



## Diabetes

(A report on the “New Frontiers in Diabetes” held at KLE University’s JN Medical College, Belgaum during 7-8 August 2010)

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Diabetes causes about 5% of all deaths globally each year. India is projected to experience the greatest global increase in Type 2 diabetes mellitus (T2DM) by 2025. In rural settings within India, the prevalence of diabetes is relatively low at around 2.7% but rises dramatically in urban communities throughout India, and even more so amongst S. Asian immigrants to the Western world. T2DM is a genetically heterogeneous, polygenic disease with a complex inheritance pattern and is caused by genetic predisposition and environmental factors. Asian Indians are more prone to develop T2DM and metabolic syndrome compared to Europeans, largely because of increased tendency to develop central obesity, higher prevalence of insulin resistance, hyperinsulinemia and dyslipidemia. Chronic hyperglycemia is often associated with essential hypertension, obesity and dyslipidemia in a complex metabolic syndrome leading to severe vascular complications including retinopathy, neuropathy, nephropathy and increased risk of cardiovascular disorders. Ethnic variations and environmental factors contribute a lot in various manifestations of the disease. The ethnic diversity in the Indian sub-continent essentially offers the genetic architecture of global population. There is a need to study and understand the genetic susceptibility for type 2 diabetes mellitus, its associated traits and its various complications including renal, neurological and ophthalmological complications. India is emerging as most favoured destination for medical tourism. It is because of its infrastructure and technology in which it is in par with those in USA, UK and Europe. India has some of the best hospitals and low cost treatment centres in the world with the best facilities. To establish India in leading position in the global diabetes treatment a holistic approach to the management of diabetes is a must. To look at the advances in diabetes treatment in Ayurveda, Allopathy, Unani-Tibb, siddha and homeopathy KLES Dr. Prabhakar Kore Hospital & Medical Research Centre, Belgaum organized a national seminar on diabetes. There were 400 participants from different institutes of India.

Vijay Panikar (Lilavati Hospital & Research Centre, Mumbai) in his inaugural address spoke on New Horizons of OHA: Which, When and Why? He shared his experience and results as well as the United Kingdom Prospective Diabetes Study (UKPDS) mandate to treat type 2 diabetes which includes aggressive efforts to lower

blood glucose levels as close to normal as possible. Overall Systolic blood pressure, Waist to hip ratio, Serum Triglycerides and Fasting blood sugar are predictors of Metabolic syndrome in diabetic and non-diabetic males, irrespective of age and family history. HDL cholesterol, Waist to hip ratio, Systolic blood pressure and Serum Triglycerides are predictors of Metabolic syndrome in Diabetic and non-diabetic female irrespective of age and family history. He shared his experience in using a combination of pioglitazone and metformin, improvement of  $\beta$ -cell function and increased insulin sensitivity etc. Ashok Kumar Das, (JIPMER, Puducherry) in his plenary talk presented on Metformin - 53: Still batting, not out, spoke on history of metformin usage in India compared with that in USA, and its usage in treating cancer. Stressed health professionals need to develop the comfort and competence to address the concerns of their clients at a level appropriate to themselves, their clients and the clinical situation; with the option of referral to higher levels of management. He also briefed the ICMR, WHO initiates in Diabetes research as well as awareness programme initiatives. H.B. Chandalia (Executive Patron, Research Society for Study of Diabetes in India [RSSDI], Lady Ratan Tata Medical & Research Centre, Mumbai) in his keynote address spoke on Glycated Haemoglobin. Vascular complications are the leading cause of morbidity and mortality in type 2 diabetes. Cardiovascular disease is significantly more common in patients with type 2 diabetes than in non-diabetics, and accounts for more than two-thirds of deaths associated with the condition. Many physicians believe that hyperglycaemia is responsible, at least in part, for this additional risk. The benefit of improved glycaemic control on micro-vascular complications is well established and recent trials have attempted to clarify the role of glycaemic control on macro-vascular outcomes. Vijay Viswanathan (MV Hospital for Diabetes & Diabetes Research Centre, Chennai) Spoke on Diabetic Nephropathy and Kidney failure in Diabetes: Are genes completely responsible? He highlighted type 2 diabetes and diabetic kidney disease as a new global pandemic. There is a need to alert governments and health organizations, as well as providers, physicians, and patients to the increasing health and socioeconomic problems due to diabetic kidney disease and its sequelae: end stage kidney disease requiring dialysis and cardiovascular death. Anil



Bansali (PGI, Chandigarh) spoke on Stem cell therapy in diabetes. Embryonic and adult stem cells have been suggested as attractive sources for generation of new differentiated cells. The use of stem cells in regenerative medicine holds great promise for the cure of many diseases, including type 1 diabetes mellitus (T1DM). Any potential stem-cell-based cure for T1DM should address the need for  $\beta$ -cell replacement, as well as control of the autoimmune response to cells which express insulin. He discussed on current protocols followed in obtaining cells which express insulin from different progenitor sources and highlighted the main pathways and genes involved, as well as the different approaches for the modulation of the immune response in patients with T1DM. Jayanthi Ramesh (Osmania Medical College and Sai Institute of Endocrinology, Hyderabad) spoke on Current concepts of diabetes in gynaecology and Obstetrics. Screening for gestational diabetes mellitus (GDM) provides an opportunity of pregnancy outcome improvement. Both hypertension and vascular disease have been examined as conditions that may be predicted by GDM. Obesity and insulin resistance are central attributes of both GDM and the metabolic syndrome. These characteristics and dyslipidemia are associated with endothelial dysfunction, oxidative stress, and over expression of inflammatory responses, all of which contribute to vascular disease. These associations have significant public health ramifications because of the current epidemic of obesity, affecting individuals of all age-groups. Shaila Bhattacharya, Manipal Hospital, Bangalore, spoke on clinical management of diabetes in toddlers. Insulin pump therapy has, within the last 10 years, emerged as an increasingly popular modality of treatment to achieve intensive glycemic targets in type 1 diabetes (T1D). The evidence for the benefits of pump therapy has now been demonstrated in very young children. Arpan Bhattacharya, Manipal Hospital, Bangalore, spoke on use of insulin analogues in clinical practices. Insulin analogues are genetically engineered, state of the art, modified or designer insulin's that have changed insulin treatment and improved glycemic control. Several clinical studies have shown that rapid acting analogues under various clinical situations provide superior glycemic control with more convenience and flexibility making them a patient friendly option. G. R. Chandak (CCMB, Hyderabad) spoke on genetic basis and gene environment interaction in type 2 diabetes in Indians: Mendelian randomization as an approach. More recent reports from various parts of India showed further increases in diabetes prevalence in urban areas. Moreover, the prevalence of diabetes is also found to be increasing rapidly in rural areas, as a result of the recent socioeconomic transitions.

G. R. Sridhar (President, RSSDI, Vishakapatnam) spoke on translating science into action in diabetes. A systematic review of the clinical database created at his centre at Vishakapatnam, its entry, Analysis of data

from electronic large medical records, trend analysis etc. Younger the onset of diabetes, longer would be the period for potential vascular complications; in general women have a poorer quality of care, quality of life and wellbeing with diabetes, contributing to both the burden of disease as well as possible contribution of insulin resistance to the next generation. K.R. Suresh (Jain Institute of Vascular Science, Mahaveer Jain Hospital, Bangalore) spoke on surgical interventions for functional limb salvage in diabetic foot. Metabolic interventions to control progression of diabetic foot problems, Glycemic control at various forms and stages of diabetic foot problems, Class I to class IV surgical interventions, Surgery in charcot's foot, Podiatric/ Orthopedic interventions external fixators to surgical procedure, Tissue coverage for non healing ulcers etc. Diabetes is due to strong genetic factors coupled with urbanization and lifestyle changes, many of the adverse environmental factors are modifiable. Prevention of Type 2 diabetes will require measures to promote physical activity and stress reduction measures in the built environment they live in, and to reduce obesity in adults and children.

To encourage the young diabetologists the organizing committee organized a 5 selected podium presentations and 10 poster presentations. Best podium presenter awarded with gold medal from National Diabetes Foundation and best poster presenters received awards from present RSSDI president. In the panel discussion the members expressed concern as per WHO diabetes deaths are likely to increase by more than 50% in the next 10 years without urgent action. There is a need to improve health through stimulating and supporting the adoption of effective measures for the surveillance, prevention and control of diabetes and its complications, particularly in low- and middle-income vulnerable populations. The panel members urged health care professionals as well as young student participants to initiate diabetes awareness programs and aggressive control measures towards prevention and control of diabetes.

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