Researchers find biomarker that could help predict the onset of type 1 diabetes

March 28 2017

A significant finding has been made by the 3U Diabetes Consortium, of Dublin City University, Maynooth University and the Royal College of Surgeons in Ireland (RCSI), which has the potential to contribute to the identification of biological markers that predict the development of Type 1 diabetes, a chronic autoimmune disease.

The findings, which have been published in the *Diabetes UK* online journal Diabetic Medicine, showed the presence of a substance called 12-HETE in blood samples provided by newly diagnosed Type 1 [diabetes patients](). This substance was not found in patient samples where the condition was already established.

The elevated levels of 12-HETE, detected in early-onset Type 1 diabetes patients indicates the potential of this substance, in collaboration with other factors, to act as a biomarker for the onset of the autoimmune disease.

3U researchers are now turning their attention to analysing retrospective samples from patients who subsequently developed Type 1 diabetes.

If 12-HETE is found in samples from people prior to diabetes onset, the researchers are hopeful that it can ultimately be used, in conjunction with other biomarkers, to develop a screening test for type 1 diabetes among the general population.

Type 1 diabetes is caused by the body's own immune system destroying

the insulin making cells of the pancreas. The condition usually occurs in childhood or early adulthood. It can develop extremely rapidly and requires life-long self-management of glucose monitoring, insulin injections, food intake and exercise.

Early diagnosis of the condition is crucial to ensure that Diabetic Ketoacidosis (DKA) does not develop. This serious complication of diabetes occurs when the body is unable to process sugar for energy production and breaks down fat resulting in high levels of blood acids called ketones.

Up to five children and teenagers are diagnosed each week in Ireland with Type 1 diabetes and 10% are affected by a late diagnosis which can result in critical illness.

More information: E. Hennessy et al. Elevated 12-hydroxyeicosatetraenoic acid (12-HETE) levels in serum of individuals with newly diagnosed Type 1 diabetes, *Diabetic Medicine* (2017). DOI: 10.1111/dme.13177

Provided by Dublin City University