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Laboratory medicine in the management of diabetes mellitus

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Abstract

Laboratory medicine plays crucial role in management of Diabetes Mellitus. Biomarkers are used for screening, diagnosis, monitoring and to detect complications of Diabetes Mellitus. High risk individuals should be screened for prediabetes and DM with laboratory measures plasma glucose and glycosurea because onset of T2 DM and complications is estimated to occur 4-7 years before clinical diagnosis. New biomarkers hsCRP, adiponectin, apolipoprotein B showed improved prediction of DM by 14% in women and 21%in men. Plasma glucose estimation from an accredited laboratory is the sole diagnostic criterion for diagnosis of DM.

HbA1C is an accurate, precise measure of retrospective glycemic control that correlates well with risk of complications. It should be assayed using standard IFCC reference method for calibration. ADA recommends biannual assay of HbA1C which should be <7% to monitor therapy. Fructosamine marker of glycemic control over last 1-3 weeks is not recommended routinely. Diabetic dyslipedemia characterized by small dense LDL particles, hypertriglyceridemia and low HDL contributes to cardiovascular disease, needs aggressive treatment. Hence annual lipid profile testing is necessary.

One major area of concern in diabetics is to assess renal function as 35% of type 1 diabetics and 15-60% of T2DM develop nephropathy. Microalbuminurea measured by Albumin Creatinine ratio in random urine is associated with risk of ESRD and CVD. Annual testing is recommended to prevent progression of nephropathy by intervention with ACE inhibitors. Noninvasive glucose monitoring, genetic testing, autoantibodies, insulin, C-peptide are used for research purpose. Clinical laboratory is a vital component in management of diabetic patients.

(Abbreviations: DM- Diabetes mellitus,T2DM- type 2 Diabetes Mellitus, CVD-cardiovascular disease, ESRD- end stage renal disease, HbA1C- glycated haemoglobin, IFCC- international federation of clinical chemistry, hsCRP high sensitivity C reactive protein, ACE- Angiotensin converting enzymes, ADA- American Diabetes Association, HDL- high density lipoprotein, LDL- low density lipoprotein)

Biography

Asegaonkar Shilpa M.D. Medical Biochemistry from Marathwada University is working as Asst. Professor since 10 years. She passed course in clinical nutrition. To her credit 1 international, 1 national paper pubished and 3 papers sent for publication. Her presentation on cardiovascular risk factors in CKD selected as guest lecture at National conference of medical biochemists of India. She is a member of Institutional Ethical Committee.