MEXICO. RESULTS FROM THE MULTI-CENTRIC STUDY RENACED DIABETES TIPO 1

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BACKGROUND AND AIMS

The information regarding the prevalence of insulin resistance associated characteristics in type 1 diabetes (T1D) patients during adulthood in Mexico is limited. Adult patients registered in RENACED Diabetes Tipo 1 were studied.

METHODS

The gold standard to measure insulin resistance is the euglycemic hyperinsulinemic clamp usually done in a clinical research center. Clinical surrogates of insulin resistance include body weight, BMI, waist circumference, waist to hip ratio, hypertension, HDL and triglyceride levels, acanthosis nigricans and elevated insulin dose. We analyzed the presence of these characteristics in 486 T1D patients ≥ 20 years old registered on RENACED DT1, until 10/8/2017.

RESULTS

303 patients were women (62.4%) and 183 were men (37.6%). The average age of diagnosis was 16 years, and the mean age was 32.8 years old (yo). Seventeen percent have family history of T1D and 52.4% of T2D. Mean BMI was 24.8 Kg/m² (n=412) with no significant differences between men (25.1 Kg/m²) and women (24.6 Kg/m²). 29.1% were overweight (BMI 25-30) and 11.03% were obese (BMI ≥ 30) (Image 1).

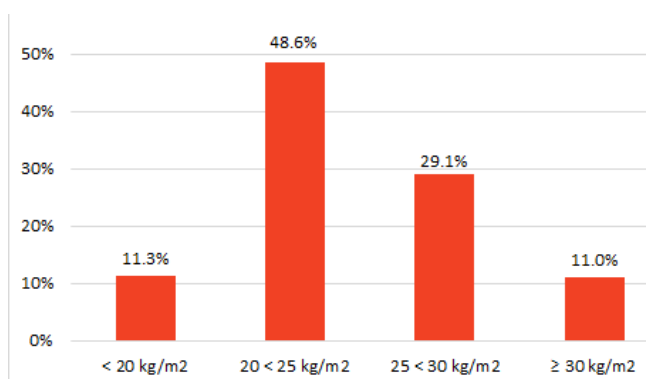


Image 1: BMI of patients aged 20 years or older

12.5% had diagnosed hypertension, 7.5% had systolic BP ≥ 140 mmHg, and 5.9% diastolic BP ≥ 90 mmHg. 21.9% had triglyceride levels ≥ 150 mg/dl and 19.1% had HDL levels < 40 mg/dl. (Table 1)

Table 1: Clinical characteristics associated with insulin resistance		n (% observations)
BMI	< 20 kg/m ²	48 (11.27)
	20 < 25 kg/m ²	207 (48.59)
	25 < 30 kg/m ²	124 (29.11)
	≥ 30 kg/m ²	47 (11.03)
Hypertension	Diagnosed HTN	34 (12.50)
	Systolic ≥140 mmHg	32 (7.51)
	Diastolic ≥90 mmHg	25 (5.87)
Triglycerides	< 150 mg/dl	146 (78.07)
	≥ 150 mg/dl	41 (21.93)
HDL	< 40 mg/dl	31 (19.14)
	≥ 40 mg/dl	131 (80.86)

The mean HbA1c was 8.5% (n=377), without significant differences between men (8.3%) and women (8.6%).

Only 40% of patients with HbA1c $\geq 9.0\%$ exercised vs 67% on patients with $< 7.0\%$ (< 0.0001) (Image 2).

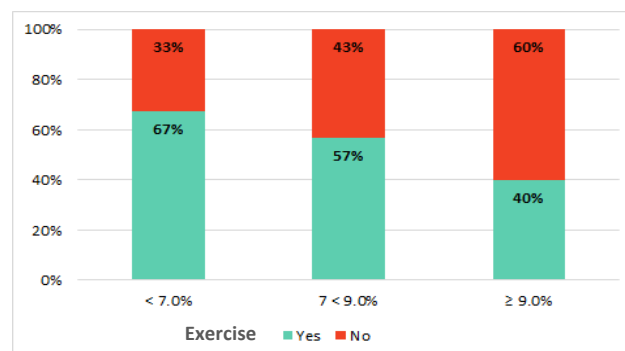


Image 2: Proportion of patients who exercise vs their HbA1c

Regarding insulin dose, 13% of the patients use $1.0 < 1.5$ U/kg/day, and 1.3% use ≥ 1.5 U/kg/day. In addition, daily dose of insulin was 0.59 IU in the group with HbA1c $< 7.0\%$, 0.68 IU in the $\geq 7.0 < 9.0\%$ group, and 0.85 IU in the 9% or more group. Insulin dose was significantly lower than in the controlled group than in the uncontrolled group ($p < 0.0001$). Thirteen percent of the patients are on metformin therapy. Those on metformin have lower HbA1c levels, but the difference was not significant (8.18 vs. 8.55; $p=0.1534$).

CONCLUSIONS

A large proportion (40.13%) of adult patients living with T1D in Mexico are overweight or obese, and have some associated features associated with insulin resistance. Adjunctive therapies are needed in T1D to help improve glycemic control and reduce insulin resistance associated characteristics, and therefore lower cardiovascular risk.