JANUARY COLUMN: Pei Lin Chan (Final 1/11/21)

Depression and Diabetes: Treating the Whole Patient

Patients with diabetes face a multitude of challenges once diagnosed and as healthcare providers we need to not only be aware of the medications and technologies available to treat their physical condition, but also stay attuned to their mental wellbeing. The prevalence of depression in people with type 1 diabetes is more than three times higher than in individuals who do not have diabetes, while in people with type 2 diabetes that rate is twice as high compared to those without this diagnosis[1]. Interestingly, there appears to be a bidirectional relationship between the two conditions, with an increased incidence of diabetes in patients with depression. This phenomenon may be attributable to patient lifestyle, hypothalamic-pituitary adrenal dysfunction (HPA), sleep disruption, effect of antidepressant medications, and environmental factors[2,3].

Detection and treatment of depression in people with diabetes is particularly important as concurrent depression is associated with poorer glycemic control[4-6]. A study conducted by Lin and colleagues found that in patients with diabetes, those with depression had lower adherence to their medications and less healthy lifestyle practices[7]. In addition to poor self-care as a cause of poor glycemic control, depression can affect stress pathways by activation of the HPA axis leading to increased cortisol production as well as activation of the sympathetic part of the autonomic nervous system. This, in turn, leads to insulin resistance and diabetes[8]. Major depressive disorder is diagnosed when patients have either anhedonia or a depressed mood, as well as any additional four of the following symptoms, for a minimum period of two weeks: changes in appetite or weight, sleep difficulties, psychomotor agitation or retardation, fatigue, diminished ability to concentrate, feelings of worthlessness or excessive guilt and suicidality[9].

Patients who do not meet the criteria for depression, but who suffer from negative emotions due to diabetes, may be experiencing diabetes distress. In addition to managing self-care, treatment, and treatment complications such as hypoglycemia, people with diabetes must juggle work demands and

interpersonal relationships. Those with inadequate coping mechanisms may find themselves burned out, defeated and unmotivated to persevere. Left undetected, diabetes distress may progress to depression. Several tools may be used to assess these patients including the Problem Area in Diabetes Scale (PAID) and the Diabetes Distress Scale (DDS). The PAID scale consists of 20 questions that assess a range of emotional problems related to diabetes, with a focus on social support, food-related problems and emotional distress. DDS includes an additional focus on the patient's perception of the degree of care provided by their physician and problems related to diabetes self-care[10]. Cross-sectional studies have linked diabetes distress to higher levels of glycated hemoglobin; awareness and early detection can lead to more prompt intervention on the part of the healthcare provider[11,12].

In the context of the current COVID-19 pandemic, even more stress is piled upon patients with diabetes. There is the stress of being vulnerable to the infection, the constant news of the pandemic—which may create more anxiety in patients, social isolation, financial strain and the disruption in access to treatment. A study conducted in Brazil found that in a cohort of 120 patients with type 1 and type 2 diabetes, 93% of patients showed signs of mental suffering (based on a positive screening of criteria associated with psychiatric diagnoses—including eating and sleeping disorders and diabetes-related emotional distress). Forty-three percent of patients had evidence of significant psychological distress (based on symptoms of anxiety and depression), with a higher rate reported in patients with type 2 diabetes[13]. With virtual or telehealth being used more frequently during the pandemic, it is important to bear in mind the role of mental wellbeing in improving the patient's self-management and diabetes control.

References:

1. Roy T, Lloyd CE. Epidemiology of depression and diabetes: a systematic review. *J Affect Disord*. 2012;142:S8-21.
2. Holt RI, de Groot M, Golden SH. Diabetes and depression. *Curr Diab Rep*. 2014 ;14(6):491.

3. Brown LC, Majumdar SR, Newman SC, Johnson JA. History of depression increases risk of type 2 diabetes in younger adults. *Diabetes Care*. 2005;28(5):1063-7.
4. Lustman PJ, Anderson RJ, Freedland KE, et al. Depression and poor glycemic control: a meta-analytic review of the literature. *Diabetes Care*. 2000;23(7):934-42.
5. Crispín-Trebejo B, Robles-Cuadros MC, Bernabé-Ortiz A. Association between depression and glycemic control among type 2 diabetes patients in Lima, Peru. *Asia-Pac Psychiatry*. 2015;7(4):419-26.
6. Papelbaum M, Moreira RO, Coutinho W, et al. Depression, glycemic control and type 2 diabetes. *Diabetol & Metab Syndr*. 2011;3(1):26.
7. Lin EH, Katon W, Von Korff M, et al. Relationship of depression and diabetes self-care, medication adherence, and preventive care. *Diabetes Care*. 2004;27(9):2154-60.
8. Berge LI, Riise T. Comorbidity between type 2 diabetes and depression in the adult population: directions of the association and its possible pathophysiological mechanisms. *Int J Endocrinol*. 2015;2015: 164760.
9. Soleimani L, Lapidus KA, Iosifescu DV. Diagnosis and treatment of major depressive disorder. *Neurol Clin.* 2011;29(1):177-93.
10. Schmitt A, Reimer A, Kulzer B, et al. How to assess diabetes distress: comparison of the Problem Areas in Diabetes Scale (PAID) and the Diabetes Distress Scale (DDS). *Diab Med*. 2016;33(6):835-43.
11. Lee AA, Piette JD, Heisler M, Rosland AM. Diabetes distress and glycemic control: the buffering effect of autonomy support from important family members and friends. *Diabetes Care*. 2018;41(6):1157-1163.
12. Wong EM, Afshar R, Qian H, et al. Diabetes distress, depression and glycemic control in a Canadian-based specialty care setting. *Can J Diabetes*. 2017;41(4):362-5.
13. Alessi J, De Oliveira GB, Franco DW, et al. Mental health in the era of COVID-19: prevalence of psychiatric disorders in a cohort of patients with type 1 and type 2 diabetes during the social distancing. *Diabetology & Metabolic Syndrome*. 2020;12(1):1-0.