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Gaps in knowledge of understanding fundamentals of diabetes

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Abstract

Diabetes care is in disarray mainly due to use of undefined classification of Type 2 diabetes. In adult population, diagnosis of Type 2 diabetes based on fasting blood glucose (FBG) level above 126mg/dL (>7mmol/L) or glycosylated hemoglobin (HbA_1c) above 6.5% is misleading. Worse than that, is the immediate prescription of oral antidiabetic agents such as metformin, glyburide, sitagliptin, or a combination of these as well as an angiotensin converting enzyme inhibitor or angiotensin receptor blocker drug. The results are exhaustion of beta cells of the pancreas and depletion of insulin reserve with development of overt diabetes and superimposed renal failure leading to prescription of dialysis therapy. All these complications can be averted if a 2-hour oral glucose tolerance test or 2-h postprandial glucose (2hPPG) is obtained. 2hPPG is as easy as FBG or HbA_1c to obtain, so why is this not done? The simple answer is that most physicians are unaware of 2hPPG. This test defines accurately if a subject has diabetes ($\geq$200 mg/dL or 11.1 mmol/L). 2hPPG $<^{-}$200mg/dL (11.1 mmol/L) is not consistent with diabetes, but needs follow up. 2hPPG <140 mg/dL (7.7 mmol/L) absolutely indicates no diabetes. 2hPPG hyperglycemia is an earlier biochemical abnormality in diabetes than fasting hyperglycemia. Therefore many diabetes subjects remain undiagnosed until they develop a complication such as chest pain, suggesting coronary artery disease, foot ulcer, gangrene or sudden impotence. The latter is very important because when a man suddenly becomes impotent, his female partner feels that the man is finding sexual release with someone else.

To combat this problem, the man should immediately go to a clinic and request to find out if he has diabetes by 2hPPG and *not* FBG or HbA_1c. On the other hand, when 2hPPG or even a random glucose exceeds 200 mg/dL (11.1 mmol/L), the patient has established diabetes and if not treated with insulin, risk of developing serious complications, such as sexual dysfunction, foot ulcer, gangrene, amputation, blindness, and heart attack, as well as renal failure, is quite high. Therefore when diabetes is in question, 2hPPG after a good breakfast or lunch (with 70g carbohydrate) or 2h oral glucose tolerance test is the answer.

Biography

Dr. Mandal completed his MBBS (equivalent to MD) at the age of 24 from Calcutta University in India. He received his nephrology training at the University of Illinois, Chicago and has done extensive research on hypertension, diabetes, and kidney disease. He has published more than 200 papers and abstracts as well as 12 books. He has been a visiting professor in 24 countries including numerous times in India, and is a courtesy clinical professor of the University of Florida, Gainesville. He is dedicated to changing the direction of diabetes care in order to help diabetics live a complication-free life.