Invasive diagnostic tests for detection of coronary microcirculation dysfunction – coronary flow reserve and index myocardial resistance

Tomislav Biloglav*, **Daniela Šmalcelj**, **Natalija Silović**

University Hospital Centre Zagreb, Zagreb, Croatia

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***ADDRESS FOR CORRESPONDENCE**: Tomislav Biloglav, Klinički bolnički centar Zagreb, Kišpatićeva 12, HR-10000 Zagreb, Croatia. / Phone: +385-99-5017-896 / E-mail: tom.bil808@gmail.com

ORCID: Tomislav Biloglav, https://orcid.org/0000-0003-2015-8908 • Daniela Šmalcelj, https://orcid.org/0000-0002-5137-9079 Natalija Silović, https://orcid.org/0000-0002-3208-0215

Introduction: Coronary microcirculation dysfunction can present as either a chronic coronary syndrome with angina or an acute coronary syndrome with normal coronary angiography[1]. Invasive tests for microvascular disease include coronary flow reserve (CFR) and index myocardial resistance (IMR). CFR and IMR measurements are taken during routine coronary angiography using the Coroventis CoroFlow console and the PressureWire X coronary wire. A continuous adenosine infusion is used to induce stable hyperemia during the test, which causes vasodilation of the microcirculation and simulates the state of physical activity. CFR functions as a standard thermodilution method, measuring the time it takes for the saline flush to reach the thermistor. In contrast, while measuring CFR and IMR, a measurement of fractional flow reserve (FFR) is obtained, which rules out epicardial stenosis. IMR, on the other hand, is a ratio of pressure to flow velocity during maximal hyperemia. *Aim:* To demonstrate new diagnostic tools for determining myocardial resistance and coronary flow reserve.

Results: The first CFR and IMR tests were performed in May 2022 at the University Hospital Center Zagreb's interventional cardiology department. The tests successfully detected microvascular disease, allowing this group of patients to receive appropriate medical treatment.

Conclusion: The clinical significance of CFR and IMR is to enable better treatment selection for our patients. Although these tests are minimally invasive, they can cause complications, so careful patient selection is essential.

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LITERATURE

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