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To: Wannamethee SG, Lowe GDO, Shaper AG, Rumley A, Lennon L, Whincup PH (2004) Insulin resistance, haemostatic and inflammatory markers and coronary heart disease risk factors in Type 2 diabetic men with and without coronary heart disease. *Diabetologia* 47:1557–1565

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To the Editor: We read with great interest the paper by Wannamethee et al. recently published in *Diabetologia* [1]. The authors studied a large cohort of elderly men (with a mean age of 70), showing that patients with type 2 diabetes mellitus and insulin resistance have higher haemostatic/inflammatory parameters and increased prevalence of dyslipidaemia than patients with diabetes, but lower levels of insulin resistance. Such abnormalities are independent of other cardiovascular risk factors, thus potentially accounting for the increased rate of vascular events in these patients. The authors estimated insulin sensitivity using the homeostasis model assessment index, a non-invasive tool known to highly correlate with the ‘gold standard’ method, the hyperinsulinaemic–euglycaemic clamp [2]. However, this study has a strong methodological limitation. In fact, two previous studies showed that homeostasis model assessment is not a reliable tool for measuring insulin resistance in older diabetic patients. In the first study, this measure correlated with the clamp technique (glucose infusion rates) in elderly patients with normal glucose values,

while no significant correlation was observed in a group of patients with impaired glucose tolerance [3]. In the second study, homeostasis model assessment and glucose infusion rates were not significantly correlated in a group of diabetic patients, but they did correlate in a group of middle-aged subjects with diabetes [4]. The limited value of homeostasis model assessment in elderly diabetic patients may depend on its ineffectiveness to mirror the clamp technique for glucose plasma values above 9.5 mmol/l [5], which is often exceeded in elderly subjects. Moreover, homeostasis model assessment is based on the assumption that fasting insulin and glucose values reflect the existing insulin response after a glucose stimulation, but elderly diabetic patients were found to have delayed and decreased insulin secretion in response to a glucose challenge [4]. However, the exact mechanisms accounting for the limited usefulness of this method in elderly patients are unclear and should be further investigated.

Although new non-invasive tools to measure insulin sensitivity in elderly patients should be developed, homeostasis model assessment remains an independent predictor of cardiovascular events in middle-aged patients with type 2 diabetes mellitus [6]. Therefore, we believe that the observed association of this measure with inflammation and haemostatic parameters [1] could prompt scientists to evaluate whether or not homeostasis model assessment maintains its predictive power in older diabetic patients.

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References

1. Wannamethee SG, Lowe GDO, Shaper AG, Rumley A, Lennon L, Whincup PH (2004) Insulin resistance, haemostatic and inflammatory markers and coronary heart disease risk factors in type 2 diabetic men with and without coronary heart disease. *Diabetologia* 47:1557–1565
2. Bonora E, Targher G, Alberiche M et al (2000) Homeostasis model assessment closely mirrors the glucose clamp technique in the assessment of insulin sensitivity. *Diabetes Care* 23:57–63

3. Ferrara C, Goldberg AP (2001) Limited value of the homeostasis model assessment to predict insulin resistance in older men with impaired glucose tolerance. *Diabetes Care* 24:245–249
4. Katsuki A, Sumida Y, Urakawa H et al (2002) Neither homeostasis model assessment nor quantitative insulin sensitivity check index can predict insulin resistance in elderly patients with poorly controlled type 2 diabetes mellitus. *J Clin Endocrinol Metab* 87:5332–5335
5. Ono T, Shiga N, Taneda Y, Umemura S (1999) The fasting-plasma glucose range in which insulin resistance measured by homeostasis model assessment correlates with euglycemic clamping. *J Jpn Diabetes Soc* 42:1005–1011
6. Bonora E, Formentini G, Calcaterra F et al (2002) HOMA-estimated insulin resistance is an independent predictor of cardiovascular disease in type 2 diabetic subjects. *Diabetes Care* 25:1135–1141