Letter

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Features of Long-Standing Korean Type 2 Diabetes Mellitus Patients with Diabetic Retinopathy: A Study Based on Standardized Clinical Data (*Diabetes Metab J* 2017;41:393-404)

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Diabetic retinopathy (DR) is the leading cause of non-traumatic blindness in working-aged adults, affecting 431,964 patients (15.9%) with diabetes in Korea [1]. Individuals who develop DR or macular edema (ME) experience a decline in visual acuity. In addition, those who develop proliferative DR (PDR) have a substantially increased risk of serious complications that can result in permanent vision loss such as retinal detachment and vitreous hemorrhage [2]. Thus, identifying individuals at highest risk of DR progression and intervening early can reduce visual impairment and the cost associated with advanced retinopathy management.

Park et al. [3] reported the clinical features of DR and ME in patients with type 2 diabetes mellitus who had a disease duration of longer than 15 years. A total of 220 patients were recruited, with a mean age of 66.8 years and a median duration of diabetes of 22.6 years. The prevalence of total DR, non-proliferative DR (NPDR) and PDR in this study population was 67.7%, 39.3%, and 28.4%, respectively. The logistic analyses showed that younger age, longer diabetes duration, higher fasting plasma glucose, lower creatinine clearance, and use of insulin were associated with DR, and lower body weight, higher systolic blood pressure, glycated hemoglobin, liver function test, and use of insulin were associated with ME. Previous studies have proposed that hyperglycemia, hypertension, duration of diabetes, obesity, and nephropathy are the potential risk factors of DR [4]. However, the subjects of this study consisted of patients who had long-standing type 2 diabetes mellitus, and the clinical characteristics of DR may differ from those of DR in other previous studies. I have a few comments and questions about their main findings.

First, younger age was associated with a severe form of DR in this study, which is different from other previous studies [5-7]. Most of the previous studies suggested that age is not independently associated with the development or progression of DR. I am wondering about the exclusion criteria and the adjusted confounding factors of the multiple logistic analysis in this study. One Japanese study analyzed and identified the risk factors for the progression of DR in early-onset type 2 diabetes mellitus [8]. The study suggested that the incidence rates of both the developments of NPDR and the progression from NPDR to PDR in early-onset type 2 diabetes mellitus was shown to be high when compared with the general diabetes population. The clinical characteristics of the patients who were young and had a progressive form of DR may have clinical implication and will need to be investigated in the future.

Second, in Fig. 2, fasting plasma glucose was not associated

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with PDR. Was there an association between glycosylated hemoglobin and the progression to PDR? Our earlier study showed that glycemic control is the most important modifiable factor in the development of DR [7]. In addition, we showed that glycemic control in patients with a long duration of diabetes can be helpful for the prevention of first onset of DR. However, there is a possibility that there is a difference in the natural course [7] and clinical characteristics [6,9] between the development of NPDR and the progression of PDR. The risk factors for the development and progression of DR were different between the studies.

Third, the 'use of insulin' factor was the most important DR-associated factors in this study. In my opinion, the insulin factor is not a major causal factor for DR or ME, and it is merely a marker of vulnerability for the development and progression of DR. However, because the insulin factor had such a strong impact on DR in this study, there may be many unrevealed, unadjusted insulin use-related confounding factors, such as β-cell function and other diabetes complications. Further validation studies such as subgroup analyses which exclude insulin users may need in the future.

CONFLICTS OF INTEREST

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

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