Authors' reply

Thank you very much for your valuable comments on our article¹.

Autonomic neuropathy is a common complication of diabetes mellitus. In fact, 56% of our patients with diabetes had autonomic neuropathy.² In our study, esophageal dysfunction was unexpectedly found to be related to motor nerve conduction velocity rather than the coefficient of variation of R-R intervals, although the pathophysiology of esophageal dysfunction was largely caused by autonomic neuropathy.² It may be hard to predict esophageal dysfunction in patients with diabetes screened for autonomic neuropathy based solely on cardiac dysfunction because the degree of vagal disorder varies by organ in patients with diabetes.³⁻⁶

There are many opinions on the relationship between obesity and GERD; for example, obesity is a risk factor for GERD.⁷ However, we found no relationship between body mass index and esophageal dysfunction in our patients (unpublished data). The duration of diabetes and autonomic neuropathy may influence the pathophysiology of esophageal dysfunction in patients with diabetes.

There were no patients with black esophagus, and the relationship between diabetes and esophageal candidiasis was obscure in our observation, although upper endoscopic examination was performed on all patients. The high prevalence of esophageal candidiasis could indicate that gastric acid secretion was decreased in patients with a long duration of diabetes despite a long duration of acid reflux in patients with neuropathy.⁸ Therefore, careful observation is important for the patients with diabetes.

Unfortunately, Barrett's esophagus was not assessed in our research. However, careful and regular observation of the esophagus should be required in patients with diabetes because Barrett's esophagus is generally recognized as a complication of chronic gastroesophageal reflux.⁹

There was no evidence of thickening of the esophageal wall in our patients insofar as abdominal computed tomography and abdominal ultrasonography could provide. No esophageal cancer was detected in our study.

There were no complications of the painful esophageal abnormality known as a nutcracker esophagus in our patients, but an exact evaluation of esophageal dysfunction based on symptoms may not be easy in patients with diabetes because such patients frequently have neuropathy without any symptoms from simultaneous damage to both the efferent nerve and afferent nerve.¹⁰⁻¹² Esophageal dysfunction should be considered a likely complication in patients with longstanding diabetes even if the patients have no symptoms.

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