Can Combined Assessment of Baroreflex Sensitivity and Iodine-123 Metaiodobenzylguanidine Imaging Be Used for Risk Stratification of Patients With Type 2 Diabetes Mellitus?

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The sympathetic nervous system of the heart is critically involved in the maintenance of cardiovascular homeostasis by regulating cardiac contractility, conduction, heart frequency and peripheral vasoconstriction. It has been shown that a dysfunctional cardiac sympathetic nervous system exerts detrimental effects on the structural and functional integrity of the myocardium, leading to a marked increase in the morbidity and mortality of patients with cardiac disease. Myocardial imaging with $^{123}$I-metaiodobenzylguanidine (MIBG), an analog of norepinephrine, is useful for detecting abnormalities of the sympathetic nervous system of the heart in patients with heart failure. Because the washout rate (WR) evaluated by $^{123}$I-MIBG scintigraphy is known to reflect the degree of cardiac sympathetic nerve activity, a high WR has useful prognostic value in patients with cardiovascular disease.

On the other hand, evaluation of baroreflex sensitivity (BRS), obtained from non-invasive continuous arterial pressure, is known to be useful for assessing autonomic control of the cardiovascular system. Previous reports have indicated that BRS has long-term predictive value in patients not only with cardiovascular disease, but also with type 2 diabetes mellitus (T2DM). However, no studies have examined whether the combined assessment of BRS and $^{123}$I-MIBG scintigraphy could be useful for predicting major adverse events in T2DM patients.

Accordingly, the study by Murozono et al in this issue of the Journal is interesting because it evaluates whether the combination of BRS and $^{123}$I-MIBG scintigraphy score could have considerably improved the robustness of the current analyses. Finally, the study evaluated only 1-time evaluation of $^{123}$I-MIBG scintigraphy, but it is well-known that imaging results improve after medical treatments. Recent reports have demonstrated that serial $^{123}$I-MIBG scintigraphic studies have more prognostic value than a 1-time scan in heart failure patients.

Despite these study limitations, the study by Murozono et
al contributes significantly to the current literature because it provides evidence that the combination of BRS and \(^{123}\)I-MIBG scintigraphy can be used for risk stratification of T2DM. Future, additional studies are necessary to clarify the combination of BRS and \(^{123}\)I-MIBG scintigraphy that has incremental value over serial \(^{123}\)I-MIBG scintigraphic studies in patients with T2DM.

References