



## Depressive Symptoms Associated With Mortality in Patients With Type 1 Diabetes

Written by Kate Mann

The presence of depressive symptoms at baseline and over time was associated with an increased risk of mortality in men and women with type 1 diabetes mellitus (T1DM) in an analysis of data from the Epidemiology of Diabetes Complications study [EDC; Pambianco G et al. *Diabetes* 2006], presented by Catherine E. Fickley, MPH, University of Pittsburgh, Pittsburgh, Pennsylvania, USA.

The prevalence of clinical depression in patients with T1DM was 12% compared with 3% in healthy controls in a meta-analysis [Barnard KD et al. *Diabet Med* 2006]. The existing literature on the relation between depression and depressive symptoms and diabetes outcomes in patients with T1DM appears to be limited to one study that showed a relation between depression, as measured by antidepressant use, and an increased risk of mortality in women but not in men [Ahola AJ et al. *Diabetologia* 2012]. A relationship between depression and increased mortality in the general population and in patients with type 2 diabetes mellitus (T2DM) has been reported.

The EDC is a prospective cohort study of 658 participants with childhood-onset T1DM who have been followed since 1986. At baseline, their mean age was 28 years (range, 8 to 48 years) and diabetes duration was 19 years (range, 7 to 37 years). At baseline, the Beck Depression Inventory (BDI) questionnaire was completed by participants. The BDI includes items related to symptoms of depression, cognition, and physical symptoms.

In total, 458 (235 women, 223 men) participants who completed the BDI at baseline were eligible for this analysis, in which investigators examined whether the incidence of all-cause mortality varied according to reported depressive symptoms over time while controlling for relevant covariates.

During the 20-year follow-up, 94 deaths (43 women, 51 men) occurred. The BDI score was associated with mortality on univariate analysis (HR, 1.39; 95% CI, 1.23 to 1.58;  $p < .001$ ).

The association between depressive symptoms and mortality persisted (HR, 1.35; 95% CI, 1.17 to 1.56;  $p < .001$ ) on multivariable analysis, adjusted for T1DM duration, calories consumed, total cholesterol, waist-to-hip ratio, HbA1C, education, hypertension, blood pressure medication, type A behavior, coronary artery disease, white blood cell count, and calories consumed, among others.

The use of antidepressants was not a confounding variable and only slightly diminished the association

between depressive symptoms and mortality risk (HR, 1.32; 95% CI, 1.14 to 1.54;  $p < .001$ ). No association was found between depressive symptoms and mortality risk between women and men ( $p = .02$ ) or between sex and antidepressant use ( $p = .81$ ).

When a cut point of 16 for clinically important depression was used, a significant relation between mortality and a BDI 16 or higher was found compared with a BDI less than 16 (HR, 2.87; 95% CI, 1.83 to 4.50;  $p < .001$ ).

A strength of this analysis was that the self-reported BDI captured depressive symptoms in patients who were and were not taking antidepressants, stated Fickley. Depressive symptoms over time predicted mortality in both women and men in this analysis, regardless of antidepressant use. These data support the need to evaluate efforts to improve screening and treatment of depression in T1DM.

## PTA Is Effective and Safe for Patients With Type 1 Diabetes

Written by Brian Hoyle

Researchers have demonstrated in a decadelong study that pancreas transplantation alone (PTA) can be effective and safe for patients with type 1 diabetes mellitus (T1DM), with the caveat that this advance benefits select, not all, patients with T1DM. The findings were reported by Margherita Occhipinti, MD, University of Pisa, Pisa, Italy.

PTA was first reported in the late 1960s. Advances in areas including immunosuppressive therapy have considerably improved patient outcomes [Gruessner RWG, Gruessner AC. *Diabetes Care* 2013]. Still, the long-term outlook is unclear. In the Pisa group, experience with pancreas and kidney transplantation dates back to the development of PTA, with 355 PTA procedures having been performed in 337 patients. This study sought to determine the actual 10-year PTA results in this single center.

The study involved 34 patients (17 men, 17 women) who underwent PTA from December 2000 to December 2003. The patients were aged  $37 \pm 9$  years, had a body mass index of  $23.5 \pm 3.3$  kg/m<sup>2</sup> and a duration of diabetes of  $23 \pm 10$  years, and received  $47 \pm 10$  U of insulin daily. All patients were transplanted by use of the portal-enteric drainage approach. Immunosuppressive therapy consisted of basiliximab (20 mg on Days 0 and 4) and high-dose steroids. Maintenance therapy consisted of tacrolimus, mycophenolate, and low-dose steroids.

The 10-year data revealed patient and pancreas survival rates of 97.0% and 63.6%, respectively, representing 1 death due to stroke (graft functional at time of death)