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Heroin dependence duration influences the metabolic parameters: mechanisms and consequences of impaired insulin sensitivity in hepatitis C virus seronegative heroin dependents.

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Abstract

OBJECTIVE:
Carbohydrate metabolism disorder in heroin dependence is an issue with long history and contradicting results. The aim of the study was to evaluate basal insulin sensitivity in hepatitis C virus seronegative heroin dependents with normal body mass index, taking into consideration the duration of heroin dependence.

METHOD:
78 heroin dependents and 32 healthy controls were enrolled in the cross-sectional, prospective study. The dependents were observed in 2 groups: group 1 with dependence duration less than or equal to 3 years and group 2 with more than 3 years. Homeostasis Model Assessment for Insulin Resistance (HOMA-IR) and β-cell function (HOMA-B%) were used to define basal glucose-insulin homeostasis.

RESULTS:
The group with longer dependence duration had HOMA-IR (2.23 ± 3.15) significantly higher compared with the control group (1.23 ± 0.53, P = 0.016) but lower compared with the group with the shorter dependence duration (2.65 ± 2.66, P = 0.024), after adjustment for HOMA-B%, waist circumference, and aspartate aminotransferase. The decrease in HOMA-IR during prolonged heroin addiction was significantly associated with the reduced β-cell function (P < 0.001) and waist circumference (P = 0.004).

CONCLUSIONS:
Heroin dependence is associated with increased insulin resistance in hepatitis C virus seronegative heroin dependents. Prolonged heroin use is associated with reduction of basal β-cell pancreatic function with decreased insulin resistance controlled for waist circumference, but still inducing significantly decreased basal insulin sensitivity