Has the change in HbA_{1c} units made understanding diabetes more difficult for people with diabetes?

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It is now 8 years since the publication of the consensus statement on the worldwide standardisation of the glycated haemoglobin (HbA_{1c}) measurement (Consensus Committee, 2007). In addition to ensuring that the HbA_{1c} value was standardised worldwide, a number of other changes were set out, which included reporting the test results in line with the scientifically correct International System of Units (mmol/mol). The consensus committee included representatives of the American Diabetes Association (ADA), the European Association for the Study of Diabetes (EASD) and the International Diabetes Federation (IDF), and they determined that their recommendations be adopted and implemented globally as soon as possible. People with diabetes were not included in the decision making and the preference of people with diabetes was not mentioned.

History

Before jumping to conclusions about the appropriateness of such a significant change for both us healthcare professionals and our patients, it is important to put this directive into context. The history of reporting of HbA_{1c} since commercial assays first became available in the late '70s is extensive; there have been many different assays available worldwide and not all of these measured the same form of HbA_{1c} (Sacks, 2012). The significance of the value attained was debated alongside the validity of assay used or the glycosylation product detected.

The merits and significance of determining the HbA_{1c} in an individual with diabetes was only unequivocally established following the publication of the DCCT (Diabetes Control and Complications Trial; DCCT Research Group, 1993) and soon after this UKPDS (UK Prospective Diabetes Study; UKPDS Group, 1998), which both reported in percentage terms. Subsequently, the challenge began to cement this HbA_{1c} measurement worldwide, as well as reduce variability and improve its accuracy. This was undertaken by the National Glycohemoglobin Standardization Program (NGSP) and is something that many of us took for granted (NGSP, 2010).

In the UK

In the UK in 2009, laboratories began dual reporting of HbA_{1c} in both NGSP/DCCT terms (% HbA_{1c}) and IFCC (International Federation of Clinical Chemistry and Laboratory Medicine) units (mmol/mol) in response to the consensus statement. The long-term view was to withdraw reporting results in NGSP/DCCT units in 2011 and now, in 2015 most laboratories in the UK only report in mmol/mol. The question, in our view, is not just how are we getting on but, more importantly, how do people with diabetes feel about this and have they kept pace with the change?

Local HbA_{1c} audit

To address some of these questions, we recently carried out a small study to identify patient preference of HbA_{1c} units in monitoring glycaemic control (% or mmol/mol) and to help establish the need for further education with regards to changes in HbA_{1c} units. We collected patient questionnaires anonymously over a 2-month period from a random selection of people attending complex diabetes clinics in our hospital, a busy district general hospital in Hertfordshire. Clinics included people with both type 1 and type 2 diabetes. The results were as follows: A total of 74% of respondents were aware of HbA_{1c} as an investigation but only 37% of respondents understood the role of HbA_{1c} in monitoring diabetes.

Of the individuals that appreciated the

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significance of HbA_{1c} as a test, 44% preferred NGSP/DCCT reporting (%), while only 8% preferred results expressed in mmol/mol. A further 48% had no preference. People with diabetes for more than 10 years (54% versus 28%) and people with type 1 diabetes (61% versus 28%) were more likely to prefer the use of percentage terms to report HbA_{1c}.

Discussion

The standards that we aim for with regards to glycaemic control are driven by evidence. Large, multi-centre, prospective studies have unequivocally demonstrated that lowering of HbA_{1c} is associated with reductions in complications in people with both type 1 and type 2 diabetes. There does, however, continue to be considerable debate about the reporting of HbA_{1c}, with the move away from the units originally used in landmark studies being slow and silent. Debate on the subject is not occurring in the journals and not in the conferences, but among people on the ground. Many of us do admit to still reaching for a conversion chart or an app; are we the exception or wrong? Furthermore, does it matter what our North American cousins think, where the general feeling is that change to mmol/mol is extremely unlikely.

Conclusion

Locally, our hospital Trust continues to dual report HbA_{1c} and remains one of a tiny number of institutions in the UK to do so. We may not be completely scientifically correct and it was a decision that we did not take lightly, but our study suggests that this is currently supported by our patients and we believe this to be an important factor. In reality what this means to our laboratory is an additional press of a button on an analyser and a few more lines on the results sheet.

Joint-care planning and goal setting between healthcare professionals and people with diabetes is fundamental to good diabetes management. Shared aims for targets in glycaemic control should form part of this and a clear understanding of the role of HbA_{1c} in monitoring is, therefore, of great importance. We clearly have much to do to explain the concept of HbA_{1c}, let alone explain a change in its units. The language that we use to educate and engage, however, is at least as important as the outcomes to which we should jointly strive.

Our study demonstrates that if we reported HbA_{1c} solely in mmol/mol then we may potentially be failing to respond to our patients needs and, therefore, be making it more difficult to understand their diabetes. Perhaps others reading this commentary have similar concerns, in which case, we would urge them to ask their patients. ■

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