Scientists Identify 3 Subtypes of Type-2 Diabetes

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Scientists at the Icahn School of Medicine at Mount Sinai described a complex network analysis of electronic medical records (EMRs) and genotype data for more than 11,000 patients.

Patients were grouped into three distinct subtypes based on EMR data, followed by genomic analysis pinpointing common genetic variants representative of each subtype.

These subtypes were associated with different clinical characteristics.

Patients were more likely to suffer diabetic nephropathy and retinopathy in subtype 1; cancer and cardiovascular disease in subtype 2; and neurological disease, allergies, and HIV infections in subtype 3. For each subtype, the researchers discovered unique genetic variants in hundreds of genes.

"This project demonstrates the very real promise of precision medicine to improve healthcare by tailoring diagnosis and treatment to each patient, as well as by learning from each patient," said Joel Dudley, senior author on the paper and Director of Biomedical Informatics at the Icahn School of Medicine at Mount Sinai.

"It is absolutely encouraging that we were able to paint a much higher-resolution understanding for a common and complex disease that has long stymied the biomedical community with its heterogeneity," Mr Dudley said.

"Our approach demonstrates the potential to unlock clinically meaningful patient population

subgroups from the wealth of information that is accumulating in electronic medical record systems," said Dr Ronald Tamler, co-author of the study and Director of the Mount Sinai Clinical Diabetes Institute, within the Mount Sinai Health System.

"The unique genetic component of this study yielded high-priority variants for follow-up study in patients with type 2 diabetes," Dr Tamler said.

The study was published in Science Translational Medicine.