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ABSTRACTS - Angiography & Interventional Cardiology 29A

Fractional Flow Reserve Measurement After Coronary Stenting in Patients With Hypertension and Diabetes: Insights From a Large Multicenter Registry

Johannes Reiber, Nico H. Pijs, Bernard De Bruyne, Potra Erdin, Volker was Commonly seen as limitation for the use of FFR due to the high prevalence of event rate during 8 month follow up. However, the presence of diabetes or hypertension large patient cohort, that a FFR >=0.9 after coronary stenting is associated with a low yet. The aim of this study was to determine whether the assessment of DDT immediately onset. We measured coronary flow velocity immediately after successful PCI using a diastolic deceleration time (DDT) implies the presence of advanced microvascular damage. On the other hand, severe microvascular damage is one of the major risk factors of infarct size. In the present study, the relationship between microvascular infarct size and coronary flow velocity patterns has not yet been investigated in a large number of patients as yet. The aim of this study was to determine whether the assessment of DDT immediately after coronary reflow may predict microinfarct size in patients with acute myocardial infarction (AMI).

Methods: One hundred and sixty-seven consecutive patients with first anterior AMI were studied after successful percutaneous coronary revascularization (PCI) within 24 hours of onset. We measured coronary flow velocity immediately after successful PCI using a Doppler guidewire. Patients were divided according to the DDT into two groups: Group 1 (n=116) with a DDT of >600 ms and Group 2 (n=51) with a DDT of ≤600 ms. Serum creatine kinase (CK) and serum creatine kinase of myocardial origin (CK-MB) were measured serially every 3 hours after reperfusion until a peak value was obtained. Results: Peak CK levels and CK-MB levels were significantly higher in Group 2 than in Group 1 (p=0.002). The incidence of CK-MB elevation was significantly higher in Group 2 (p=0.034). The sensitivity and specificity of a DDT of ≤600 ms in peak CK levels were 71% and 85%, respectively. The sensitivity and specificity of a DDT of ≤600 ms in peak CK-MB levels were 60% and 93%, respectively. A significant inverse correlation was found between DDT and Peak CK-MB levels (r = -0.34; p<0.001). Conclusions: These findings suggest that the assessment of DDT using a Doppler guidewire can be used to predict the myocardial infarct size at the time of reperfusion.

Fractional Flow Reserve and Microvascular Dysfunction Following Acute Myocardial Infarction


Background: It is now possible to measure coronary flow reserve (CFR), using a validated coronary flow provocation technique, at the same time as fractional flow reserve (FFR) and with a single coronary pressure wire. This may represent a relatively simple and more thorough means of invasively evaluating for cardiac transplant arteriopathy.

Methods: In 30 asymptomatic cardiac transplant patients, coronary angiography and intravascular ultrasound (IVUS) imaging were performed. The performance of the technique was performed by a balloon catheter with integrated microelectrodes and allows the detection of tissue proliferation after stent implantation.

Results: Peak CK levels and CK-MB levels were significantly higher in Group 2 than in Group 1 (p=0.002). The incidence of CK-MB elevation was significantly higher in Group 2 (p=0.034). The sensitivity and specificity of a DDT of ≤600 ms in peak CK levels were 71% and 85%, respectively. The sensitivity and specificity of a DDT of ≤600 ms in peak CK-MB levels were 60% and 93%, respectively. A significant inverse correlation was found between DDT and Peak CK-MB levels (r = -0.34; p<0.001). Conclusions: These findings suggest that the assessment of DDT using a Doppler guidewire can be used to predict the myocardial infarct size at the time of reperfusion.

The Prognostic Value of Stenosis Resistance Index After Deferral of Percutaneous Transluminal Coronary Angioplasty in Intermediate Coronary Lesions: Observations From Fractional Flow Reserve and Microvascular Dysfunction Following Acute Myocardial Infarction

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Background: Prospective studies have shown a low event (5-10%) rate after deferral of PTCA when a normal fractional flow reserve (FFR, ≥0.75) or a normal coronary flow reserve (CFR, >2.0) is measured. However, patients with intermediate coronary lesions with discordant results between FFR and CFR showed a significantly higher event rate. Hyperemic stenosis resistance index (SVH) based on a combination of both intracoronary flow and pressure may be a promising parameter for safe deferral in these patients.

Methods: Coronary pressure and flow velocity was measured distal to 200 intermediate coronary lesions (mean diameter stenosis of 55%) during baseline and maximal hyperemia. FFR was defined as the ratio of mean distal pressure (PD) to mean aortic pressure (Pa) during maximum hyperemia, CFR was defined as the ratio of hyperemic to baseline flow velocity (APV) and SVH was defined as the ratio of hyperemic to baseline flow velocity (APV) divided by the mean pressure difference (Pa-Pd). Deferral of PTCA was performed based on a combination of both wire-guided wire performance.

Results: Sixteen (9%) major MACE 65 Patients: 2 CABGs and 9 PTCAcs occurred during a mean follow-up of 396±85 days. Significantly more events occurred in group B and C (22% and 19%) compared to group A (4%, p=0.001). In lesions with discordant results...