

# Influence of Pulse Pressure on Coronary Flow Reserve in Patients with Normal Coronary Angiography

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## 1. Background

It is well known that aortic stiffness and pulse pressure are independent risk factors for cardiovascular mortality and morbidity. However, underlying mechanisms for this relationship have not been clearly elucidated. We, therefore, evaluated the influence of increased aortic stiffness with high pulse pressure on coronary flow reserve (CFR).

## 2. Methods

Eighteen patients (mean age: 55.10 years, 8 men) with normal coronary angiography were enrolled in the study. After coronary angiography coronary flow velocities were measured with intracoronary Doppler wire at baseline and after adenosine infusion and CFR was calculated as the ratio of hyperemic to basal systolic/diastolic mean velocity. Peripheral vascular endothelial function was assessed by high-resolution brachial artery ultrasound. Flow-mediated dilation (FMD) during reactive hyperemia was defined as the percent change in arterial diameter following 5-minute arterial occlusion.

## 3. Results

The mean CFR was 2.90.5 and the mean pulse pressure was 49.12 mmHg (range: 25 to 73). The mean FMD was 6.61.1 %. Pulse pressure showed significant inverse correlation with CFR ( $r=-0.64$ ,  $p<0.05$ ), even after adjusting for age and underlying diseases. However, CFR did not correlate with FMD ( $r=-0.14$ ,  $p=NS$ ).

## 4. Conclusion

We showed that elevated pulse pressure, but not brachial FMD, was associated with reduced CFR. It seems that increased aortic stiffness badly affects coronary hemodynamics independent of vascular endothelial function.

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