

Ketoacidosis and high-blood sugar comas in patients with type 1 diabetes linked to increased risk of suicide attempt

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New research presented at this year's Annual Meeting of the European Association for the Study of Diabetes (EASD) in Barcelona, Spain

(16-20 September) shows that in patients with type 1 diabetes, hospitalization for either ketoacidosis or a hyperglycaemic (high blood sugar) coma are both linked to a subsequent increase in the risk of attempting suicide. The study is by Dr. Jean Michel Petit, CHU (University Hospital) Dijon, France, and colleagues.

Patients with T1D and hospitalised for ketoacidosis are at an increased risk of subsequent [hospitalisation](#) for suicide attempt (2.2 times increased risk), while for hyperglycaemic coma the risk of subsequent hospitalisation for suicide attempt is tripled.

Diabetic ketoacidosis develops when the body is unable to produce enough insulin. Without enough insulin (or if not enough is injected by the patient with [diabetes](#)), the body begins to break down fat as fuel. This process produces a buildup of acids in the bloodstream called ketones, eventually leading to diabetic ketoacidosis if untreated. The symptoms include nausea and vomiting, abdominal pain, weakness or fatigue, shortness of breath and fruity-scented breath. Shortage of insulin also allows blood sugar to rise, which if left untreated can lead to a hyperglycaemic coma.

Several studies suggest that type 1 diabetes can significantly increase the risk of suicide. In this new research, the authors evaluated whether history of ketoacidosis or hyperglycemic coma hospitalisation could be associated with an increased risk of re-hospitalization for suicide attempt among people with type 1 diabetes.

This population-based retrospective cohort study examined [hospital](#) data including all patients hospitalised in France for T1D, from 2008. People with T1D were identified from hospital records. To reduce the risk of including people with type 2 diabetes, only individuals aged 35 years and under were included (such younger patients with diabetes are far more likely to have T1D than T2D)

The patients who died during the index hospitalization were excluded. Then, people with an hospitalization for ketoacidosis between the index hospitalization and 31 December 2010 (as their main, related or associated diagnoses) were included in the group "ketoacidosis" and the others were included in the group "no ketoacidosis".

People with an hospitalization for hyperglycaemic coma (meaning ketoacidosis with accompanying loss of consciousness) between the index hospitalisation and 31 December 2010 (as their main, related or associated diagnoses) were included in the group "hyperglycaemic coma".

An epidemiologic follow-up focused on hospitalisation for suicide attempts from medicine and psychiatric hospital data was conducted from 2008 to 2017. Statistical modelling was then used to establish any association.

From 2008 to 2010, 16 431 patients aged 18 to 35 years old, were hospitalised for type 1 diabetes in France. Among them, 1 539 (9.4%) had at least one hospitalisation for ketoacidosis and 279 (1.7%) had at least one hospitalisation for hyperglycemic coma. From 2008 to 2017, 107 individuals (7.0%) with ketoacidosis and 29 (10.4%) with hyperglycemic coma between 2008 and 2010 were subsequently hospitalised for suicide attempt. Among patients without ketoacidosis 365 (2.5%) were hospitalised for suicide attempt.

After adjustment for age, gender and [psychiatric disorders](#) (acute or chronic depressive disorders, or psychosis), survival analyses showed that ketoacidosis (by 2.2 times) and hyperglycemic coma (by 3.1 times) among people with type 1 diabetes were strongly associated with increased risks of subsequent re-hospitalisation for suicide attempt from 2008 to 2017. Among the 36 patients with at least 2 hospitalisations for hyperglycemic coma during the nine years after the index

hospitalisation, 8 (22%) were hospitalized for suicide: a nine-times increased risk compared to patients hospitalised with type 1 diabetes but without ketoacidosis.

The authors say: "Our results showed that people with a past history of hospitalisation for ketoacidosis or hyperglycemic coma have an increased risk of re-hospitalisation for [suicide attempt](#) within 9 years from that first hospitalisation. The risk is strongly increased in patients with 2 or more hospitalisations for hyperglycemic coma."

They add: "Identification of the risk factors of suicide is very important for the development of effective prevention strategies for suicide. Health-care professionals need to be aware of the higher suicidal risk in patients with ketoacidosis or hyperglycemic coma. The primary implication of our study is that all people with type 1 diabetes hospitalised for [diabetic ketoacidosis](#) and/or hyperglycaemic [coma](#) should have a screening of depressive symptoms and [suicide](#) ideation to reduce the risk of future suicides."

Provided by Diabetologia

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