COMMENT ON GORDIN ET AL.

Differential Association of Microvascular Attributions With Cardiovascular Disease in Patients With Long Duration of Type 1 Diabetes. Diabetes Care 2018;41:815–822

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We were interested by the recent article from Gordin et al. (1), who showed that proliferative diabetic retinopathy (DR) was related to cardiovascular disease (CVD) in type 1 diabetes (T1D), even in patients without diabetic kidney disease (DKD) (1). DKD is an important marker of cardiovascular risk in T1D (2), but a residual risk persists for patients without kidney damage, and its association with DR seems important information.

In Bordeaux we followed a cohort of patients with T1D since 2009, and we have recently shown that DR could predict their later fast renal decline (3). The article from Gordin et al. prompted us to test whether their initial retinal status could be related to their CVD, defined by myocardial infarction, stroke, gangrene, or a revascularization procedure.

During the year 2009, 200 patients with T1D were categorized as having no DR ($n = 124$, 62.0%), mild-moderate DR ($n = 47$, 23.5%), or severe DR ($n = 29$, 14.5%). They were mainly male ($n = 117$, 58.5%), their mean age was 52 ± 4 years, the duration of diabetes was 22 ± 13 years, BMI was 25 ± 4.1 kg/m^2, and HbA_{1c} was 7.5% ± 0.9% (58.5 ± 7.0 mmol/mol). At inclusion (2009) the prevalences of CVD were 5.6% for no DR, 10.6% for mild-moderate DR, and 31% for severe DR ($P < 0.001$ by χ^2 test). During the 7 years of follow-up, a total of 25 new cardiovascular events occurred in 7.4% of subjects with no DR at inclusion, in 15.2% of those with mild-moderate DR, and in 33.3% of those with severe DR ($P < 0.001$ by χ^2). In the particular subgroup of 153 subjects free of DKD at inclusion (albumin excretion rates <30 mg/24 h and Chronic Kidney Disease Epidemiology Collaboration [CKD-EPI] estimated glomerular filtration rates >60 mL/min/1.73 m^2), 14 new cardiovascular events occurred: 5.8% in subjects with no DR at inclusion, 13.5% in those with mild-moderate DR, and 25.0% in those with severe DR ($P = 0.052$ by χ^2). By logistic regression analysis, DR in 2009 was related to new cardiovascular events during the next 7 years (exp(B) = 1.52, 95% CI 1.005–2.300) after adjusting for age, sex, HbA_{1c}, DKD, and CVD at inclusion.

In accordance with the findings of Gordin et al. (1), DR was related to CVD in our patients. Our results further suggest that this relationship is gradual, with higher rates of cardiovascular events beginning in mild-moderate DR, and that DR can be used to predict later cardiovascular events in T1D. These findings do not rule out the important role of diabetic nephropathy, as DKD was related to an almost threefold higher rate of new cardiovascular events in our patients; DR has been related to preclinical glomerular lesions even in normoalbuminuric subjects with T1D (4). DR may, on the other hand, be considered as a marker of hyperglycemic memory, which plays a critical role in cardiovascular risk (5).

Duality of Interest. No potential conflicts of interest relevant to this article were reported.

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