Efficacy of cognitive behavioural therapy in type 2 diabetes initiating insulin therapy for the first time

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To measure the impact of cognitive behaviour therapy (CBT) on blood glucose regulation, negative emotional states, and medication adherence in type 2 diabetes mellitus (T2DM) patients initiating insulin therapy. Patients diagnosed with T2DM, hospitalised in the Department of Endocrinology from January 2022 to June 2023 and scheduled to commence long-term insulin therapy, were randomised into a control group that received standard insulin therapy and a combined treatment group that received additional CBT ($n = 50$). Parameters such as fasting blood glucose (FBG), 2-hour postprandial blood glucose (PBG), glycosylated haemoglobin (HbA1c), and fasting C-peptide (F-CP) levels were monitored before and after the intervention. Assessment of changes in anxiety, depression, and medication adherence was achieved via the hospital anxiety and depression scale (HADS) and the 5-item version of medication adherence report scale (MARS-5I). Among 95 patients, 48 were included in the control group and 47 in the combined treatment group, with both demonstrating remarkably improved FBG, PBG and HbA1c ($P < 0.05$); however, the enhancements were more significant in the combined treatment group ($P < 0.05$). F-CP levels did not show an obvious variation in either group ($P > 0.05$). The combined treatment group presented lower HADS scores post-intervention ($P < 0.05$), and both the individual and total scores of MARS-5I increased ($P < 0.05$). Comparatively, the control group exhibited no obvious improvement in HADS scores ($P > 0.05$). However, the score for item 1 of the MARS-5I improved ($P < 0.05$); other individual scores and the total score showed no improvement ($P > 0.05$). CBT, when combined with conventional therapy, effectively enhances blood glucose control and improves anxiety, depression scores, and medication adherence among T2DM patients beginning insulin therapy for the first time.

Keywords: Anxiety, depression, insulin, medication compliance, type 2 diabetes mellitus

As type 2 diabetes mellitus (T2DM) progresses, patients experience a gradual decline in pancreatic β-cell function, leading to insufficient insulin secretion and often necessitating lifelong insulin therapy[1]. However, due to the inconvenience of insulin use, limited medical knowledge, and psychological barriers, patients typically exhibit poor adherence to treatment after initiating insulin therapy. This resistance to insulin therapy can result in inadequate blood glucose control, acute and chronic complication onset and progression, and ultimately, a loss of confidence in treatment[2]. Research indicates that individuals with T2DM show a larger likelihood of developing negative emotions of anxiety and depression versus the general population. These conditions, influenced by neuroendocrine changes, can disrupt the balance of hypoglycemic and hyperglycemic hormones. This interaction complicates treatment and accelerates the progression and worsening of the disease[3,4]. Consequently, the psychological well-being of diabetic patients is crucial for effective blood sugar management. Cognitive behaviour therapy (CBT), a psychological intervention method that focuses on altering maladaptive cognitions to reduce negative emotions and behaviours through short-term psychotherapeutic techniques, has proven effective in treating mental disorders and has shown potential as an adjunctive treatment for various chronic diseases[5]. The present study aims to assess the efficacy of CBT as an adjunctive treatment for T2DM patients who initiate insulin therapy[6,7]. It evaluates the impact of integrating CBT with standard conventional treatment on medication adherence, negative emotions and blood glucose control.

Methods

Participants

100 patients with T2DM, admitted to the Endocrinology Department of our hospital from January 2022 to June 2023 and scheduled to begin their first long-term insulin therapy, will be selected as study subjects. These patients are aged between 18 and 70 years. The random number table method will be adopted for assigning patients to a control group or a combination treatment group in a random manner (Figure 1).