

PREDIABETES IN HUMAN IMMUNODEFICIENCY VIRUS-INFECTED PATIENTS: PREVALENCE AND CLINICAL SIGNIFICANCE

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INTRODUCTION

Changes at the glucose metabolism are common in patients with HIV infection on antiretroviral treatment. Although the relevance of disorders in glucose metabolism is well recognized in HIV-infected individuals, the potential clinical relevance of prediabetes in this population has been little studied. The aims of this study were to determine the prevalence of prediabetes in a cohort of HIV-infected patients on long term highly active antiretroviral therapy (HAART) and to assess whether this condition involves the appearance of particular clinical and metabolic features.

METHODS/DESIGN

Observational study.
105 HIV-positive individuals (85,7% men, mean age: 46 ± 6,5 years) were enrolled.
Prediabetes was defined using established ADA criteria: Fasting plasma glucose (FPG) 100 to 125 mg/dL or 2-h plasma glucose in the 75-g OGTT 140 to 199 mg/dL or HbA1c 5,7-6,4%.
Data related to HIV infection, HCV co-infection and anthropometric and metabolic parameters were recorded (tables 1 and 2).

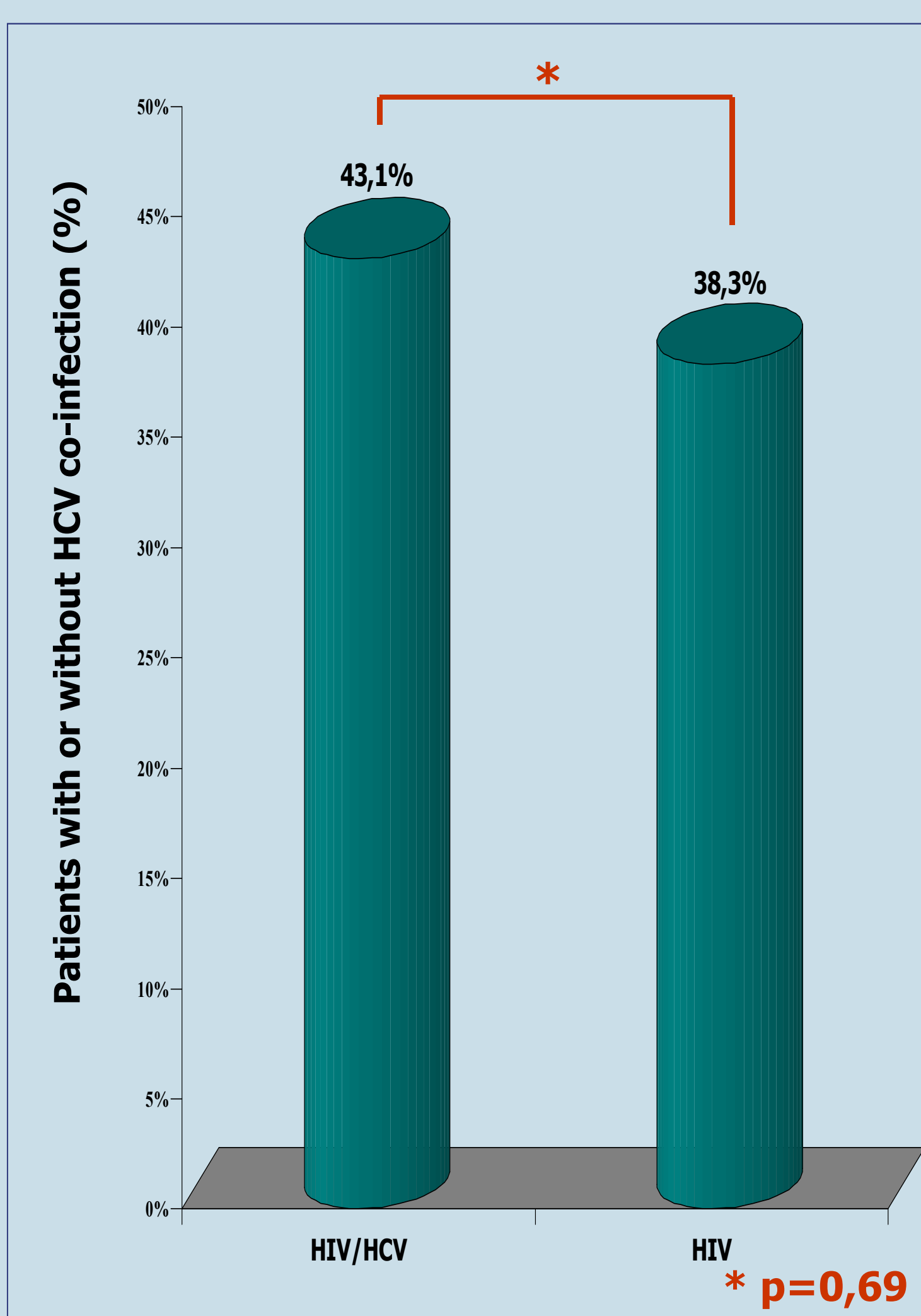
Variable	Value
Gender Male/Female (%)	85,7/14,3
Age (years)	46 ± 6,5
HCV/HIV co-infection (%)	55,2
BMI (Kg/m ²)	24,9 ± 4,7
Waist circumference (cm)	89,2 ± 13,2
Waist to hip ratio	0,9 ± 0,1
Prediabetes	41%

Variable	Value
FPG (mg/dL)	94,1 ± 10,7
Fasting insulin (µU/mL)	10,9 ± 8,7
HOMA-IR	4,2 ± 3,1
LDLc (mg/dL)	116,6 ± 36,8
HDLc (mg/dL)	50,4 ± 17,8
Triglycerides (mg/dL)	145,9 ± 74,8
CD4+/mm ³	623,1 ± 322,6

RESULTS

Prevalence of prediabetes was not significantly higher among HCV/HIV patients (figure 1). When compared to normoglycemic controls, patients with prediabetes had significantly higher waist-to-hip ratio, higher FPG levels, higher basal insulin and higher HOMA-IR (table 3). HCV/HIV with prediabetes were mostly men and had significantly lower LDLc levels and lower total cholesterol as compared to prediabetic HIV group (table 4).

Figure 1: Prevalence of prediabetes among HIV patients with or without HCV co-infection



Variable	Prediabetes	Normoglycemic	p
Gender: males (%)	83,7	87,1	NS
Age (years)	47,2 ± 5,7	45,1 ± 7	NS
BMI (Kg/m ²)	25,4 ± 5,4	25,4 ± 4,2	NS
Waist circumference (cm)	95,4 ± 7,7	95,9 ± 7,6	NS
Waist to hip ratio	0,96 ± 0,11	0,91 ± 0,1	0,033
Systolic blood pressure (mm Hg)	123,4 ± 15,8	119,8 ± 14,6	NS
Diastolic blood pressure (mm Hg)	78,5 ± 7,2	78,7 ± 8,9	NS
FPG (mg/dL)	99,4 ± 9,9	90,4 ± 9,6	<0,001
HbA1c (%)	5,8 ± 0,3	5,2 ± 0,3	NS
Fasting insulin (µU/mL)	14,1 ± 11,5	8,6 ± 5,1	0,005
HOMA-IR	4,4 ± 0,9	1,9 ± 1,2	0,013
Total Cholesterol (mg/dL)	194,8 ± 42,2	182,4 ± 41,6	NS
LDLc (mg/dL)	124,6 ± 34,5	111,3 ± 37,6	NS
HDLc (mg/dL)	49,4 ± 13,9	51,1 ± 20	NS
Triglycerides (mg/dL)	152,6 ± 79	141,2 ± 72,1	NS
CD4+/mm ³	678,5 ± 380,5	584,7 ± 272,2	NS

NS: not significant

Variable	HCV/HIV	HIV	p
Gender: males (%)	100	61,1	0,001
Age (years)	48,1 ± 4,9	46 ± 6,6	NS
BMI (Kg/m ²)	25,3 ± 6,1	25,5 ± 4,5	NS
Waist circumference (cm)	91,7 ± 14,6	91,3 ± 14,1	NS
Waist to hip ratio	0,97 ± 0,1	0,94 ± 1,1	NS
Systolic blood pressure (mm Hg)	122,6 ± 18,2	124,5 ± 12	NS
Diastolic blood pressure (mm Hg)	76,5 ± 7,7	81 ± 5,6	NS
FPG (mg/dL)	100,7 ± 10,4	97,7 ± 9,3	NS
HbA1c (%)	5,8 ± 0,3	5,8 ± 0,3	NS
Fasting insulin (µU/mL)	13 ± 8,3	15,1 ± 3,5	NS
HOMA-IR	4,9 ± 1,5	3,9 ± 0,9	NS
Total Cholesterol (mg/dL)	180,4 ± 34,7	213,9 ± 44,6	0,009
LDLc (mg/dL)	113,2 ± 27,2	139,9 ± 37,7	0,013
HDLc (mg/dL)	48,4 ± 11,2	50,7 ± 16,9	NS
Triglycerides (mg/dL)	146,8 ± 87,4	168,7 ± 67,1	NS
CD4+/mm ³	639,5 ± 348,3	213,9 ± 44,6	NS

NS: not significant

CONCLUSIONS

- HIV patients on long-term HAART are at risk to develop prediabetes, especially if abdominal obesity is present thus, measurements of HOMA-index and waist-to-hip ratio should be routinely done.
- The worst serum lipid profile in prediabetic HIV without HCV co-infection suggests that this parameter deserves special attention in these individuals.