Diabetologia (2005) 48: 801–802
DOI 10.1007/s00125-005-1695-5

LETTERS

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Comment

to: Borch-Johnsen K, Colagiuri S, Balkau B et al (2004) Creating a pandemic of prediabetes: the proposed new diagnostic criteria for impaired fasting glycaemia. Diabetologia 47:1396–1402

Received: 20 December 2004 / Accepted: 15 January 2005 / Published online: 4 March 2005

To the Editor: The DETECT-2 group [1] recently described the pandemic of prevalent pre-diabetes that will occur with adoption of the new American Diabetes Association (ADA) criteria for IFG [2], leading to a more than three-fold increase in prevalence. The aim of this note is to determine if this newly identified IFG group has a rate of incident diabetes that would support such a change, following on from a report in Singapore [3].

We determined incident diabetes rates in subjects with IFG according to the previous fasting glucose criteria (6.1–6.9 mmol/l) and according to the new additional criteria (5.6–6.0 mmol/l) among 2176 men and 2276 women aged 30 to 64 years in the French D.E.S.I.R. cohort (data from an epidemiological study on the insulin resistance syndrome), who were followed up for up to 6 years (mean age 47 years at baseline). Diabetes was defined at baseline and at follow-up by fasting plasma glucose of 7.0 mmol/l or higher, or treatment with an oral hypoglycaemic agent, as recommended by the ADA. After 6 years of follow-up, 132 subjects developed diabetes (93 men and 39 women).

With the new definition, the prevalence of IFG at baseline in our cohort would increase from 13 to 40% in the men, and from 4 to 16% in the women (Table 1). While there would be a three to four-fold increase in the prevalence of IFG, the incidence rate of diabetes in the new IFG group would be less than one seventh of that of the original IFG group, bringing into doubt its usefulness as a diabetes risk group. These significantly different incidence rates are even greater in our population than those from Singapore, where the new IFG group had between one third and one half the diabetes incidence of the original IFG group (diabetes was defined in this study on both fasting and 2-h glucose criteria after an 8-year follow-up) [3].

This Singapore study was not analysed by sex, and the comparison of IFG between men and women is of interest. In our study, the distribution by sex according to fasting glucose concentrations is very different, with only 60% of men having a normal glucose concentration (<5.6 mmol/l) in contrast to 84% of the women. Therefore it is not surprising that men had a significantly higher overall incidence rate: 7.8 vs 3.1 per 1,000 person–years of follow-up. However, this higher incidence is due to a very low conversion rate in normoglycaemic women, again two and a half times lower than men (Table 1, two-sided p=0.044). In contrast, for either of the IFG groups, the conversion rates were not significantly different between men and women. Normoglycaemic women appear to be protected from progression to diabetes in comparison to the men.

Sex differences in the prevalence of diabetes was noted over 25 years ago in the Rancho–Bernardo Study, when a higher prevalence of diabetes in men was identified on the basis of treatment and fasting hyperglycaemia alone [4]. This paper commented on other US studies that also showed a higher prevalence in men. Other studies in France have given the male : female ratio as 1.04 for treated diabetes [5] and 1.6 for diabetes screened on one fasting sample [6]. The DECODE study has shown that when stratified by age

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Table 1 Six-year incidence of diabetes (95% CI), per 1,000 person–years of follow-up, according to strata of fasting glycaemia, age and sex. The D.E.S.I.R. Study

		Fasting plasma glucose (mmol/l)	Base line prevalence (%)	Number of person–years of follow-up	Number of new diabetic patients	Incidence of diabetes per 1,000 person–years			
						Age (years)			Total
						30–44	45–54	55–64	
Men									
						n=971	*n*=591	*n*=614	*n*=2176
Normal glucose		<5.6	60	7215	13	2.3	1.7	1.1	1.8 (0.9–3.1)
IFG	New	5.6–6.0	27	3315	19	4.9	8.2	4.0	5.7 (3.4–8.9)
	Previous	6.1–6.9	13	1413	61	24.7	38.9	63.9	43.2 (33.0–55.4)
Total			100	11943	93	4.9	8.5	11.5	7.8 (6.3–9.5)
Women									
						n=973	*n*=650	*n*=644	*n*=2267
Normal glucose		<5.6	84	10728	8	0.4	1.4	0.7	0.7 (0.3–1.5)
IFG	New	5.6–6.0	12	1440	9	5.5	7.0	5.9	6.2 (2.9–11.9)
	Previous	6.1–6.9	4	402	22	35.7	52.3	66.7	54.7 (34.3–82.9)
Total			100	12570	39	1.3	4.3	4.4	3.1 (2.2–4.2)

class, men generally had a higher fasting glucose concentration, women a higher post-challenge glucose concentration [7].

For incident diabetes, sex differences have also been seen in Mauritius in a cohort followed from 1987 to 1992, but not in a second cohort followed from 1992 to 1998 [8]. Diabetes was based on both fasting and 2-h glucose concentrations. Isolated fasting hyperglycaemia appears to be a predominant feature in men, isolated 2-h hyperglycaemia in women. Thus, our results, combined with data from other studies, highlight the importance of sex differences with IFG.

In summary, our results suggest caution against a quick adoption of the new IFG criteria, as the newly defined IFG group appears to have a much lower incidence of diabetes than the previously defined IFG group.

Acknowledgements T. Hillier is supported by an American Diabetes Association–European Association for the Study of Diabetes Trans-Atlantic Fellowship.

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