

## **Relationship between the Selvester QRS Score and Coronary Microvascular Dysfunction Assessed by the Index of Microcirculatory Resistance**

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### **Abstract**

#### **Objective**

The index of microvascular resistance (IMR) is an invasive method for quantifying the coronary microvasculature independent of the presence and degree of epicardial stenosis during cardiac catheterization, whereas the Selvester QRS score, which is related to myocardial damage, is a relatively simple and non-invasive measurement procedure. We investigated the relationship between the QRS score and coronary microvascular dysfunction (CMD) assessed via IMR.

#### **Materials and methods**

Data from 74 patients who underwent invasive coronary physiological measurements were retrospectively reviewed. Using a coronary wire, we measured IMR by the hyperemic mean transit time and distal coronary pressure. We also computed a simplified QRS score following the Selvester QRS score criteria by 12-lead electrocardiogram. Following the best cutoff value for the QRS scores to determine  $IMR \geq 25$ , which was defined as CMD by the Coronary Vasomotion Disorders International Study Group, patients were grouped into two groups whose QRS scores were  $\geq 3$  ( $n = 16$ ) and 0-2 ( $n = 58$ ).

#### **Results**

IMR was significantly higher in patients with QRS scores  $\geq 3$  compared with those with QRS scores of 0–2 (31; IQR: 19–57 vs. 20; IQR: 14–29,  $p < 0.01$ ). The percentage of patients with  $IMR \geq 25$  was significantly higher in the QRS scores  $\geq 3$  group than in the QRS scores of 0–2 group (69% vs. 34%,  $p = 0.01$ ).

#### **Conclusion**

A higher QRS score was associated with CMD estimated by IMR. The Selvester QRS score is noninvasive and is a potentially useful tool for predicting CMD.