

# Relationship between glycaemic levels and arterial stiffness in non-diabetic adults [Relación entre los valores de glucemia y la rigidez arterial en adultos no diabéticos]

Cavero-Redondo I.

Martínez-Vizcaíno V.

Álvarez-Bueno C.

Recio-Rodríguez J.I.

Gómez-Marcos M.Á.

García-Ortiz L.

**Objective** To examine, in a non-diabetic population, whether the association between arterial stiffness and glycaemic levels depends on the test used as a glycaemic indicator, fasting plasma glucose (FPG) or glycated haemoglobin A1c (HbA1c). **Patient population and methods** A cross-sectional analysis of a 220 non-diabetic subsample from the EVIDENT II study in which FPG, HbA1c and arterial stiffness-related parameters (pulse wave velocity, radial and central augmentation index, and central pulse pressure) were determined. Mean differences in arterial stiffness-related parameters by HbA1c and FPG tertiles were tested using analysis of covariance. **Results** All means of arterial stiffness-related parameters increased by HbA1c tertiles, although mean differences were only statistically significant in pulse wave velocity ( $p < .001$ ), even after controlling for potential confounders (HbA1c  $<5.30\%$  = 6.88 m/s; HbA1c 5.30%-5.59% = 7.06 m/s; and HbA1c  $\geq 5.60\%$  = 8.16 m/s,  $p = .004$ ). Conversely, mean differences in pulse wave velocity by FPG tertiles did not reach statistically significant differences after controlling for potential confounders (FPG 4.44 mmol/l = 7.18 m/s; FPG 4.44 mmol/l-4.87 mmol/l = 7.26 m/s; and FPG  $\geq 4.88$  mmol/l = 7.93 m/s,  $p = .066$ ). **Conclusions** Glucose levels in a non-diabetic population were associated with arterial stiffness but better when levels were determined using HbA1c. © 2017

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Arterial stiffness

Fasting plasma glucose

Glycated haemoglobin

HbA1c

Pulse wave velocity

glucose

hemoglobin A1c

biological marker

glycosylated hemoglobin

hemoglobin A1c protein, human

arterial stiffness

Article

augmentation index

correlational study

cross-sectional study

diet restriction

glucose blood level

hemoglobin blood level

human

pulse pressure

pulse wave

adult

arterial stiffness

blood

blood pressure

female

glucose blood level

glucose tolerance test

male

metabolism

middle aged

physiology

Adult

Biomarkers

Blood Glucose

Blood Pressure

Cross-Sectional Studies

Fasting

Female

Glucose Tolerance Test

Glycated Hemoglobin A

Humans

Male

Middle Aged

Pulse Wave Analysis

Vascular Stiffness