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Endothelial function in a cardiovascular risk population with borderline ankle-brachial index.

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Abstract

INTRODUCTION: The diagnosis of peripheral arterial disease (PAD) can be made by measuring the ankle-brachial index (ABI). Traditionally ABI values > 1.00-1.40 have been considered normal and ABI ≤ 0.90 defines PAD. Recent studies, however, have shown that individuals with ABI values between 0.90-1.00 are also at risk of cardiovascular events. We studied this cardiovascular risk population subgroup in order to determine their endothelial function using peripheral arterial tonometry (PAT).

METHODS: We selected 66 individuals with cardiovascular risk and borderline ABI. They all had hypertension, newly diagnosed glucose disorder, metabolic syndrome, obesity, or a ten year risk of cardiovascular disease death of 5% or more according to the Systematic Coronary Risk Evaluation System (SCORE). Subjects with previously diagnosed diabetes or cardiovascular disease were excluded. Endothelial function was assessed by measuring the reactive hyperemia index (RHI) from fingertips using an Endo-PAT device.

RESULTS: The mean ABI was 0.95 and mean RHI 2.11. Endothelial dysfunction, defined as RHI < 1.67, was detected in 15/66 (23%) of the subjects. There were no statistically significant differences in RHI values between subjects with different cardiovascular risk factors. The only exception was that subjects with impaired fasting glucose (IFG) had slightly lower RHI values (mean RHI 1.91) than subjects without IFG (mean RHI 2.24) (P = 0.02).

CONCLUSIONS: In a cardiovascular risk population with borderline ABI nearly every fourth subject had endothelial dysfunction, indicating an elevated risk of cardiovascular events. This might point out a subgroup of individuals in need of more aggressive treatment for their risk factors.

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