Significance of relative coronary flow reserve in patient with microvascular dysfunction to differentiate significant coronary artery stenosis

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Introduction: Coronary flow reserve (CFR) is defined as a ratio of hyperemic-to-basal coronary flow velocity and it can be measured by a variety of methods. Transthoracic Doppler echocardiography (TTE) CFR became useful method to assess functional significance of coronary artery stenosis in both left anterior descending (LAD) and posterior descending coronary artery (PD). CFR is combined measure of the capacity of epicardial coronary artery and microcirculation to achieve maximal blood flow in response to hyperemic stimulation. Thus in patients with already impaired microcirculation and accordingly CFR, differentiation from presence of significant coronary stenosis is difficult without known coronary angiography.

Case report: We present a case of patient with hypertrophic cardiomyopathy and diabetes, where relative CFR as the ratio of the CFRs of two coronary arteries helped us in decision making to do coronarography because of atypical chest pain and fatigue.

Conclusion: In patients with known microvascular dysfunction and already impaired CFR, relative CFR might be helpful to differentiate presence of significant epicardial stenosis. Future studies are needed to obtain appropriate clinical implications of relative CFR in everyday practice.

Key words: coronary flow reserve; relative coronary flow reserve; microcirculation; hypertrophic cardiomyopathy