DEPRESSION TREATMENT AND ITS IMPACT UPON THE QUALITY OF LIFE IN PATIENTS WITH DIABETES TYPE 2 – THE CROATIAN STUDY

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SUMMARY

Objectives: Depression is prevalent in patients with type 2 diabetes and affects quality of life. The prevalence of depression in the sample of Croatian patients with diabetes is 32.2%. The main aim of the investigation was to evaluate the effect of antidepressant treatment on quality of life and metabolic control in depressed diabetic patients.

Design and methods: In the sample we randomized 60 diabetic outpatients with optimally controlled diabetes and with depression. The efficacy of 50 mg sertraline per day treatment was tested by the MADRAS questionnaire in a 24-week period, where the patients controlled themselves. Changes in the quality of life as the consequences of treatment of depression were tested by the QLSQ questionnaire for the quality of life follow-up.

Results: The MADRAS scale results, measuring the changes in the degree of depression, showed substantial improvement of condition throughout the whole treatment. The first eight weeks of treatment presented statistically high significance in examinees in all the groups of chronic somatic diseases. The QLSQ scale results for measuring the quality of life showed marked improvement. Statistically significant changes occurred during the first eight weeks of treatment. Two patients withdrew their consent before starting medication and 13 dropped out later in the study. Treatment of depression with sertraline in chronic somatic patients did not induce changes in the HbA1c.

Conclusion: that the prevalence of depression in patients with somatic diseases is several times higher than in general population. Treatment of depression with antidepressants from the group of selective serotonin reuptake inhibitors (sertraline) causes improvement of depressive symptoms and increases the quality of life in diabetic patients. Treatment of depression has no impact upon the values control parameters in these patients.

Key words: *depression – diabetes - quality of life*

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INTRODUCTION

The investigations published so far have shown statistically significant incidence of depression in patients with diabetes (Anderson et al. 2000, 2001). Two thirds of diabetic patients with depression are ill for two or more years, and a large number of examinees have had several episodes of depressive disorder within the period of five years. The presence of depression in patients with diabetes is significantly higher in women (28%) in comparison to men (18%). Patients with type 2 diabetes who are using insulin, suffer from depression and its more severe types markedly more often. They also have greater risks for macrovascular and microvascular complications (Anderson et al. 2001, Katon et al. 2004). Complications of diabetes are more frequent and more pronounced in patients with depression, what substantially increases costs of treatment and mortality (Katon et al. 2005). The results of various investigations performed in the Republic of Croatia point to the prevalence of depression in diabetic patients of 22–33%, depending on the measuring instrument. (Pibernik et al. 2005) The results of our investigation, performed in 2007, reveal the prevalence of 32.2% (Filipčić et al. 2007). Tested were 446 patients with diabetes, and depression was established in 147 of them. Statistically significant difference was also confirmed (p<0.001) regarding sex (Filipčić et al. 2007).

Lustman et al. consider that hormonal changes caused by depression can influence cortisol level in the body and weaken insulin tolerance (Lustman et al. 2000). Depression is related to higher functional incapacity, bad compliance to recommendations concerning diet and physical activity, to avoidance of regular therapy and to irregular check ups of patients with diabetes (Egede et al. 2004). Depression increases the risk of complications, hyperglycemia, it aggravates the quality of life, as well as normal working and social functioning (Lustman et al. 2007) Treatment of depression in patients with diabetes is performed with the combination of medications and psychotherapeutic methods, accompanied by psychological education of patients. (Egede et al. 2005). Depression is treated with antidepressants, where selective serotonin reuptake inhibitors (SSRI) are used as first choice medications. Among psychotherapeutic techniques, best results are achieved with cognitive behavioral psychotherapy (Lustman et al. 2006). Tricyclic antidepressants are rarely used due to numerous side effects and lower control of glycemia in diabetics who have been taking those (Lustman et al. 1997). The administration of antidepressants for more than six months has prophylactic effect upon the occurrence of new depressive episodes and enhances better control of glycemia in patients with both diabetes and depression. Egede in his researches points to a large number of

stigmatizing attitudes of patients and their families. Patients with diabetes consider depression as a severe disease mostly affecting someone else, prevalently a colleague or a friend also having diabetes (Egede et al. 2002, 2005). Education and treatment of patients does not encompass only check ups. It is important to develop in patients the care for their own health, manifested by regular taking of prescribed therapy (insulin), regular physical activity and the care of diet. (Gonzales et al. 2007). Depression significantly aggravates the primary disease, accelerates functional damages and development of glucose intolerance. Thus the treatment of depression in people with diabetes is a must and should be adapted in accordance with needs and complications of each individual patient (Brown et al. 2008).

SUBJECTS AND METHODS

Investigation was done at the Department of Psychiatry, University Hospital Center Zagreb, in a 24-week period. Followed were examinees regularly treated at the outpatient endocrinological ward of the Department of Internal Medicine, University Hospital Center Zagreb, in the period of 24 weeks. They signed an informed consent approved by the Ethical Board of the UHC Zagreb and the School of Medicine in Zagreb, thus confirming their free will to participate in the research. The mentioned group of examinees consisted of 60 depressive patients with type 2 diabetes for more than a year. They were treated with the antidepressant sertraline (selective serotonin reuptake inhibitor), applied in one morning dose of 50 mg, and, following the Ethical Board recommendation, they were their own controls. The examinees came to three check ups during the follow up period, when level of depression and changes in the quality of life were evaluated. The first visit was at the same time the first day of investigation, the second check up was after eight weeks of treatment, and the third and the last visit was after the performed treatment of 24 weeks. During treatment, the level of depression in patients was investigated in three psychiatric examinations by standardized MADRAS questionnaire (Montgomery-Asberg), while the changes in the quality of life were tested by the Q-LES-Q questionnaire for estimating the patients' quality of life. The impact of depression upon alterations in body functions of chronic somatic patients was also investigated by monitoring changes in the HbA1c concentration at regular control specialist examinations. Questionnaires were correctly validated, translated into Croatian and approved by corresponding institutions for legal use. During the first and last visits, regular somatic check ups, including the state of their chronic somatic disease and the values of glycoside hemoglobin (HbA1c) in the blood, were performed as well. No other psychopharmaca were administered in the course of study. Sertraline was chosen as an antidepressant in this

research due to the profile of its side effects and availability. Results are presented in tables and graphs, statistical evaluation was supported by the STATISTICA program, ver. 7.1, and the results are interpreted on at least 5% basis of significance α= 0.05.

RESULTS

Investigation encompassed 60 chronic somatic patients with diabetes and depression. Eighty percent of them were older than 30 years of age. Fifteen patients with diabetes and depression did not complete the investigation. i.e. 25%.

On Fig 1. are shown descriptive measures (median, minimum, maximum and interquartile range) of the MADRAS total score before therapy, after eight weeks of therapy and after 24 weeks. The continuous decrease in average values during investigation is observable, with dominating difference between total scores before treatment and after eight weeks of therapy.
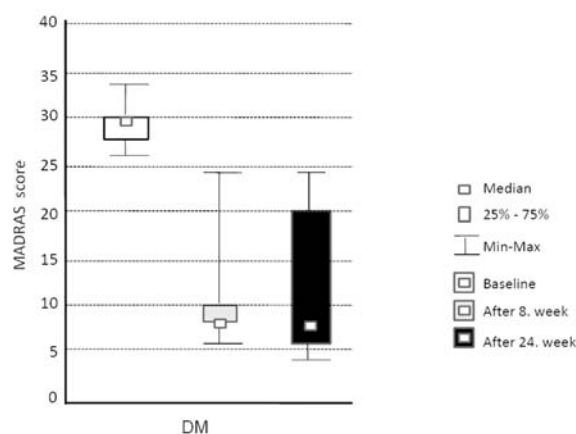

Figure 1. Results of the MADRAS total score before therapy, after eight weeks of therapy and after 24 weeks
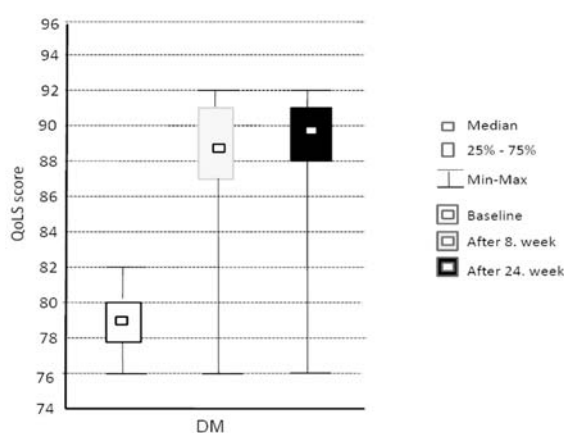

Figure 2. Results of the Q-LES-Q total score before therapy, after eight weeks of treatment and after 24 weeks of therapy

In Table 1. are shown descriptive measures for the MADRAS total score in order to assess the level of depression before therapy, after eight week and after 24 weeks of therapy.

Difference in the values of the total MADRAS score is statistically highly significant during the investigation, and post hoc analysis confirmed statistically significant differences between the state before therapy and that after eight weeks of therapy in one promille, and between the state at the first (8 weeks) and last (24 weeks) control on the one percent level of significance.

On Fig 2. are shown descriptive measures (median, minimum, maximum and interquartile range) of the Q-LES-Q total score before therapy, after eight weeks of treatment and after 24 weeks of therapy. During investigation, in all three homogenous groups dominates consistent increase in average values.

Table 1. MADRAS total score before therapy, after 8 and after 24 weeks of treatment

| DISEASE(n) | Variable | Average range | Friedman anova | Post hoc | |
				Comparison	P
DIABETES	MDR1 MDR2 MDR3	3.00 1.72 1.28	$\chi^2 = 76.63$ Df = 2 P < 0.001	MDR1 - MDR2 MDR2 - MDR3	<0.001 0.008

In Table 2. are shown descriptive measures for the questionnaire used for evaluating the quality of life, pleasure and life satisfaction of the Q-LES-Q total scores before therapy, after eight weeks of therapy and after 24 weeks of treatment. The post hoc analysis established that the difference of the total Q-LES-Q score between the state before therapy and the state after eight weeks of therapy is statistically significant on the one promille level of significance, but there was no difference between the state after eight weeks of therapy and after 24 weeks.

Table 2. Q-LES-Q total score results before therapy, after 8 and after 24 weeks of treatment

| DISEASE(n) | Variable | Average range | Friedman anova | Post hoc | |
				Comparison	P
DIABETES	QLS1 QLS2 QLS3	1.28 2.28 2.44	$\chi^2 = 38.63$ Df = 2 P < 0.001	QLS1 - QLS2 QLS2 - QLS3	<0.001 0.139

DISCUSSION

The results of the cited investigation argue that after eight weeks of treating depression in type 2 diabetic patients with antidepressants, sertraline, statistically significant change in their mood was observed. The difference in the values of the MADRAS total score is statistically highly significant for diabetes χ^2=76.63 (p<0.001). In the continuation of treatment through the next 16 weeks partially improved mood was maintained in the majority of examinees, but further improvement or statistically significant change in mood did not occur. The results of investigations throughout the world show similar results, i.e. considerably successful treatment of depression with selective serotonin reuptake inhibitors in various somatic diseases. In describing depression with lowered mood, a large number of other symptoms are mentioned, more important being tension, anxiety and sleep disorders. Depression in patients with diabetes increases the risk for complications, deteriorates the quality of life and ability to enjoy life, while pessimistic deliberations impede social functioning (Paile-Hyvärinen et al. 2007).

Next parameter obse4rved in this investigation is the quality of life, because it is an important factor in patients with chronic somatic diseases, particularly those with diabetes. The quality of life is reduced due to the primary disease itself, and with the occurrence of depression it decreases several times, what has been confirmed in a series of studies. (Filaković et al. 2004). The quality of life was examined by the results of the Q-LES-Q questionnaire scores before taking therapy, after eight weeks of therapy and after 24 weeks. The diabetic patients were controls to themselves. It is confirmed that the treatment of depression in patients with diabetes brought to significant improvement in the quality of life. The difference of the total Q-LES-Q score between the state before therapy and after eight weeks of therapy is statistically significant on the one promille level of significance, and the difference between weeks 8 and 24 is not statistically significant on the mentioned level of significance. The results point that during the first two months of treating depression in patients with diabetes the improvement in the quality of life occurred. In the continuation of treatment during the following 16 weeks the achieved quality of life was maintained, but with slight downfall which is not statistically significant. All the mentioned can be related to inadequate compliance, stigmatizing attitudes and negation of depression as a disease which requires treatment (Pibernik-Okanović et al. 1998). People with diabetes have problems in coping with their illness, usually do not recognize depression

and do not experience it as a disease but as transient state usually happening to someone else. The cronification of diabetes and increased number of complications negatively and frustratingly affect the patient's mood, causes pessimistic ideas and decreases adherence and capacity of a patient to cope with his/her primary disease. Twenty five percent of examinees did not complete the study, the main reason was noncompliance, the patients have poor attitude towards taking medications, refuse the need for treatment and complain about low tolerance of antidepressants (DiMatteo et al. 2000).

In applying sertraline for treating depression in chronic somatic patients, the effect on the change in the value of the HbA1c control parameter was not obtained at regular check ups. Several investigations confirm no impact upon the values of glycolized hemoglobin HbA1c in treating depression in diabetic patients. That is, lower HbA1c values are not statistically significant (Lustman et al. 2000).

CONCLUSION

Treatment of depression with antidepressants from the group of selective serotonin reuptake inhibitors, sertraline, causes improvement of depressive symptoms during the 24-week treatment in type 2 diabetic patients. The results show high statistically significant improvement of depressive symptoms during the first eight weeks of treatment. The treatment of depression in patients with diabetes also led to substantial advancement in their quality of life, particularly after the first eight weeks of taking the prescribed therapy. It should be accentuated that in the period from week 8 to week 24 the treatment of depression in diabetic patients brought to significant improvement of their quality of life, especially after the first eight weeks of therapy. It should be stressed that in the period from weeks 8 to 24 the improved quality of life of patients with diabetes is maintained, with slight statistically insignificant downfall.

Treatment of depression has no impact upon the values of the control parameter HbA1c in diabetic patients with depression.

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