

## Association between Cardiac Autonomic Neuropathy, Diabetic Retinopathy and Carotid Atherosclerosis in Patients with Type 2 Diabetes (*Endocrinol Metab* 2013;28:309-19, Chan-Hee Jung et al.)

Hyun-Kyung Chung

Division of Endocrinology and Metabolism, Department of Internal Medicine, Dankook University College of Medicine, Cheonan, Korea

Carotid atherosclerosis, carotid autonomic neuropathy (CAN) and ischemic heart diseases are important issues in the clinical management of type 2 diabetes mellitus (T2DM). Since these cardiac problems are closely related to mortality [1], clinicians are eager to expand their knowledge in terms of the prevention of atherosclerosis and early detection of CAN. Jung et al. [2] demonstrated the association between the presence of CAN and carotid atherosclerosis presenting as carotid intima-media thickness and carotid plaque, and suggested that CAN may be an important determinant of subclinical atherosclerosis, which is a possible explanation for the excess cardiovascular mortality observed in patients with T2DM.

Before expand the meaning of this study, however, I'd like to think over the significance of CAN evaluation process. In this study, the authors used the CAN scoring system, which is the sum of the score of five CAN tests. The presence of CAN was defined as the presence of two or more abnormal tests or an autonomic neuropathy score  $\geq 2$ . Although it is a relatively simple method, I wonder whether these scoring systems can reflect a patient's exact CAN status. The result of each test may have different diagnostic power of atherosclerotic disease. Furthermore, the definition of two abnormal tests in-

cludes many potential combinations of different abnormal CAN tests. Since each of the five CAN test has a different meaning, each of these different combinations could also have unique clinical implications. Thus, it should again be questioned whether this definition of the presence of CAN is fully acceptable. Can we accept as "no evidence of CAN" cases with one abnormal test result? Is a  $\geq 2$  CAN score too high for early detection of atherosclerotic conditions? Further studies are needed to verify these arbitrary diagnostic criteria.

Assessment of CAN is rarely accepted as first line studies in newly diagnosed patients with T2DM [3], mainly because of the cost and time requirements of CAN evaluation. Thus, further studies are needed for the development of easier, more cost-effective methods of CAN evaluation and to confirm its clinical significance, in order to expand the screening process for this important diabetic complication.

### CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

**Corresponding author:** Hyun-Kyung Chung

Division of Endocrinology and Metabolism, Department of Internal Medicine, Dankook University College of Medicine, 201 Manghyang-ro, Dongnam-gu, Cheonan 330-715, Korea

**Tel:** +82-41-550-3057, **Fax:** +82-41-556-3256

**E-mail:** [chkendo@dankook.ac.kr](mailto:chkendo@dankook.ac.kr)

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