

ABNORMALITIES IN GLUCOSE METABOLISM ARE PRESENT IN HCV/HIV CO-INFECTED PATIENTS WITH SEVERE LIVER FIBROSIS EVEN IN THE ABSENCE OF DIABETES

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OBJECTIVES

Type 2 diabetes mellitus (T2DM) is a well known independent prognosis factor associated with cirrhosis.

Nevertheless, few studies are focused on the association between glucose metabolism and liver fibrosis in HCV/HIV patients and their conclusions are contradictory.

The aim of our study was to investigate the relationship between glucose homeostasis and liver fibrosis in these patients.

METHODS/DESIGN

In a cross-sectional study, we compared prevalence of glucose disorders and data related to its homeostasis according to degree of liver fibrosis.

Liver stiffness was measured using transient elastography. Severe liver fibrosis was defined as liver stiffness ≥ 14 kPa.

Insulin resistance was defined as a level of Homeostasis Model for Assessment (HOMA-IR) ≥ 2 .

RESULTS

65 HCV/HIV co-infected patients were included. Prevalence of prediabetes and T2DM was higher (40% and 24%, respectively) among patients with severe fibrosis as compared to 26.3% and 2.6% among those with less severe degree of fibrosis ($p=0.005$).

Among parameters related to glucose metabolism, levels of fasting glucose, HbA1c and HOMA-IR were significantly higher in patients with severe fibrosis ($p=0.006$, $p=0.048$ and $p=0.001$ respectively) (table 1).

Also, there was a positive correlation between HOMA-IR and liver fibrosis ($r=0.5$; $p<0.001$) (figure 1).

When patients with T2DM were excluded, levels of fasting plasma insulin, HOMA-IR and the prevalence of insulin-resistance, were significantly higher among those with severe fibrosis ($p=0.004$, $p=0.003$ and $p=0.049$, respectively) (table 2) and the positive correlation between HOMA-IR and liver fibrosis remained significantly present ($r=0.45$; $p<0.001$) (figure 2).

Table 1: Parameters related to glucose metabolism (all patients)

Liver stiffness	≥ 14 kPa	< 14 kPa	p
Prediabetes (%)	40	26.3	0.005 ^a
T2DM (%)	24	2.6	0.005 ^a
Fasting plasma glucose (mg/dL)	111.9 \pm 30	93.2 \pm 11.7	0.006 ^b
Fasting plasma insulin (μ UI/mL)	17.3 \pm 9.1	13.2 \pm 3.9	0.41 ^b
HOMA-IR	4.7 \pm 3.2	4 \pm 1.2	0.001 ^c
HbA1c (%)	5.9 \pm 0.9	5.5 \pm 0.5	0.04 ^c

a) from χ^2 test; b) from t-test; c) from U Mann-Whitney test

Table 2: Parameters related to glucose metabolism in patients without T2DM

Liver stiffness	≥ 14 kPa	< 14 kPa	p
Fasting plasma glucose (mg/dL)	98.3 \pm 11.5	93.6 \pm 11.6	0.16 ^a
Fasting plasma insulin (μ UI/mL)	15.9 \pm 8.5	9.3 \pm 4.6	0.004 ^a
HOMA-IR	3.8 \pm 2	3.3 \pm 1	0.003 ^b
HbA1c (%)	5.6 \pm 0.4	5.4 \pm 0.4	0.09 ^b

a) from t-test; b) from U Mann-Whitney test

Figure 1: Correlation between HOMA-IR and liver stiffness (all patients)

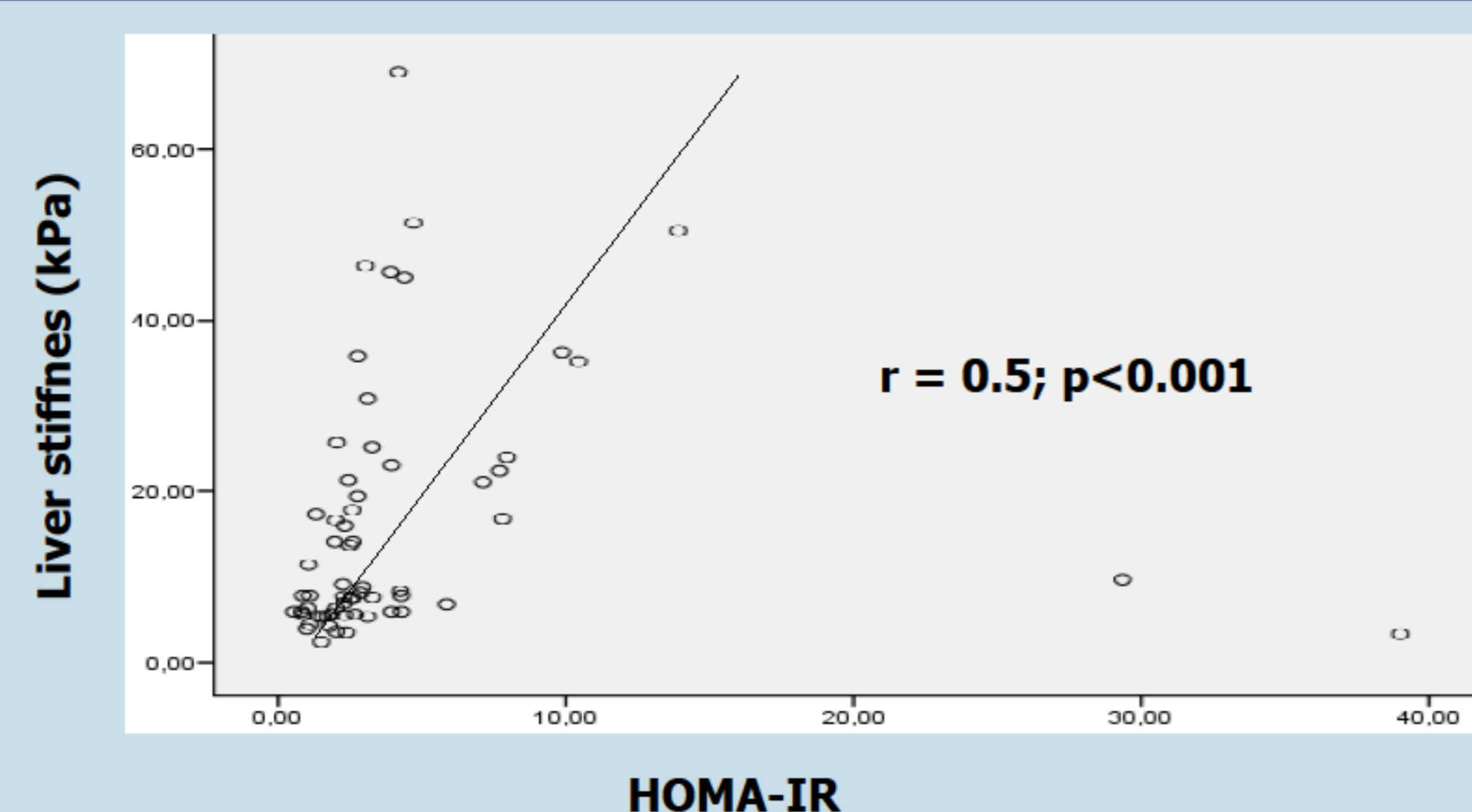
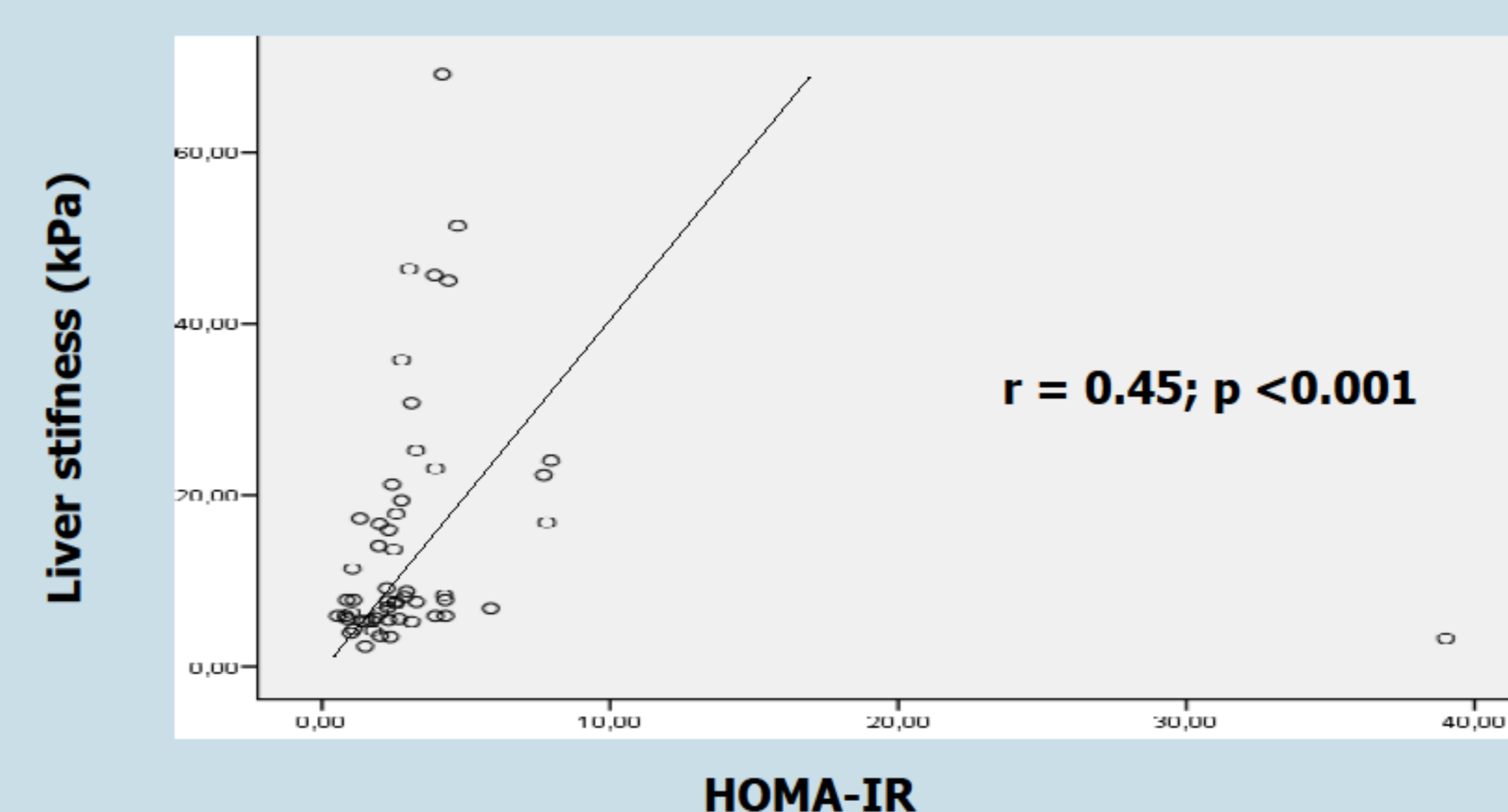


Figure 2: Correlation between HOMA-IR and liver stiffness (patients without T2DM)



CONCLUSIONS

- Our data support that hyperinsulinism and insulin-resistance are frequently observed in HCV/HIV co-infected patients with severe liver fibrosis even in absence of overt T2DM.
- Detection of a high degree of liver fibrosis in HCV/HIV co-infected patients is another reason to optimize glycemic control in this population.

