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Noninvasive Detection of Endothelial Function in Normal Subjects, Asymptomatic Patients at Risk of Atherosclerosis and Patients with Coronary Artery Disease

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Abstract:

Background/Objective: The endothelial dysfunction is associated with atherosclerosis. The dilatatory reaction of atherosclerotic vessels in response to occlusion is reduced. This reduction could be of value in atherosclerosis determination. This study aimed at comparing brachial artery response to occlusion and administration of nitroglycerine in three groups: coronary artery disease patients, individuals with coronary disease risk factors but no coronary disease, and normal subjects. **Patients and Methods:** The participants included 23 healthy individuals, 22 subjects with cardiovascular risk factors (diabetes mellitus, smoking, hypertension or hypercholesterolemia), and 57 angiographically proven coronary patients. The brachial artery diameter was measured by color Doppler ultrasound at rest, 5 minutes after inflation of the cuff, and 5 minutes after sublingual administration of nitroglycerine pearl. **Results:** The vessel's diameter increased the least in the coronary artery disease and coronary risk factor groups in comparison to normal subjects ($p=0.003$ and 0.048 , respectively). Vessel dilatation in response to nitroglycerine did not differ in healthy individuals from the coronary patients or the risk factor group ($p=0.96$ and 0.77 , respectively). **Conclusion:** Doppler ultrasound may be used as a noninvasive method to identify subjects with endothelial dysfunction at high risk of coronary artery disease who need intervention or more invasive procedures.

Keywords:

[endothelial dysfunction](#) , [color Doppler](#) , [vasodilatation](#)

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