



Centre for
BioSystems Science and Engineering (BSSE)

Medical Science and Practice Seminar

At 11:30 am on December 29, 2015 (Tuesday)

MRDG Seminar Hall, 1st floor, Biological Sciences Building
Indian Institute of Science, Bengaluru

Novel Insights into the Pathogenesis of Diabetes in India: *the Vellore Story from Womb to Tomb*

Dr. Nihal Thomas

Professor and head, Endocrinology; Vice principal (Research)
Christian Medical College, Vellore

Over the last six years we have made endeavours to answer questions related to the epidemic of diabetes in different regions of India, and also identify the reasons for the shift to the left in terms of age of onset in diabetes in India. Covering 130 rural hospitals, we found the prevalence of diabetes in rural Tripura was 9%, and Arunachal Pradesh was 5%. Studies in the Vellore birth cohort have shown the prevalence of impaired glucose tolerance at 30 years at 18%, indicating a rapid progression of the disease in rural areas. A tertiary care-based study has shown that the commonest causes of death in diabetes in India are cardiovascular causes with infections, a close second. Studies with hyperinsulinemic euglycaemic clamps, NMR spectroscopy and indirect calorimetry in men born low birth weight showed fundamental changes in body composition, but little alteration in metabolism if individuals are fit. Using next generation sequencing technology for elucidating the etiology of Maturity onset diabetes of the Young (MODY), we have identified a significantly high prevalence of MODY 6 (NeuroD1 mutations), and delineated pathogenic variants from MODY 1 to 13. We have identified co-segregating mutations of MODY contrary to what has been expected, as a monogenic disorder. MODY is present in a patients with pre-gestational diabetes. In fibrocalcific pancreatic diabetes, we have identified subjects wherein glucagon production, which is a paradox to what has been considered previously. In short, the pathogenesis of diabetes in India has its unique profile, where the milieu of environmental factors, low birth weight, body habitus and genetic factors co-segregate to have an impact, which demands further study.

www.be.iisc.in/seminars.html