Latest study reveals new Monogenic form of Diabetes in India

This form of diabetes is usually caused due to a genetic form of diabetes from a single gene defect

By A Staff Reporter

A breakthrough study on diabetes has revealed that often, Genetic diabetes has been caused due to a single gene defect and is labelled as Diabetes type 1, which is commonly found in young people or children. This genetic diabetes is also called 'Monogenic Diabetes' and the commonest form of Monogenic diabetes is "Maturity Onset Diabetes of the Young (MODY)" which, like type 1 Diabetes, also affects young people or children. The study revealed that patients with MODY are usually lean and because of their young age, they are often wrongly labelled as having type 1 diabetes and advised to have take lifelong insulin injections.

The study further revealed that MODY can only be diagnosed by doing 'genetic testing'. Further, it is now known that there are 14 different forms of MODY, each with its unique clinical characteristics. While there have been a few scattered studies on different forms of MODY in India, this was the most comprehensive and largest study of all forms of MODY done in India. This breakthrough study on Maturity Onset Diabetes of the Young (MODY), published in the 'BMC Medical Genetics' journal by Dr.V. Mohan and Dr. Radha Venkatesan from the Madras Diabetes Research Foundation (MDRF), Chennai, in collaboration with Dr. Andrew S. Peterson, Dr. Somasekar Seshagiri and Dr. Thong T. Nguyen from Genentech, California, and Dr. Ramprasad and Sam Santhosh at MedGenome, India.

The usual forms of diabetes include type 2 Diabetes, (which comprises 90 - 95 per cent of all forms of diabetes) and type 1 diabetes. Type 2 Diabetes normally affects adults, and does not require insulin for control of hyperglycemia except in the more advanced stages. Type 1 Diabetes, usually affects children and in this type of diabetes, there is complete insulin deficiency and hence they require lifelong insulin injections, several times a day. However, there are many other forms of diabetes which are increasingly being recognised nowadays.

The study carried out was based on a comprehensive genomic analysis of 289 individuals from India which included 152 clinically diagnosed MODY cases and 137 normal glucose tolerance subjects (NGT). None of the NGT subjects showed any genetic variants associated with MODY. Among the 152 clinically diagnosed MODY subjects, MODY 3 was found to be the commonest MODY, which is in keeping with studies in Europe and UK. However, surprisingly, the second commonest MODY detected in India was MODY 12, (ABCC8 MODY). Moreover, 13 of the 14 known forms of MODY were detected in Indians. However, of great interest was the discovery of a novel MODY gene, the NKX6-1 gene which was found to be associated with MODY. Functional assessment of the NKX6-1 variant showed that they were functionally impaired, confirming that they were indeed the cause of MODY.

Dr. V. Mohan, Director, MDRF said, "The significance of diagnosing monogenic forms of diabetes like MODY is that, unless a correct diagnosis is made, patients can be wrongly diagnosed to have type 1 diabetes and advised to have unnecessary lifelong insulin injections. Once the diagnosis of MODY is confirmed, in most forms of MODY, insulin injections can be completely stopped and these patients can be treated with a very inexpensive sulphonylurea tablet that has been used for decades, for treating diabetes. This is a dramatic change as far as the treatment and the life of these patients and their families are concerned."

Dr. Radha Venkatesan, Head of Genomics at MDRF adds, "This is the first time in the world, the NKX6-1 gene mutation has been described as a novel form of MODY. Further studies have to be done to see whether this MODY form is unique to Indians or it is present in other ethnic groups as well."

Sam Santhosh, Chairman, MedGenome said, "MedGenome is proud to be part of this study. The study will help in further diagnostics research in the domain. The role of genomics in the healthcare industry is poised to grow at an exponential rate, and we endeavour to build a legacy of enabling Precision Medicine in India."

Five students killed, 29 hurt in road accident

At least five students were killed and more than 29 injured in a road mishap in Kolhapur district of western Maharashtra yesterday, police said.

The mishap happened on the Mumbai-Bengaluru highway near Nagaon village. Around 44 students were travelling to Sangli in a truck carrying 'Shivjyot' to mark the birth anniversary of Chhatrapati Shivaji Maharaj, a senior police official said.

A vehicle dashed the truck from behind and also rammed into two motorcycles, which were escorting the truck, he said. All the injured were taken to a nearby hospital, where doctors declared the five students dead, according to PTI reports.

At least 29 others were undergoing treatment at the hospital, the officer said. According to the official, the students had started their journey from Panhala fort in Kolhapur district. The police official said a probe was on.

ED raids Rajwant Jewellers

By Narendra Gupta

The Enforcement Directorate (ED) raided three showrooms of Rajwant Jewellers in Thane, yesterday, in connection with the Punjab National Bank (PNB) fraud case. The officials said that the raids were being conducted until evening. The Gilli jewellers showroom located on the ground floor of Viviana mall was also raided, with the ED seizing several items.

Earlier on February 15, the agency conducted searches at 17 premises of businessman Nirav Modi and Geetanjali Gems across India, in connection with the same case.

The raids come after the PNB detected a 1.77 billion dollar scam, in which jeweller Nirav Modi acquired fraudulent letters of undertaking from one of its branches for overseas credit from other Indian lenders.

The CBI had received the complaint from the PNB on January 28 and a case was registered on January 31.

Santosh Gupta | ADC

The Enforcement Directorate (ED) personnel conducted raids at jewellery shops at the Viviana Mall in Thane, yesterday, in relation to the Nirav Modi scam