Diagnosis using HbA_{1c}: A life-changing decision

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As the clock struck midnight on 31 May 1999, 15 people in my general practice developed diabetes simply because the diagnostic criteria for the diagnosis of diabetes were changed (World Health Organization, 1999). Healthcare professionals and people with abnormal glucose metabolism face a similar event in 2010 when the criteria are expected to change again.

It used to be very simple: people experiencing illness consulted the clinician who, after a careful assessment, made a diagnosis. Today the challenges are much more complex: the rationale for changing the criteria for diagnosing diabetes is the marked change in future risk of retinopathy that occurs at an HbA_{1c} level of 6.5% (48 mmol/mol) (International Expert Committee, 2009) together with the practical benefits of the test when compared with the time required to undertake an oral glucose tolerance test or the unreliability of a fasting test (American Diabetes Association, 2010).

Very few of the newly diagnosed individuals will have experienced any symptoms before being given the diagnostic label and all will need education about the risks of micro- and macrovascular disease that the diagnosis of diabetes puts them at risk of developing. The new diagnostic label will mean lifestyle and insurance premium changes, additional medication and a lifetime of uncertainty about whether the condition is under control and when one of the complications will strike. When I read the results of the Steno-2 trial (Gaede et al, 2003), I was shocked to realise that even if my diabetes was well controlled, I had a 30% risk of dying before I was 65 years old. It certainly focused my mind on the direction my life was heading in. The diagnosis of diabetes has a range of meanings and implications for the people who are turned into patients by the result of a test.

As I listen to and think about the arguments between clinicians, researchers and policy makers about using HbA_{1c} level ≤6.5% (≤48 mmol/mol) as the diagnostic threshold, I am reminded of mediaeval theologians arguing about the number of angels that could fit on a pin. The article by Manley et al on page 87 is another in a long stream that raises concerns about the safety and utility of abandoning one method of making the diagnosis and using another. The real world is much more complex and I wonder if the people debating the issues have given much thought to the implications of a positive result for the person suddenly deemed to have diabetes. Wisdom reminds us that most people diagnosed at this early stage will not develop blindness due to untreated retinopathy in the immediate future so there is no clinical necessity to definitely diagnose everyone as soon as possible. Using HbA_{1c} levels will make some decisions easy: we can rule out diabetes with an HbA_{1c} level below 5.5% (37 mmol/mol) and we can rule diabetes in with an HbA_{1c} level above 7% (53 mmol/mol). The challenges will be what to do in the messy middle ground where the answers are less clear.

One of the most fascinating aspects of caring for people with diabetes is the ways in which each person's metabolism is unique; the way they live with their condition is also unique, and the task of the clinician is to integrate the complexities of their lives and their metabolism and help them to be as healthy as possible.

Healthcare professionals should be sensitive to an individual's values, wishes and perceptions in the middle ground. Someone with a strong family history who has often wondered if they might develop the condition and has no fears may welcome an early diagnostic label. The next person may be very fearful of the label and feel unable to cope with the recommended lifestyle changes. A policy of wait and review may suit them better.

The next person may have biochemical features of insulin resistance, so a low threshold for considering the diagnosis may be wise for them so that they can learn about the benefits of exercise, diet and, if needed, medication in reducing the risks of something bad happening to them one day. The next person may have no features to indicate cardiovascular or metabolic risk and they can choose whether or not to have further tests based on their own perceptions and concerns. I hope that wisdom will prevail and that it will be recognised that searching for one number in one test result to give clinicians and people at risk of diabetes any certainty is a task that is doomed to failure. ■