**SHORT COMMUNICATION**

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# New Diabetes Criteria and Clinical Implications

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The American Diabetes Association (ADA) Expert Committee on the Diagnosis & Classification of Diabetes Mellitus released its report in June 1997. This report recommended moving towards an aetiopathogenetic classification of diabetes emphasising the two principal types. It is also recommended that the terminology used in the classification of diabetes be changed. The official names for the two principal types become 'type 1 diabetes' and 'type 2 diabetes' (using arabic numerals '1' and '2'), while use of 'IDDM' and 'NIDDM' is abandoned.

More importantly, the ADA Expert Committee recommended a major shift in the way diabetes is diagnosed. The previous criteria were based on evidence that there is increased risk of retinopathy when an oral glucose tolerance test (OGTT) 2-hour value exceeds 11.1 μmol/L (200 mg/dl). Previous data implied that risk of retinopathy increased when fasting plasma glucose (FPG) levels reached ≥7.8 μmol/L (140 mg/dl). Newer data suggest that this FPG value is too high. The Expert Committee also noted that approximately 40 to 50% of people with diabetes in the US are undiagnosed, i.e. 7 to 8 million people. One of the reasons they are undiagnosed is that the OGTT is not routinely performed in clinical practice. As a consequence, the default criterion for diagnosis has been an FPG level ≥7.8 μmol/L (140 mg/dl). The Expert Committee considered that by lowering this FPG value to ≥7.0 μmol/L (126 mg/dl), two things would happen. First, it would be acknowledged that risk of retinopathy begins at a lower FPG than is now used for diagnosis. Second, most people with undiagnosed diabetes would be recognised, without very much risk of a false-positive diagnosis. Thus, 7.0 μmol/L (126 mg/dl) becomes a surrogate for an OGTT 2-hour value of 11.1 μmol/L (200 mg/dl). This change doesn't really increase the number of people with diabetes. Rather, it increases the number of people with known diabetes. That is why it is a crucial public health measure.

Former criteria used an FPG level of <6.4 μmol/L (115 mg/dl) for the normal value. In contrast, with the new ADA criteria the normal value is an FPG of <6.1 μmol/L (110 mg/dl). Individuals having FPG levels 6.1 to 6.9 μmol/L (110 to 125 mg/dl) – too high to be regarded as altogether normal – are now defined as having 'impaired fasting glucose' (IFG). This IFG group is considered to be at increased risk of diabetes, similar to those with impaired glucose tolerance (IGT), who have OGTT 2-hour values of 7.8 to 11.0 μmol/L (140 to 199 mg/dl).

Measurement of glycosylated haemoglobin ($HbA_{1c}$) is not currently recommended for diagnosis of diabetes, although some studies have shown that the frequency distributions for $HbA_{1c}$ have characteristics similar to those of the FPG and the 2-hour plasma glucose. However, both $HbA_{1c}$ and FPG (in type 2 diabetes) have become the measurements of choice in monitoring the treatment of diabetes, and decisions on when and how to implement therapy are often made on the basis of $HbA_{1c}$. The revised ADA criteria are for diagnosis and are not treatment criteria or goals of therapy. No change was made in the ADA recommendations of

FPG levels <6.7 μmol/L (120 mg/dl) and $HbA_{1c}$ <7% as treatment goals.

Widespread adoption of the new criteria may have a large impact on the number of people actually diagnosed with diabetes. Presently, about 40 to 50% of adults with diabetes in the US are undiagnosed, but many might be diagnosed if the simpler FPG test, which facilitates screening for type 2 diabetes, is always used.

Screening is important for a variety of reasons. Hyperglycaemia is important in the pathogenesis of the specific complications of diabetes mellitus: microangiopathy (retinopathy and nephropathy) and neuropathy. Meticulous glycaemic control slows the course of development of diabetic complications, and prolongation of normoglycaemia should reduce the risk of their occurrence. Undetected type 2 diabetes is common – it is estimated that 40 to 50% of individuals with type 2 diabetes are unaware that they have the disease, and that it may be undiagnosed for 5 to 10 years prior to clinical recognition. Studies suggest that interventions, such as diet and exercise, may forestall the evolution of type 2 diabetes. Screening for type 2 diabetes is now easy – only a simple FPG is required. The more cumbersome OGTT is no longer the primary screening tool. Screening and early diagnosis of type 2 diabetes should be highly cost effective. All adults aged more than 45 years should be screened every 3 years. All individuals at higher risk (based on obesity, ethnicity, etc.) should be screened annually, starting at an earlier age.

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