

# THE VALUE OF A CORONARY MICROVASCULAR DYSFUNCTION (CMD) DIAGNOSIS



## GIVE PATIENTS AN ACCURATE DIAGNOSIS OF CORONARY MICROVASCULAR DYSFUNCTION (CMD)

**CMD may be causing your patients' persistent angina. A diagnosis of CMD can help optimize treatment and improve the patient's quality of life.<sup>1</sup>**

- 40-60% of patients in the cath lab are found to have no obstructive coronary artery disease (NOCAD) on angiography despite persistent angina symptoms.<sup>2,3</sup>
- These patients often end up with frequent rehospitalizations, with little progress made in explaining the cause of their symptoms.<sup>4</sup>
- A clear diagnosis and treatment of CMD can improve outcomes and quality of life in these patients at high risk for major adverse cardiac events (MACE).<sup>1,5,6</sup>



**PressureWire™ X Guidewire and CoroFlow<sup>+</sup> Cardiovascular System are the only\* solution that can help diagnose CMD with IMR and CFR<sup>1,7</sup>**

CMD is caused by abnormalities in coronary microvasculature – the heart's smallest vessels.<sup>5</sup> The CoroFlow<sup>+</sup> Cardiovascular System enables analysis of how well the microvasculature is functioning using data from PressureWire™ X Guidewire.<sup>7</sup>

\*IMR: index of microcirculatory resistance. CFR: coronary flow reserve.

1. Ford TJ, et al. 1-year outcomes of angina management guided by invasive coronary function testing (CorMicA). *JACC Intv.* 2020; 13:33-45. 2. Patel M, et al. Low diagnostic yield of elective coronary angiography. *NEJM* 2010; 362:886-95. 3. Maas A, et al. Microvascular angina: diagnosis, assessment, and treatment. *EMJ Int Cardiol.* 2019; 7[Suppl 1]2-17. 4. Example from Ford et al. CorMicA. EuroPCR 2019. While few data on number of repeat hospitalizations exist, forthcoming CorMicA publications will include such analyses. 5. Taqueti VR, et al. Coronary microvascular disease pathogenic mechanisms and therapeutic options: JACC state-of-the-art review. *J Am Coll Cardiol.* 2018;72:2625–2641. 6. Jespersen L, et al. Stable angina pectoris with no obstructive coronary artery disease is associated with increased risks of major adverse cardiovascular events. *Eur Heart J.* 2012;33:734-744. 7. Pressure-Wire™ X Guidewire Instructions for Use (IFU) & CoroFlow<sup>+</sup> Cardiovascular System IFU. Refer to IFU for additional information.

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# GUIDELINES RECOMMEND GUIDEWIRE-BASED MEASUREMENTS

The ESC guidelines<sup>1</sup> 2019 were updated accordingly to include an increased focus on microvascular dysfunction.

RECOMMENDATIONS	CLASS <sup>a</sup>	LEVEL <sup>b</sup>
Guidewire-based CFR and/or microcirculatory resistance measurements should be considered in patients with persistent symptoms, but coronary arteries that are either angiographically normal or have moderate stenosis with preserved iwFR/FFR.	<b>IIa</b>	<b>B</b>

The AHA/ACC Clinical Practice Guideline<sup>2</sup> on Chest Pain includes Class IIa recommendation for guidewire-based assessment for ischemia and no obstructed coronary artery disease (INOCA) patients.

RECOMMENDATIONS FOR PATIENTS WITH INOCA	CLASS <sup>a</sup>	LEVEL <sup>b</sup>
For patients with persistent stable chest pain and nonobstructive CAD and at least mild myocardial ischemia on imaging, it is reasonable to consider invasive coronary function testing to improve the diagnosis of coronary microvascular dysfunction and to enhance risk stratification.	<b>IIa</b>	<b>B-NR</b>

CFR = coronary flow reserve; CMR = cardiac magnetic resonance; ECG = electrocardiogram; FFR = fractional flow reserve; iwFR = instantaneous wave-free ratio; LAD = left anterior descending; PET = positron emission tomography.

<sup>a</sup> Class of recommendation

<sup>b</sup> Level of evidence.

Level-NR: Level (Quality) of Evidence Level B-NR (non-randomized): moderate-quality evidence from 1 or more well designed, well executed non-randomized studies, observational studies or registry studies. RCTs. Meta-analyses of such studies.

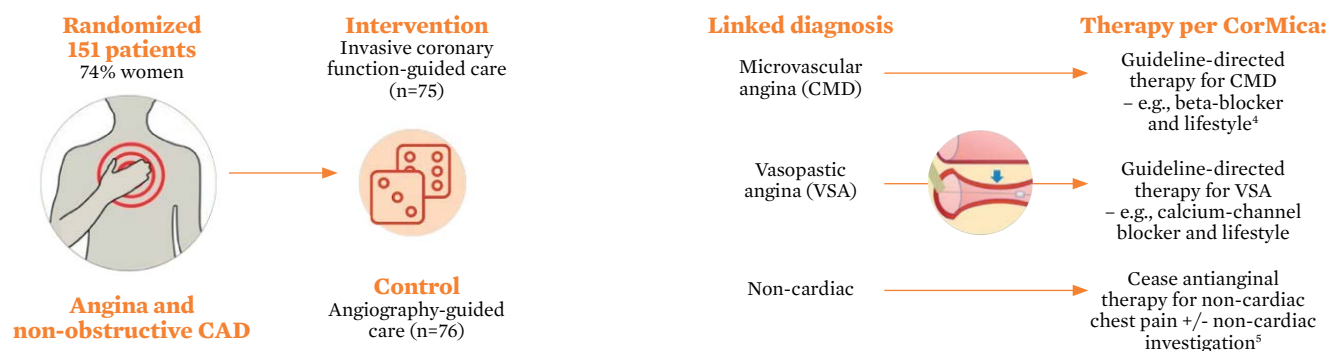
## RESULTS OF THE CORMICA TRIAL<sup>3</sup>

Microvascular angina and vasospastic angina are the two most common causes of INOCA, and both types of angina can be identified with diagnostic testing. The randomized CorMicA trial provides a diagnostic and treatment approach.

The trial protocol assessed patients to determine:

- Microvascular angina or CMD—using the PressureWire™ X Guidewire
- Vasospastic angina—with acetylcholine testing

## CORMICA TRIAL: 1-YEAR RTC OUTCOMES<sup>3</sup>



1. Knuuti J, et al. 2019 ESC Guidelines for the diagnosis and management of chronic coronary syndromes. *European Heart Journal* 2019. 2. Gulati M, et al. 2021 AHA/ACC/AASE/CHEST/SAEM/SCCT/SCMR Guideline for the Evaluation and Diagnosis of Chest Pain: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. 3. Ford TJ, et al. 1-year outcomes of angina management guided by invasive coronary function testing (CorMicA). *J Am Coll Cardiol Interv*. 2020;13:33-45. 4. Knuuti J, et al., for the Task Force for the diagnosis and management of chronic coronary syndromes of the European Society of Cardiology (ESC). 2019 ESC Guidelines for the diagnosis and management of chronic coronary syndromes. *Eur Heart J*. 2020;41:407-477. doi:10.1093/eurheartj/ehz425. 5. Ford TJ, et al. Stratified medical therapy using invasive coronary function testing in angina: the CorMicA trial. *J Am Coll Cardiol*. 2018;72:2841-2855.

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