

Multiple analysis of risk factors for depression in Chinese type 2 diabetic patients

M. Jia¹, B. Xie¹, X.L. Ye¹, Y.C. Tu², N. Yang², Z.L. Sun¹;

¹Department of Endocrinology, Zhongda Hospital, Institute of Diabetes, Medical School, Southeast University, ²Medical School, Southeast University, Nanjing, China.

Background and aims: Depression is common in patients with type 2 diabetes. Different studies have showed contradictory results on the risk factors for the depression in type 2 diabetic patients. A multiply factors analysis is needed for the a system study on the all-scaled factors affecting depression in diabetes patients. This study we first using multiply factors analysis to find the risk factors for depression in patients with type 2 diabetes in China.

Materials and methods: A total of 397 patients with type 2 diabetes were recruited from July 2012 to September 2012 in Nanjing. Depression was evaluated with the nine-item Patient Health Questionnaire (PHQ-9). Classification criteria for depression: ≤ 4 points, normal group; 5-9 points, mild-depression group; 10-14 points, moderate-depression group; 15-19, moderate-to-major-depression group; 20 points or higher, major-depression group. While the demographic data (gender, age, education, marriage, income, way of payment, insulin injection and diabetic duration), metabolic data (fasting plasma glucose, postprandial blood glucose, HbA1c, triglyceride, total cholesterol, low density lipoprotein, high density lipoprotein, BP, BMI and obesity index) and chronic complications related to diabetes (diabetic angiocardiology, diabetic cerebrovascular disease, diabetic neuropathy, diabetic oculopathy, diabetic nephropathy and diabetic pedipathy) were collected, diabetic knowledge and self-management behaviors were also investigated by using Deborah scale and Diabetic Knowledge Test scale. Correlation tests were conducted between depression and all these potential factors. The risk factors associated with depression were screened by logistic regression.

Results: Of all the 397 patients with type 2 diabetes (137 males, 260 females, age 68.16 +/- 7.84 years, disease duration 9.43 +/- 6.53 years), a total of 94 (24.2%) patients were categorized as having depression, including 16.8% with mild, 5.8% with moderate, and 1% with moderate-to-major depression. Compared with the normal group, depression was correlated with gender ($P=0.000$), economic income ($P<0.05$), diabetes duration ($P<0.05$), economic income ($P<0.05$), tryglyceride ($P<0.05$), high density lipoprotein ($P<0.05$) and obesity index ($P=0.000$) in patients with type 2 diabetes. Although there was no significant relationship between depression and the number of chronic diabetic complications, the depression symptom was more severe in patients with diabetic pedipathy ($P<0.05$). Multiply logistic regression showed that obesity (OR=1.57), long diabetic duration (OR=1.37), diabetic pedipathy (OR=1.48), and female (OR=1.21), were risk factors for depression, while high high density lipoprotein (OR=0.72) showed a protective effect on depression.

Conclusion: More attention should be paid on depression symptoms in patients with obesity and diabetic pedipathy especially the females with long diabetic duration. High density lipoprotein may act as a protective factor for depression in patients with diabetes and further research on the mechanism for this relationship is necessary.

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