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Original Research Article

Comparative study on effect of oral hypoglycemics and insulin treatment on quality of life among diabetic subjects

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ABSTRACT

Background: Diabetes is a chronic non-communicable disease with variable presentation and complications. It is well known that over a period of time complications sets in and causes substantial decrease in the patient's quality of life (QoL). QoL domains plays and important factor in prediction of outcome of diabetic treatment. Hence this study was conducted with the objectives to find the difference in quality of life (QoL) domains in diabetics on oral hypoglycaemic agents and Insulin.
Methods: Longitudinal Study was undertaken in tertiary care centre, for duration of 6 months. Type 2 Diabetics on treatment with oral hypoglycemics and Insulin were included in the study. Socio - demographic profile, laboratory investigations were collected using structured and pretested questionnaire. Quality of life was assessed by WHOQOL-BREF. SPSS 22 version, EPI Info and Open EPI software were used for Statistical analysis. Chi-square and Students t-test were the statistical tests.
Results: 59 diabetic subjects were included in Oral and insulin group respectively. Mean age of oral hypoglycemics was 59.6±8.7 years and Insulin group was 61.4±8.2 years. Age and gender were matched between two groups. Glycemic profile was significantly higher in Oral group than in Insulin group. Physical domain was significantly higher (better) in oral group than in Insulin group. Psychological and Social domain was significantly higher (better) in Insulin group. Hence QoL is affected by type of hypoglycaemic agent used among diabetics.
Conclusions: Quality of life with respect to physical domain was reduced in Insulin group, were as psychological and social domain was reduced in Oral group.

Keywords: Diabetes mellitus, Insulin, Oral Hypoglycaemic agents, QoL

INTRODUCTION

Quality of life (QoL) was defined as individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns by WHO.[1] Diabetes mellitus is a chronic disease, health and illness affect self-concept due to the duration and severity of chronic diseases such as diabetes, physical function, psychological, social and economic quality of life is undergoing enormous changes. In addition, health problems, negative effects on their self-concept, and the patient need help to accept the changes in the status and quality of life.[2] QoL is affected in many chronic communicable and non-communicable diseases due to various factors.[3] In diabetics, various factors such as depression act as a stronger predictor of medical outcomes such as hospitalization.4 As per WHO quality of life has four domains, such as physical, environmental, psychological and social domains. Any domain affected will alter the QoL. It is also observed that treatment can play an important role in QoL.

However, the role of Oral drugs and Insulin injections on Quality of Life remains unclear. Hence this study was conducted with the objectives to find the difference in Quality of life (QoL) domains in diabetics on oral hypoglycaemic agents and Insulin.

METHODS

Longitudinal Study was undertaken in tertiary care centre, for duration of 6 months. Type 2 diabetics on treatment with oral hypoglycemics and Insulin were included in the study. Diabetes patients on Oral hypoglycemics and Insulin for a minimum period of 6 months and on regular follow up and treatment were included in the study. Diabetics with Serious illness and complications were excluded from the study. Informed consent was obtained from subjects prior to the start of the study. Sample size of 59 was obtained by using Physical QoL domain of 53.2±8.4 in oral group and 48.7±7.9 in Insulin group between oral hypoglycemics and Insulin group from the pilot study which gave the maximum sample size. A structured and pretested questionnaire was used to obtain the information on socio- demographic profile, diabetic history. The quality of life was assessed by WHOQOL-BREF scale.[5,6] 5-point Likert scale was used to record the responses in WHO QoL BREF questionnaire. Four domains of quality of life measured by using the above scale are: physical, psychological, social and environment, through a set of 26 items, the scale was self-administered. Laboratory parameters such as fasting blood sugar, waist circumference, triglycerides, HDL, blood pressure were measured by standard techniques.[7-9]

Statistical analysis

It was done using SPSS 22 software. Chi-square was the test of significance Qualitative data and Students t test was test of significance for difference in means between two groups.

RESULTS

In the present study 59 diabetic subjects on oral hypoglycaemic agents and 59 diabetics on insulin were included in the study to observe the difference in WHO BREF QoL domains. Age and gender were matched. Mean age of oral hypoglycemics was 59.6±8.7 years and Insulin group was 61.4±8.2 years. In Oral group majority were males and in Insulin group majority were females. There was no significant difference in mean age and gender between two groups. Triglyceride, LDL, FBS, PPBS and HbA1c levels was significantly higher in oral hypoglycemics than in Insulin group (Table 1).

In oral hypoglycemics mean QoL of physical domain was 63.3±15.5, psychological domain was 53.5±13.6, social domain was 50.8±10.8 and environmental domain was 70.9±13.4 and in Insulin group, mean physical domain was 53.3±13.3, psychological domain was 62.4±10.4, Social domain was 55.7±19.2 and environmental domain was 62.8±11.3. Physical domain was significantly higher among oral hypoglycemics than in insulin group, were as psychological and social domain was significantly higher in Insulin group than in oral group. No significant difference was observed in environmental domain between two groups (Table 2).

Table 1: Socio demographic and laboratory profile of diabetics on oral hypoglycemics and insulin group.

		Group				P value
		Oral hypoglycemics (n=59)		Insulin group (n=59)		
		Mean	SD	Mean	SD	
Age		59.6	8.7	61.4	8.2	0.653
Gender	Male	30 (50.8%)		28 (47.4%)		0.712
	Female	29 (49.2%)		31 (52.6%)		
Duration of diabetes (years)		6.1	2.1	14.1	3.7	<0.001*
Laboratory parameters	SBP	136.3	18.2	134.2	19.1	0.542
	DBP	84.6	8.9	83.8	9.0	0.628
	BMI	25.6	4.3	24.7	3.8	0.231
	WC	89.2	10.7	86.4	12.6	0.195
	WHR	0.85	0.10	0.82	0.13	0.162
	TG	245.9	105.4	219.5	91.7	0.023*
	LDL	166.2	11.4	152.4	10.7	<0.001*
	HDL	39.2	13.8	41.2	11.7	0.397
	FBS	160.4	42.98	130.6	22.1	<0.001*
	PPBS	184.7	24.68	174.3	22.34	0.018*
	HbA1c	7.2	1.2	6.8	0.9	0.042*

Further the groups were divided based on the presence of metabolic syndrome. In the study 40 subjects had metabolic syndrome and 78 did not have metabolic syndrome. Out of 40 metabolic syndrome subjects 24

were oral hypoglycemics group and 16 were in insulin group. Physical domain was significantly higher in oral group than in insulin group irrespective of presence or absence of metabolic syndrome. Were as psychological domain being significantly higher in Insulin group than in Oral group irrespective of presence or absence of metabolic syndrome. No significant difference was observed in Social and environmental domain between two groups with respect to metabolic syndrome (Table 3).

Table 2: WHO BREF QoL comparison between oral hypoglycemics and Insulin group.

		Group				P value
		Oral hypoglycemics (n=59)		Insulin group (n=59)		
		Mean	SD	Mean	SD	
WHO BREF QoL domains	Physical	63.3	15.5	53.3	13.3	<0.001*
	Psychological	53.5	13.6	62.4	10.4	<0.001*
	Social	50.8	10.8	55.7	19.2	0.027*
	Environment	70.9	13.4	62.8	11.3	0.141

Table 3: Comparison of WHO BREF QoL domains with metabolic syndrome among oral hypoglycemics and insulin group.

	Metabolic syndrome									
	Present (n =40)					Absent (n=78)				
	Oral hypoglycemics (n=24)		Insulin group (n=16)		P value	Oral hypoglycemics (n=35)		Insulin group (n=41)		P value
	Mean	SD	Mean	SD		Mean	SD	Mean	SD	
Physical	57.3	12.9	47.8	13.0	0.028*	65.5	10.3	56.3	13.6	0.001*
Psychological	48.5	11.6	58.4	8.4	0.005*	56.5	15.6	64.4	12.4	0.016*
Social	48.8	11.8	56.7	17.2	0.092	52.8	8.8	59.9	23.2	0.091
Environment	64.9	12.1	58.8	9.3	0.096	73.9	14.6	68.6	11.8	0.084

DISCUSSION

QoL (Quality of life) was assessed in 59 Diabetic subjects on oral hypoglycaemic agents and on Insulin respectively. Mean age of oral hypoglycemics was 59.6±8.7 years and Insulin group was 61.4±8.2 years. In oral group majority were males and in Insulin group majority were females. There was no significant difference in mean age and gender between two groups thus ensuring matching between two groups. Age and sex distribution was similar in the study by Chaveepojnkamjorn.[10] Mean duration of diabetes was significantly higher in Insulin group than in oral group. With increase in duration of diabetes, eventually insulin switch over from oral drugs is required. Similar observation was made by Papadopoulos in their study with respect to duration of disease.[11] Triglyceride, LDL, FBS, PPBS and HbA1c levels was significantly higher in oral hypoglycemics than in Insulin group. This shows that better Glycemic control was observed in insulin group than in oral hypoglycemics.

Physical domain was significantly higher among oral hypoglycemics than in Insulin group, i.e. physical domain was affected in Insulin group significantly than in oral group. This can be due to pain of insulin injections and frequent change in sites. Were as psychological and social domain being significantly higher in Insulin group than in Oral group, i.e. Social and Psychological domain were affected significantly in oral group. This can be due to better glycemic control by insulin than oral agents. No significant difference was observed in environmental domain between two groups.

In the study by Andrzej M. Fal, QoL-WHOQOL-BREF-based-survey revealed a higher QoL assessment in the psychological domain for insulin treatment.[12] Similar results were observed by Nadeau et al.[13] Were as in contrary Andrzej M. Fal et al, observed a higher QoL in the somatic and environmental domains for oral treatment). Similarly, Redekop and Brown had lower QoL by insulin-treated patients.[14,15] In concordance with this, Stewart et al, observed that patients not taking medication have higher QoL.[16] This can be attributed to possible side effects of drugs as well as their influence on every day's schedule (especially for insulin treated). This also confirms where type 2 diabetes patients reported worsening of QoL after treatment intensification (adding of oral agents or insulin).[17]

Physical domain was significantly higher in oral group than in Insulin group irrespective of presence or absence of metabolic syndrome. Similarly, psychological domain was significantly higher in Insulin group than in oral

group irrespective of presence or absence of metabolic syndrome. No significant difference was observed in Social and environmental domain between two groups with respect to metabolic syndrome. Hence irrespective of metabolic syndrome QoL of will be affected in oral and Insulin group.

CONCLUSION

QoL has become an important outcome measurement in the success of treatment which in diabetic patients is affected by many factors like sex, type of treatment (insulin and oral hypoglycemic agents), co morbid conditions and glycemic control over a period of time. The current study focused effect of type of treatment on QoL in diabetics and it was found physical domain was better in oral hypoglycemics and Psychological and social domain was better in Insulin group. Hence it is important to choose appropriate agent for treatment based on the individuality of patients especially in diabetes to achieve optimum glycemic control and adherence of treatment.

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