The most common medical evaluation in hospital is measurement of vital signs such as heart rate, blood pressure and body temperature. In particular, body temperature can be measured quickly, routinely and continuously. Several clinical studies have examined the relationship between body temperature and outcome in patients with heart failure (HF). Disorder of thermoregulation is recognized as a feature of advanced HF. Low body temperature on admission is associated with a high risk for in-hospital and 1-year mortality in patients with advanced HF. Thus, measurement of body temperature may be valuable for assessing the risk for various cardiovascular diseases. However, the relationship between thermoregulation and ischemic heart disease (IHD) has not been fully clarified.

In this issue of the Journal, Amiya et al present intriguing results from their analysis of the relationship between body temperature variability and cardiovascular events in IHD patients with and without diabetes. The authors provide 3 pieces of new information. First, they show that variability of body temperature is closely associated with vascular function as assessed by flow-mediated dilatation (FMD) in IHD patients without diabetes. Second, the association with body temperature variability and vascular function is not observed to be disrupted in IHD patients with diabetes. Finally, the magnitude of body temperature fluctuation is associated with cardiovascular events in IHD patients with diabetes.

Measurement of FMD is valuable for assessing endothelial function, in particular, in patients with cardiovascular risk factors and diseases, including IHD. It has been shown that FMD predicts cardiovascular events, independently of traditional cardiovascular risk factors. Amiya et al show that body temperature variability is closely associated with the value of FMD in IHD patients without diabetes, suggesting that endothelial function is a factor in the regulation of body temperature. Interestingly, under diabetic conditions, the association between the magnitude of body temperature fluctuation and cardiovascular events is not disrupted in IHD patients with diabetes.

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thermoregulation and vascular function is disrupted. The reason why diabetes is a risk for thermoregulatory deficits is not a new question, yet still important and unsolved. It is likely that diabetes-related temperature dysregulation is attributable to the presence of autonomic neuropathy. Diabetes is frequently accompanied by autonomic dysfunction. Blood flow in the skin and tissue are altered under diabetic conditions, as a result of impaired neurogenic vascular control. Neurovascular dysfunction may contribute to the disorder of diabetes-inducible thermoregulation, and interfere with the relationship between endothelial function and body temperature. Another possibility is the involvement of inflammation. Diabetes is closely linked with chronic low-grade systemic inflammation, mainly characterized by high levels of circulating inflammatory markers such as C-reactive protein (CRP). This persistent inflammatory state leads to endothelial dysfunction and vascular disease. Diabetes-related temperature dysregulation is attributable to the presence of autonomic neuropathy. Diabetes is frequently accompanied by autonomic dysfunction. Blood flow in the skin and tissue are altered under diabetic conditions, as a result of impaired neurogenic vascular control.

Amiya et al show that the magnitude of body temperature fluctuation is linked with cardiovascular events in IHD patients with diabetes. How could body temperature relate to mortality in IHD patients under diabetic conditions? High body temperature may be a marker of advanced disease. Alternatively, the disordered thermoregulation may directly contribute to the increased mortality. Unfortunately, the study by Amiya et al was a retrospective analysis of a small sample, and it lacks age- and sex-matched non-IHD subjects. Can body temperature, which is simple to measure and widely available, predict cardiovascular events (Figure)? To solve this intriguing question, future prospective studies in larger populations are required.

Disclosures
None.

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