Letter

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# Clinical Course and Risk Factors of Diabetic Retinopathy in Patients with Type 2 Diabetes Mellitus in Korea (*Diabetes Metab J* 2016;40:482-93)

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Diabetic retinopathy (DR) is a common and important microvascular complication that occurs in patients with either type 1 or type 2 diabetes mellitus, and remains the leading cause of visual loss in the general population. It is generally regarded as the first manifestation of diabetic complications; thus, it has been used as an indicator to define the diagnostic criteria of diabetes [1]. Recently, some safety issues about DR have been suggested by some preclinical and clinical data, which mentioned the potential harmful effects of the use of incretin-based therapies on DR [2,3].

Although its clinical course, associated risk factors, screening procedures, and management are well established [4], those evidences are largely from Western developed countries. In the current paper by Yun et al. [5] in *Diabetes and Metabolism Journal*, they showed several important findings about clinical course and risk factors of DR in Korean diabetic patients. In their large prospective cohort study over 10 years, they proved that 44.9% of patients with type 2 diabetes mellitus had developed any types of DR. Importantly, the mean duration of diabetes at the first diagnosis of nonproliferative DR (NPDR) was 14.8 years (with the incidence rate of 38.1 per 1,000 patient-year), but the progression to more advanced stage of DR (moderate to severe NPDR, and proliferative DR) was very fast, ranging about 2 to 3 years after diagnosis of mild NPDR. In addition, the authors found that glycemic control, age, diabetes duration, and albuminuria were independent risk factors for the development of DR. Among them, glycemic control represented by mean glycosylated hemoglobin (HbA1c) levels was one of the strongest factors anticipating the development of DR. In my opinion, these findings are very valuable because the results are basically based on a long-term prospective cohort, and detection and diagnosis of DR were performed annually by ophthalmologists' standardized eye examinations. Nonetheless, I have a few comments and suggestions about their main findings.

First, there are differences regarding the time of the first diagnosis of DR compared to previous studies. In the UK Prospective Diabetes Study (UKPDS), 37% of patients had DR at diagnosis of diabetes [6]. In the Wisconsin Epidemiologic Study of Diabetic Retinopathy (WESDR), the prevalence of DR was 28.8% with less than 5 years, and 77.8% with over 15 years of diabetes duration [7]. Even if the 20-year gap between previous studies and the current study was taken into account, the reason for this difference needs to be announced. In my opinion, it may be due to the selection of diabetic people in this study, that is, diabetic patients who had DR were excluded at baseline. So, the participants of this study, whose duration of diabetes was 6.7 years and mean HbA1c levels were 8.2%, were presumed to be heathier, or more resistant to development of microvascular complications compared to those excluded.

Second, as mentioned by the authors, individuals' blood pressure data is lacking. Blood pressure control is known to be

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closely associated with DR development or progression; 10 mm Hg decrease in systolic blood pressure roughly decreased the risk of DR progression by 35% [8]. Therefore, the impact of other variables including glycemic control for DR risk prediction is likely to be overestimated in the absence of adjusting blood pressure data.

## CONFLICTS OF INTEREST

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

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