



Review Article

FMTVDM—Finally Opens the Doorway from Qualitative to Quantitative Measurement and Treatment of Heart Disease

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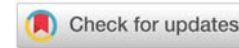
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Diagnostic determination of coronary artery disease has primarily relied upon qualitative image interpretation and tests of minimal measureable value. The introduction of the first measureable test dates back to the late 1890s following its presentation by Willem Einthoven at a Dutch Medical Association Conference in 1893—the electrocardiogram.

While the electrocardiogram provides millimeter changes on paper—these changes do *not* translate into measureable myocardial consequence. The same is true for blood tests, which are frequently obtained during acute coronary syndrome evaluations—including troponin (more than one type currently in use), Creatine Kinase (CK-MB) and a plethora of other blood tests—in an effort to determine if the patient is experiencing a Myocardial Infarction (MI).

Other efforts at quantification include echocardiography—where ultrasound is used to measure blood flow velocities through the inner chambers of the heart, as well as dimensions of those chambers and their thickness. The end result is a measurement that is then translated into outcomes defined as *mild*, *moderate* and *severe*—hardly the terms of quantification.

The same outcome has been seen for the use of Myocardial Perfusion Imaging (MPI)—the utilization of nuclear isotopes to qualitatively assess perfusion of the heart. There have been several recent attempts to report such MPI results in terms of *quantification* however a review of publications addressing the use of *Standard Uptake Values* (SUV), show SUV to be—at best—a *semi-quantitative* approach [1-14].

While more accepted as providing a quantitative method for *measuring* the extent of coronary artery disease, coronary

arteriography—frequently used to provide information about percent Diameter Stenosis (%DS) – only finds coronary artery disease once there has been sufficient build up of inflammatory material within the walls of the coronary arteries as to finally intrude upon the coronary artery–lumen producing identifiable narrowing [15,16]. Independently, there is also the additional problem associated with reader interpretation and error [17,18].

Consequently a series of investigative studies over the last twenty–years—examining earlier attempts at quantification—resulted in the development of the first *quantitative* method providing accurate, consistent and reproducible coronary blood flow measurements [19-43]. This method does not require the introduction of new equipment, drugs, or isotopes. It does however require a patent licensure to use. Full details of the science behind FMTVDM will soon be released in a medical textbook, which will also be used in the curriculum of U.S. training programs [44]. FMTVDM has become the doorway through which we will now be able to walk from the world of qualitative to quantitative medicine.

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FMTVDM is issued to first author. No other COIs to report.

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