

Comparison of quality of life in patients with type 2 diabetes mellitus with and without insulin treatment

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Introduction

Diabetes is a chronic disease, and its prevalence is continuously increasing. By 2040, one adult in 10 (642 million worldwide) will suffer from type 2 diabetes mellitus (T2DM) (Trikkalinou et al., 2017).

In T2DM, especially in patients with long duration of diabetes, often the change of lifestyle and oral hypoglycemic agents is not enough; therefore, the combined treatment with insulin is needed to achieve glycemic target levels.

Diabetes could cause many consequences that affect both health and quality of life (Chung et al., 2013). Several factors influence the quality of life of diabetic individuals: age, chronic complications, socioeconomic and educational level, psychological factors, knowledge about the disease, and care received (Jing et al., 2018).

This study investigates the influences of the treatment used - oral hypoglycemic agents or insulin on quality of life, using the health-related quality of life questionnaire.

Materials and methods

The cross-sectional study was performed and there were enrolled 53 consecutive patients with T2DM, which visited the outpatient diabetes department in PHI Clinical Hospital - Stip, R of N. Macedonia. Twenty one patients (39.6%) were on oral, and the rest, 32 patients (60,4%) on insulin therapy. All patients answered translated McGill Quality of Life Questionnaire. Each question was scored from 0 to 5, the higher scores mean better quality of life. McGill Quality of Life Questionnaire cover eight domains (physical condition, psychological state, existential state, social limitations, environment limitations, cognition,

availability of health care system, and familiar burden). The physician who is responsible for the medical treatment of these patients collected additional questions for age, duration of diabetes, complications, and current medical therapy.

The statistical analysis was performed using SPSS statistical software. We used the Kolmogorov-Smirnov normality test for testing the normality of distribution. For comparison between the two groups, the Mann-Whitney nonparametric test was used. Correlations were tested using the Spearman correlation tests. A p-value < 0.05 was considered as statistically significant.

Results and discussion

The average age of the study population was 62±10.1 years. Majority of the patients were females 28/53 (52.8%). The group of the patients on insulin therapy had a diabetes history of more than 5 years, compared to the group on oral hypoglycemic agents which have a history less than 5 years. The mean HbA1c for all patients was found to be 8.3%. The lower score was reported for physical symptoms at the moment of T2DM diagnosis (limitation due to physical aspects). The highest scores were reported for social activity and existential state.

Patients on insulin therapy were statistically significantly older than patients on oral treatment. Statistically significant difference was present only in psychological state; patients on insulin treatment were more depressive than those on oral treatment (p=0,047). In addition, patients on insulin treatment experienced more symptoms at the moment of T2DM diagnosis and have higher familiar burden, but without statistically significant differences compared to oral treatment group.

There was a statistically significant weak correlation between gender and environment limitation ($r=0,189$, $p<0,05$); women experienced more limitations than man. There was a statistically significant positive weak correlation between age and existential state, environment limitation, and familiar burden ($r=0,223$; $0,193$; $0,206$; respectively, $p<0,05$).

Diabetic's quality of life becomes worse when complications start to develop or comorbidities coexist (Jing et al., 2018). In this study, diabetes complications were frequently present in the insulin group. Patients without complication had a better score on the questionnaires. There was statistically significant correlation of the presence of diabetes complications with age, duration of diabetes, and HbA1c.

Statistical differentiation in age, and difference in the presence of diabetes complication between the two groups probably were the reasons for these results. Although insulin group was more depressive, differences in age and complications may be the reason for this result. Patients often refuse insulin treatment, but the results from this study showed that insulin treatment have no or small influence on the majority of aspects of life. Patients that needs insulin treatment should be familiar with these results. On the other hand, there was not statistically significant correlation between the age and depressive symptoms in both of the analyzed group, which gives us right to state that depression may not be related to the age. Most intriguing field for research is the interaction of diabetes and depression and in some cases the progression to dementia (dos Reis et al., 2019). Larger prospective study with a long duration of observation of insulin treated patients is necessary to confirm that results.

One similar study found that the patients on insulin have, in general, greater impairment of quality of life, functional capacity, and socialization, and reported greater neuropathic pain and anxious and depressive symptoms in relation to those who use medications. They explained these outcomes by the greater physical and emotional discomfort from the use of insulin for blood glucose control, a more advanced stage of the disease, and a greater presence of comorbidities (dos Reis et al., 2019). Our study found less insulin influence on the quality of life, but in both studies, it is evident that earlier and stringer control of glycaemia and other risk factors may prevent disease progression and better quality of life in T2DM patients.

Conclusion

In general Type 2 diabetes mellitus patients with insulin treatment showed greater impairment in psychological state than patients on oral hypoglycaemic agents, but we must note that this group of patients has

longer diabetes history, with more diabetes complications and with more coexist comorbidities. This founding leads to conclusion that the phycological state may be correlated with the duration of the diabetes as a disease and not with the type of therapy.

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