

C

Catheter Engagement

A

Advance Wire

T

Transit Time at Rest

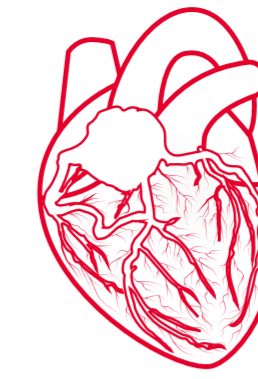
H

Hyperemic Transit Time



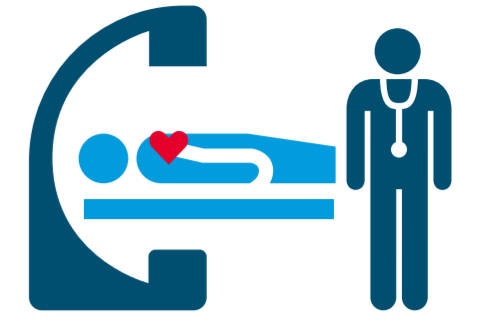
C

Coronary Flow Reserve (CFR)



M

Index of Microcirculatory Resistance (IMR)



D

Diagnosis

- Flush thoroughly¹
- Coaxial guide engagement¹
- Ensure no damping¹

- Interrogate LAD unless there is a specific territory of interest²
- Advance wire sensor 2/3 distally in vessel³
- Administer GTN/NTG¹

- Flush/purge pre-Tmn_{rest} to clear any blood and contrast³
- Room temperature saline³
- Brisk 3 mL x 3 injections³
- Address outliers ($\pm 0.25s$) before proceeding^{4*}

*Repeat measurement of Tmn_{rest}

- Induce hyperemia⁵
- Confirm hyperemia⁶
- Flush/purge pre-Tmn_{hyp} to clear any blood and contrast⁶
- Room temperature saline⁶
- Brisk 3 mL x 3 injections⁶
- Address outliers ($\pm 0.15s$) before proceeding^{4**}

*Decrease in pressure, patient symptoms, FFR drop

**Repeat measurement of Tmn_{hyp}

- CFR $<2.5^{*4}$
- CFR grey zone 2.0-2.4^{*}

*Evolving consensus

- IMR $\geq 25^2$
- Use IMRcorr if FFR $\leq 0.80^7$

- Diagnosis of CMD based on IMR ≥ 25 and CFR $<2.5^{2,4}$
- CFR grey zone 2.0-2.4^{*}
- Refer to guidelines and consensus document^{2,4,8-9}

*Evolving consensus

GTN (glyceryl trinitrate) | **NTG** (nitroglycerin) | **LAD** (left anterior descending) | **FFR** (fractional flow reserve) | **IMRcorr** (IMR corrected) | **CMD** (coronary microvascular dysfunction) | **Tmn_{rest}** (resting transit mean time) | **Tmn_{hyp}** (hyperemic transit mean time)

References:

1. Berry C. Fractional Flow Reserve, Coronary Flow Reserve and the Index of Microvascular Resistance in Clinical Practice. *Radcliffe Cardiology*. 2014, 1-6. 2. Kunadian V, et al. EAPCI Expert Consensus Document on Ischaemia with Non-Obstructive Coronary Arteries. *EHJ*. 2020; 0, 1-21. 3. Fearon W, et al. Invasive Assessment of the Coronary Microvasculature: The Index of Microcirculatory Resistance. *Circ Cardiovasc Interv*. 2017; 10:e005361 4. Perera D, et al. Invasive coronary physiology in patients with angina and non-obstructive coronary artery disease. *Heart*. 2022; 0, 1-8. 5. Ford T, et al. Stratified Medical Therapy Using Invasive Coronary Function Testing in Angina: *The CorMicA Trial*. *JACC*. 2018, 72, 2841-55. 6. Ang D, et al. Interventional Diagnostic Procedure: a Practical Guide for the Assessment of Coronary Vascular Function. *JOVE* 2022; 181, e2265. 7. Yong A, et al. Calculation of the Index of Microcirculatory Resistance Without Coronary Wedge Pressure Measurement in the Presence of Epicardial Stenosis. *JACC: Cardiovasc Interv*. 2013; 6, 53-8. 8. Knuuti J, et al. ESC guidelines. *EHJ*. 2020; 41, 407-477. 9. Gulati M, et al. 2021 Chest Pain Guideline, *Circulation*. 2021; 144, e368-e454.

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