Gurdeep Dhatt, J Diabetes Metab 2012, 3:8
http://dx.doi.org/10.4172/2155-6156.S1.020

OMICS Group Conferences
Accelerating Scientific Discovery

3rd World Congress on
Diabetes & Metabolism

September 24-26, 2012 Marriott Convention Center, Hyderabad, India

Use of Hemoglobin A1c (HbA1c) in diagnosing diabetes mellitus

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In 2011 the global prevalence of diabetes was estimated to be 350 million and projected to grow to 552 million by 2020. Early diagnosis and appropriate treatment are essential to prevent the long term complications of diabetes. Traditionally DM has been diagnosed using Fasting Plasma Glucose or the Glucose Tolerance Test. Hemoglobin A1c (HbA1c) is established as a reliable measure of chronic glycemia showing good correlation with the risk of long-term diabetes complications. The idea of using HbA1c to diagnose DM in nonpregnant individuals is gaining popularity. This emerging concept that HbA1c can be used rather than blood glucose in the diagnosis of diabetes is highly appealing for a variety of reasons, including less sensitivity to preanalytical variables, lower within subject biological variablity, insignificant interference from diurnal variations, acute stress and common drugs which are known to influence glucose metabolism, as well as the fact that one single measurement might provide information for both diagnosing diabetes and monitoring glycemic control. The use of HbA1c for screening and diagnosing diabetes also carries many limitations, including poor diagnostic performance in different populations (i.e., pregnancy, elderly), the risk of overdiagnosis in subjects with iron deficiency anemia, in subjects genetically predisposed to hyperglycation, and in those with increased red blood cell turnover. There is also a higher risk of misdiagnosis in patients with end-stage renal disease. HbA1c testing might be biased due to the interference from several hemoglobin variants and is more expensive than glucose measurements. HbA1c assay is currently not standardized well enough in many countries. In addition there are serious concerns regarding the imprecision and bias of HbA1c measurements in many laboratories. Point of care testing to diagnose DM is not recommended.

Biography

Gurdeep Dhatt is a graduate from AFMC Pune. He has a FRCPath [Clinical Chemistry] from the Royal College of Pathologists UK. He is a Chartered Scientist [UK Science Council] and an International Fellow of the College of American Pathologists. He has held many senior positions in the UK, South African and the UAE since 1989. He is currently Chairman of Laboratory Medicine at Tawam Hospital, Al Ain UAE. He has published more than 40 papers in reputed peer reviewed journals and is a reviewer for Accreditation & Quality assurance, Clinical Biochemistry, Clinica Chimica Acta and Clinical Chemistry & Laboratory Medicine.

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