Introduction Corrected Thrombolysis in myocardial infarction Frame Count (CTFC) is a key determinant of several emerging techniques aimed at estimating coronary stenosis severity, such as QFR. However, the relationship between CTFC and coronary flow or microvascular resistance (MR) has not been clearly established. This study aimed to assess the correlation between CTFC and coronary physiological indices.

Methods Simultaneous intra-coronary pressure and flow velocity were acquired using a Combowire (Philips, Volcano) in the LAD vessel of patients with angina, non-obstructive coronary artery disease (Fractional Flow Reserve (FFR) > 0.80) and preserved left ventricular systolic function. CTFC was measured by blinded observers, as the number of frames taken for contrast to reach a fixed landmark in the distal LAD. MR was calculated as distal coronary pressure/APV.

Results 64 patients were studied (80% Female, Age 57 ± 10, 57% HTN, 23% DM, 29% Smokers) with mean (±SD) FFR 0.92 ± 0.04, CFR 2.37 ± 0.66. The mean CTFC and APV were 24 frames (SD, 9; range, 10–49) and 18.64 cm s⁻¹ (SD, 6.11; range, 35.60–7.95), respectively. The mean MR was found to be 5.94 mmHg cm s⁻¹ (SD, 2.04; range, 2.62–10.85). There was a negligibly weak negative correlation between CTFC and APV (r = 0.25, r² = 0.064) and no correlation between CTFC and MR (r = 0.055, r² = 0.003). Scatter plots of CTFC against APV and MR are shown in figures 1 and 2.

Conclusion This study demonstrates that visual angiographic estimations of coronary blood flow correlate poorly with directly measured values. Currently, measurements of coronary physiology during the time of angiography require the use of intra-coronary pressure and/or flow wires. These findings may explain the discordance between stenosis severity indices based on angiographic contrast clearance rates (such as QFR) and invasively derived measures such as FFR.

Conflict of Interest None