Research Article

Quality of life in diabetic subjects with respect to metabolic syndrome: a case control study

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ABSTRACT

Background: Diabetes is a chronic non-communicable disease, leading to many complications and disability. With co morbidities it leads to a substantial decrease in the patients' quality of life (QoL). In diabetics, psychosocial factors such as depression are stronger predictors of medical outcomes such as hospitalization and death than are physical and metabolic factors such as presence of complications, body mass index, or HbA1c level. Hence this study was conducted with the objectives to correlate the quality of life (QoL) domains with metabolic syndrome parameters among diabetic patients.
Methods: Hospital based case control study was done for a period of 3 months among 180 diabetics and non-diabetics in a rural tertiary care centre. Information on socio- demographic profile, diabetic history was collected using a pretested and structured questionnaire. Quality of life was assessed by WHOQOL-BREF. Statistical analysis was carried out by using SPSS 22 Version. Chi-square and independent t-test was the statistical test.
Results: Majority of subjects in both groups were females, 56.7% and 54.4% in cases and controls respectively. Mean age of cases and control was 57.9±11.7 years and 57.4±11.2 years respectively. Significant association between diabetes and metabolic syndrome was observed. Quality of life was significantly low among diabetics with metabolic syndrome than without metabolic syndrome.
Conclusions: Quality of life with respect to physical, psychological and social domain among diabetics with metabolic syndrome was reduced significantly.

Keywords: Quality of life, Diabetes mellitus, Metabolic syndrome

INTRODUCTION

WHO had defined Quality of life (QoL) 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.[1] QoL is affected in chronic diseases due to various factors as reviewed by literature.[2] Diabetes is a chronic non-communicable disease, leading to many complications and disability. With co morbidities it leads to a substantial decrease in the patients' quality of life (QoL). Health-related quality of life and diabetes-specific quality of life represent increasingly narrower concepts, there is currently no "gold standard" for the assessment diabetes-specific quality of life. In diabetics, psychosocial factors such as depression are stronger predictors of medical outcomes such as hospitalization and death than are physical and metabolic factors such as presence of complications, body mass index, or HbA1c level.[3] Hence this study was conducted with the objectives to find the difference in quality of life (QoL) domains with metabolic syndrome among diabetic and non-diabetic subjects.

METHODS

A hospital based case control study was conducted in a rural tertiary care centre of South India for a period of 6 months. Informed consent was obtained from type 2 Diabetic patients and controls were age and gender matched. Sample size of 180 was obtained at 80% power and 95% CI (two sided) by using the environmental domain (71.2±12.1 in cases 74.7±11.3 in controls) QoL between cases and controls from the pilot study which gave the maximum sample size. A pretested and structured questionnaire was used to obtain the information on socio- demographic profile, diabetic history. The quality of life was assessed by WHOQOL-BREF scale.[4,5] Four domains of quality of life measured by using the above scale are: physical, psychological, social and environment, through a set of 26 items that can be self-administered. 5-point Likert scale was used to record the responses. Metabolic parameters such as fasting blood sugar, waist circumference, triglycerides, HDL, blood pressure were measured by standard techniques. Metabolic syndrome was diagnosed by increased waist circumference (with respect to male and female for South Asian criteria) and presence of two raised parameters such as FBS (>100mg/dl), SBP≥ 130 mmhg, DBP ≥85mmhg, HDL (<40 in males and <50 in females) and triglycerides (≥ 150mg/dl).[6-8] Statistical Analysis was done using SPSS 22 software. Chi-square was the test of significance Qualitative data and Independent t-test was test of significance for difference in means between two groups.

RESULTS

In the study 180 cases (with diabetes mellitus) and controls (without diabetes mellitus) were included in the study to observe the difference in WHO BREF QoL with respect to metabolic syndrome.

Table 1: Socio demographic, metabolic syndrome and WHO BREF QOL profile of cases and controls in the study.

		Count	Group Cases Mean	SD	Controls Mean	SD	P value
Age		180	57.9	11.7	57.4	11.2	0.655
Metabolic syndrome parameters	SBP	180	148.3	21.0	143.2	20.6	0.022*
	DBP	180	84.8	11.9	82.8	12.0	0.114
	WC	180	89.2	10.7	86.4	12.6	0.022*
	TG	180	255.7	115.4	209.5	101.7	<0.001*
	HDL	180	39.2	13.8	41.2	11.7	0.138
	FBS	180	160.4	42.98	106.3	22.1	<0.001*
WHO BREF QoL domains	Physical	180	53.3	15.5	63.3	13.3	<0.001
	Psychological	180	53.5	13.6	63.6	14.4	<0.001*
	Social	180	50.8	14.8	57.7	21.2	<0.001*
	Environment	180	70.9	13.4	72.8	11.3	0.141
Metabolic syndrome	Absent	155	67	37.2%	88	48.9%	0.025*
	Present	205	113	62.8%	92	51.1%	

Table 2: Comparison of WHO BREF QoL domains with metabolic syndrome among cases and controls.

	Metabolic syndrome Present Group Cases Mean	SD	Controls Mean	SD	P value	Absent Group Cases Mean	SD	Controls Mean	SD	P value
Physical	47.3	14.9	63.3	13.0	<0.001*	63.5	10.3	63.3	13.6	0.920
Psychological	48.6	13.2	65.0	14.1	<0.001*	61.7	9.8	62.1	14.6	0.831
Social	46.1	14.3	58.6	21.8	<0.001*	58.8	12.1	56.8	20.6	0.477
Environment	71.5	13.1	72.6	12.8	0.527	69.9	13.9	73.0	9.5	0.102

Mean QoL of various domains such as physical (47.3±14.9), psychological (48.6±13.2), social domain (46.1±14.3) among cases with metabolic syndrome and in controls physical domain (63.3±13), psychological (65±14.1), social domain (58.6±21.8). This difference between cases and controls was statistically significant.

With respect to environmental domain there was no significant difference in mean values between cases and controls in subjects with metabolic syndrome was significant. No significant difference in QoL parameters was observed between cases and controls in subjects with out metabolic syndrome (Table 2). Majority of subjects in both groups were females, 56.7% and 54.4% in cases and controls respectively. Mean age of cases was 57.9±11.7 years and controls were 57.4±11.2 years. There was no significant difference in mean age and gender between two groups. Significant difference was observed in mean SBP, waist circumference, triglycerides and FBS. No significant difference was observed in DBP and HDL between two groups. In the study 113 subjects (62.8%) of cases and 92 subjects (51.1%) of controls had metabolic syndrome. There was significant association between diabetes and metabolic syndrome (Table 1).

DISCUSSION

Diabetes being a chronic disease can influence overall quality of life and also can influence coping with their disease in short and long term successfully. In this regard a case control study was conducted to find the quality of life among diabetics and non-diabetics. Metabolic syndrome was looked as parameter which can influence quality of life among them. Overall 180 cases and 180 controls were included, all the subjects were subjected to metabolic syndrome evaluation.

Distribution of subjects in both groups majority of subjects were females, 56.7% and 54.4% in cases and controls respectively. Mean age of cases was 57.9±11.7 years and controls were 57.4±11.2 years. There was no significant difference in mean age and gender between two groups. Hence age and gender matching was attained to avoid confounding bias in the study. Socio demographic profile of subjects were similar to the studies conducted by Harish et al, Rubin et al.[9-11]

Parameters included in the metabolic syndrome were higher in Cases compared to controls as expected by the disease status. Whereas no difference was observed between cases and controls with diastolic blood pressure (DBP) and HDL. Significant association between diabetes and metabolic syndrome was observed.

Mean QoL of various domains such as physical (47.3±14.9), psychological (48.6±13.2), social domain (46.1±14.3) among cases with metabolic syndrome and in controls Physical domain (63.3±13), psychological (65±14.1), social domain (58.6±21.8). This difference between cases and controls was statistically significant. With respect to environmental domain there was no significant difference in mean values between cases and controls in subjects with metabolic syndrome was significant. No significant difference in QoL parameters was observed between cases and controls in subjects without metabolic syndrome.

Richard R et al in his review reported that quality of life was worse for people with diabetes compared to the general population, especially regarding physical functioning and well-being.[3] No difference was observed in QOL domain scores for type-2 patients and the general population group in two domains (social and environmental) indicates that disease has an impact on QOL and it varies with disease severity. Whereas no significant impact was observed for of duration of illness.[12-14]

CONCLUSION

Quality of life with respect to physical, psychological and social domain among diabetics with metabolic syndrome was reduced significantly. Hence metabolic disease plays an important role in quality of life among diabetic subjects.

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