Suicidal Ideations Association with Blood Sugar Control in the Diabetic Patients

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Abstract

Objective: Suicide is seen in major depression, also in chronic diseases patients. HbA_1C is a marker of long-term control of diabetes. The aim of this study was evaluation of the suicidal ideations in diabetic patients and its association with the status of blood sugar control based on Hemoglobin A_1c (Hb A1c).

Materials and Methods: This study is a cross-sectional study. The patients were selected randomly. In this study, 180 diabetic patients were studied who were referred to the Ali Ibn Abitaleb Hospital Diabetes Center in Rafsanjan. This study data contain three categories, including demographic, Beck Depression Inventory, Beck suicidal ideations Inventory. HbA_1c was extracted from the patients file. The software SPSS-17 was used. The t-test, ANOVA, Chi square and correlation coefficient tests were used.

Results About %36.7 of the patients were male and 114 (%63.3) were female. The mean (± SD) age of patients was 14.28(± 56.98) years (range: 14 - 88 years). Of these patients, 66 (%36.7) reported a history of depression and 114 (%63.3) no depression history. The mean of diabetes duration was 9.25±6.15 years. The mean (± SD) of HbA_1c level was 2.08 ± 8.4 (range: 4.8-19.6).

Conclusion: Generally our findings showed that the prevalence of suicidal ideation in the diabetic population in Rafsanjan is less than the general population and other studies. There is no significant relationship between suicidal ideation and the age, sex, duration of diabetes, HbA_1c levels, and history of depression.

Keywords: Diabetes; HbA_1c, Suicidal Ideations.

Introduction

Based on statistics released by the World Health Organization (WHO) the prevalence of suicide in the world is 16 /100,000. Suicide attempts trend was increased to the extent of 60% over the past 50 years (1). In Chung and his colleagues' study in 2014, data from the fifth volume of the Korea National Health and Nutrition Examination was analyzed (KNHANES) and surveyed prevalence of depression and suicidal

ideation in people with normal glucose tolerance, impaired glucose tolerance and diabetes patients. A depressed mood for 2 or more continuous weeks was reported by 13.6% of subjects with normal glucose tolerance (NGT), 14.3% of those with impaired glucose intolerance (IFG), and 17.6% of DM patients. Suicidal ideations were reported by 15.3% of individuals with NGT, 15.6% of participants with IFG, and 17.6% of DM patients. Suicidal attempts were reported by 0.8% of people with NGT, 1.0% of those with IFG, and 1.3% of DM patients (2). In another study by Han and et al, in 2013, data from Korea National Health and Nutrition Examination Survey (KNHANES) was analysed and studied and 17265 diabetic patients that were 20 <years old were studied. The results showed that There is a significant relationship between suicide ideation and diabetes .Diabetes is a significant risk factor for suicidal ideation and the coexistence of diabetes and depression was associated with a much higher risk of suicidal ideation than with diabetes alone (3). According to the recently systematic review, major depression, bipolar disorders and anxiety disorders were the most frequent psychiatric disorders associated with suicidal attempts in the Iranian population (4). Significant frequent among adolescents and young people with harsh ways (self-immolation). Also the successful suicides are increasing among women (5). Many factors are the suicide commitment cause. Suicide is usually preventable even in patients with pervasive and persistent depression. Finding psychosocial threatening factors make physicians able to discover cause of suicide thought. By reducing patient discomfort and problems may prevent suicide and self-damaging (6). Depression, anxiety and adaptation disorders are the most common mental disorders in diabetic patients with chronic complications (7). A review study showed that overall patients with diabetes type I, had a higher risk for suicide compared with general population (8,9). The present study aimed to evaluate suicidal ideation in the diabetic patients and blood glucose control based on HbA1c.

Materials and Methods

This cross-sectional study was carried out in type 2 diabetic (T2DM) patients referred to Rafsanjan Diabetes Centre in 2014. Totally 180T2DM patients were randomly selected among 8000 T2DM patients referred to Rafsanjan Diabetes Centre during April to May-2014. Inclusion criteria: People with T2DM referred to Rafsanjan Diabetes Centre. Exclusion criteria: People who did not consent to participate in the study. Patients with no recent HbA_1c check.

The data collection instrument was a self-conducted checklist. The checklist contained demographic information, Beck Depression Inventory and Beck suicidal ideation Inventory.

Beck Depression Inventory: The questionnaire contains 21 questions to assess feedback and symptoms of depressed patients. Beck Depression Inventory is a self-assessment tests, related to different symptoms that people must answer on a four degree scale of zero to three. These items are about sadness, pessimism, helplessness and failure, guilt feeling, sleep disturbances, loss of appetite, self-loathing (10).

Beck suicidal ideation Inventory; Beck scale of suicidal ideation (BSSI) is prepared with 19 questions for detecting and measuring the intensity of attitudes, behaviors planning to commit suicide. The scale investigates questions such as dying wish, a desire to

commit suicide both active and passive form, duration and frequency of suicidal ideation, a sense of self-control, protective factors for suicide and assessment the amount of individual preparation for suicide commitment (11).

Demographic checklist included age, sex, level of HbA_1C, time of diagnosis of diabetes and a history of depression.

The data obtained using descriptive statistics and inferential statistics (the t-test, ANOVA, Chi square and correlation coefficient tests) and analysis was done using SPSS software 20. P-value of <.05 was considered as statistically significant. This study is adopted in Ethics Committee of Rafsanjan University of Medical Sciences, based on the Helsinki Declaration.

Results

Table 3 shows the mean score of suicidal ideation based on sex which is higher in women. The differences were tested by ANOVA (*P*-value=0.347).

Table 1 shows the mean scores of suicidal ideation in patients based on age. The lowest score of suicidal ideation are related to age group 64-50 years. The maximum score of suicide in this group was 8. The maximum score is related to the age group 14-49 years, the maximum score of suicide in this group was also 8. These differences were tested using analysis of variance (ANOVA) with *P*-value=0.613. The suicidal ideation score was not related to age.

Table 2 shows the mean scores of Depression based on age. The maximum score of the depression is related to the age group 65-68 years. (*P*-value=0/026)

The depression score is correlated with age and with increasing age is increased. Based on Chi-square test generally 42.8% without depression, 25%Mild depression, 19.4% moderate depression and 12.8% had severe depression. The highest rate of severe depression was among ages 88-65 years and the lowest rate of depression was related to the age group 49-14 years (*P*-value=0.001).

About %36.7 of the patients included in this study were male and 114 (%63.3) were female. The mean (± SD) age of patients was 14.28±56.98 years (range: 14 – 88). History of depression was reported in 66 (%36.7). The mean of diabetes duration was 9.25 ± 6.15 years. The mean of HbA1c levels was 8.4±2.08 (range:4.8- 19.6).

Table 4 shows the correlation between different aspects of suicidal ideations .There is no significant relationship between the history of depression and suicidal ideations.

Discussion

Our findings showed, there was no significant relationship between suicidal ideation with age, sex, level of HbA_1c, duration of T2DM. The prevalence of suicidal ideation was higher in people who have depression. Considering these results, it is better to do psychological evaluation and consultation forT2DM, especially patients who are more prone to depression just at the time of diagnosis of diabetes, like women and people who have a history of depression. People who have diabetes for a long time, the severity of depression is more. Considering that over time patients may face complications of diabetes and diabetes complications can lead to patients' disability and finally, depression and psychiatric problems and committing suicide. Therefore patients must prevent chronic complications through self-caring, included daily exercise, regular and accurate medication, having a proper meal plan and consultation with a nutritionist and quit smoking. The prevalence of depression in the elderly is more. Older people often live lonely and do not have good emotional and social support. Those around them must pay more attention to them and must support them. The prevalence of depression is higher in women than men (12). The reason for this difference can be feminine hormones that may lead to more resistance to insulin. More investigation

Table 1. The mean scores of suicidal ideation based on age

Age	Frequency	Mean	Standard Deviations (SD)	Minimum	Maximum
14-49	55	0.56	1.24	0.00	8.00
50-64	71	0.38	0.82	0.00	4.00
65-88	54	0.54	1.35	0.00	8.00
Total	180	0.48	1.13	0.00	8.00

Table 2. The mean scores of Depression based on age

Age	Frequency	Mean	SD	Minimum	Maximum
14-49	55	14.16	8.80	1.00	37.00
50-64	71	17.70	7.97	3.00	43.00
65-88	54	18.76	11.20	3.00	42.00
Total	180	16.94	9.43	1.00	43.00

Table 3. The mean scores of suicidal ideation based on sex

Sex	Frequency	Mean	SD	Minimum	Maximum
Male	66	0.38	0.69	0.00	3.00
female	114	0.54	1.32	0.00	8.00
total	180	0.48	1.13	0.00	8.00

Table 4. The correlation between different aspects of suicidal ideations

Variable		Age	HbA_1C	T2DM-Duration	Depression
HbA_1C	r	0.021			
	P-value	0.784			
T2DM-Duration	r	0.315	-0.143		
	P-value	0.000	0.057		
Depression	r	0.203	-0.059	0.204	
	P-value	0.006	0.429	0.006	
Suicidal ideations	r	-0.025	-0.090	0.017	0.281
	P-value	0.742	0.230	0.825	0.000

in the field is suggested. In Lee's study (13) the prevalence of suicidal ideation was higher in women than men, but there was no significant association between suicidal ideation and sex, that is consistent with this study. Likewise in our study, the prevalence of suicidal ideation in women is more than men. Based on Beck's suicide score, 100% of men have suicidal ideation and 98.2% of women have suicidal ideation and 1.8% were ready to commit suicide but none of the samples had any attempt to commit suicide and there was no significant relationship between the sex suicidal ideation. Because of public opinion, some individuals may hide their suicidal ideation, or even he or she may have had a serious attempt to commit suicide but does not express it. In Alyson and his colleagues' study in 2013 in United States of America on 145 patients with type 2 diabetes it was indicated that, 9.7% of patients had history of a suicide attempt and 38.2% had major depressive disorder (MDD).Patients with MDD were more likely to have a history of suicide attempts than those without MDD (14) that is not consistent with the results of the present study. In this study out of 66 patients who had a history of depression 3% were ready to commit suicide and 97% had suicidal ideations and of 114 patients who had no history of depression 1.1% were ready to commit suicide and 98.9% had suicidal ideation and none of the samples hadn't had any attempt to commit suicide. As a result, there was no significant relationship between the prevalence of suicidal ideation and history of depression. In our study there is no significant difference or relationship in prevalence of suicidal ideation in patients who had a history of depression

with people who had no history of those thoughts.

Likewise in Lee's study it was indicated that suicidal ideation was more prevalent among patients who had diabetes for five years or more, compared with those without diabetes that is not consistent with the results of the present study. In our study between suicidal ideation with duration of diabetes, there is a positive correlation but there was no significant relationship. Lee studied a greater number of the samples than the present study. Samples of the present study were 180 patients that can be a reason for the difference.It is better to investigate more examples in future studies. Also in age range our samples had a lower range and change domain was between 18-88 years while in Lee's study(13) samples were more than 40 years old .considering that patients aging may lead to chronic complications of diabetes or disability, their life expectancy decreases and are more at suicidal risk.

In a study in 1994 by Goldston (15) among youth with insulin-dependent diabetes mellitus (IDDM) for up to 12 years after disease onset it was indicated that young patients evidenced higher suicidal ideation rates than expected but relatively few attempted suicide and suicidal ideation shortly after IDDM onset, was related only to concurrent severity of depressive symptoms, that is not consistent with the results of the present study. Young people with diabetes at an early age, may face anxiety and stress and life expectancy decreases and eventually leads to depression and suicidal ideation in them. On the other hand people who have diabetes for a longer time may face persistent complications or physical diseases and it leads to depression. Also older people usually live alone and arte not emotionally supported and it leads to psychiatric disorders including depression and suicidal ideation.

Conclusions

The prevalence of suicidal ideation in the diabetic population in Rafsanjan is less than the general population and other studies. There is no significant relationship between suicidal ideation and the age, sex, duration of diabetes, HbA_1C levels, and history of depression.

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