COMMENTS AND RESPONSES

Comment on: Boronat et al. Differences in Cardiovascular Risk Profile of Diabetic Subjects Discordantly Classified by Diagnostic Criteria Based on Glycated Hemoglobin and Oral Glucose Tolerance Test. Diabetes Care 2010;33:2671–2673

We read with interest the article by Boronat et al. (1). In that article, individuals with discordant diabetes status by A1C and oral glucose tolerance test (OGTT) had their cardiovascular risk profile evaluated. Those who fulfilled the A1C-based criterion presented greater measures of BMI and waist circumference and lower values for HDL cholesterol than individuals with diabetic OGTT but A1C <6.5% (1). Both elevated A1C (2) and diabetes by OGTT (3) are associated with risks of cardiovascular disease and death compared with fasting glucose in observational studies. To further evaluate the findings by Boronat et al., we analyzed the risk profile of 693 participants (mean age 71.6 years; 39.5% men) from the Rancho Bernardo cohort who were categorized discordantly by A1C (A1C ≥6.5%) and OGTT-based (fasting plasma glucose ≥126 mg/dL and/or postchallenge glucose ≥200 mg/dL) diagnostic criteria for diabetes (4). All participants had OGTT and A1C test measurements between 1984 and 1987. A1C was measured by high-performance liquid chromatography using an automated analyzer (Smith Kline, Van Nuys, CA). Of the participants included in this analysis, 574 had A1C ≥6.5% and OGTT negative for diabetes, and 119 had diabetic OGTT and A1C <6.5%. The participants who met the OGTT criteria had the least favorable cardiovascular risk profile compared with those who met only the A1C criteria as follows: total cholesterol 230 ± 42 vs. 220 ± 37 mg/dL, $P = 0.04$; LDL cholesterol 142 ± 38 vs. 135 ± 34 mg/dL, $P = 0.09$; triglycerides [median (interquartile range)] 115 (89) vs. 102 (75) mg/dL, $P = 0.04$; waist circumference 87.3 ± 11.3 vs. 84.7 ± 11.7 cm, $P = 0.02$; systolic blood pressure 144 ± 19 vs. 139 ± 21.7 mmHg, $P = 0.02$; and serum uric acid 6.4 ± 1.46 vs. 5.9 ± 1.6 mg/dL, $P = 0.005$. The groups did not differ by age, HDL cholesterol, diastolic blood pressure, or BMI. Our results did not support the findings by Boronat et al. On the contrary, we found a poorer clinical picture in the group who met OGTT criteria. Group 1 in the article by Boronat et al. included 28 subjects with A1C ≥6.5% (of these, 24 had diabetic OGTT). The poor cardiovascular risk profile might reflect patients who had longer diabetes duration and poor glycemic control. Another point to consider is that the confounding effects of having OGTT-positive patients in their Group 1 is reflected in their multivariate analysis, which showed that abnormal obesity and 2-h plasma glucose were the only variables associated with an A1C ≥6.5%. It is noteworthy that we evaluated a large sample size ($n = 574$ in Rancho Bernardo vs. $n = 4$ in the article by Boronat et al.) with A1C ≥6.5% and OGTT negative. Another possible reason for those discrepant observations is the older age of Rancho Bernardo participants; the mean age of our population is 71.6 years compared with 56.6 years in the article by Boronat et al. In parallel to our results, the National Health and Nutrition Examination Survey (NHANES) study reported increased diabetes prevalence in an older population diagnosed by A1C criteria only (5), suggesting that the A1C test might be a diabetes parameter important in older populations. In conclusion, older individuals newly diagnosed with diabetes who fulfill the OGTT-based diagnostic criterion display the more unfavorable cardiovascular risk profile than individuals who only meet the A1C-based criteria.

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References

1. Boronat M, Saavedra P, López-Ríos L, Riaño M, Wägner AM, Nóvoa FJ. Differences in cardiovascular risk profile of diabetic subjects discordantly classified by diagnostic criteria based on glycated hemoglobin and oral glucose tolerance test. Diabetes Care 2010;33:2671–2673
2. Selvin E, Steffes MW, Zhu H, et al. Glycated hemoglobin, diabetes, and cardiovascular risk in nondiabetic adults. N Engl J Med 2010;362:800–811
3. DECODE Study Group, the European Diabetes Epidemiology Group. Glucose tolerance and cardiovascular mortality: comparison of fasting and 2-hour diagnostic criteria. Arch Intern Med 2001;161:397–405
4. American Diabetes Association. Standards of medical care in diabetes—2010. Diabetes Care 2010;33(Suppl. 1):S11–S61
5. Cowie CC, Rust KF, Byrd-Holt DD, et al. Prevalence of diabetes and high risk for diabetes using A1C criteria in the U.S. population in 1988-2006. Diabetes Care 2010;33:562–568