Abstract:
Arterial endothelial dysfunction occurs at all stages of atherosclerosis, both preceding structural atherosclerosis changes, as well as predisposing to clinical events in late obstructive disease. Endothelial dysfunction is thus well correlated with risks of vascular events. Release of endothelial nitric oxide has been shown to be a key player in normal endothelial function. Endothelial function can be measured in the coronary arteries and peripheral vascular tree by intra-arterial infusion of substances that promote release of nitric oxide, but this method is limited by its invasive nature which limits its widespread use in asymptomatic subjects. Flow mediated dilatation is a non invasive ultrasound-based method where arterial diameter is measured in response to an increase in shear stress, which causes release of nitric oxide from the endothelium and consequent endothelium dependent dilatation. Flow mediated dilatation has been shown to correlate with invasive measures of endothelial function, as well as with the presence and severity of the major traditional vascular risk factors. This noninvasive endothelial function testing has also demonstrated the potential reversibility of endothelial dysfunction by various strategies including cessation of smoking, weight loss in obese subjects, certain pharmacological agents (statins, ACE inhibitors), L-arginine and hormones.

Key words:
endothelium, atherosclerosis, nitric oxide, flow mediated dilatation, vasodilatation, ultrasound