



Research Article

EVALUATION OF LEVEL OF KNOWLEDGE, QUALITY OF LIFE AND IMPACT OF COUNSELING: A QUESTIONNAIRE BASED STUDY ON PATIENTS WITH GESTATIONAL DIABETES MELLITUS

Belvi Sargees, Jiya Therese Joy, S. Reshma, C.D. Shaji Selvin *

Sreekrishna College of Pharmacy & Research Centre, Parassala, Thiruvananthapuram, Kerala, India

*Corresponding Author Email: shajimpharm@gmail.com

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ABSTRACT

The purpose of this study was to evaluate the knowledge about gestational diabetes mellitus (GDM), quality of life (QOL) and impact of counselling provided to the patients with GDM. With this view, a prospective, case-control study was conducted on October-2014 to March-2015 in the Department of Obstetrics and Gynaecology, Cosmopolitan Hospitals Pvt. Ltd, Thiruvananthapuram, Kerala, South India. The study includes 140 pregnant women in second trimester with GDM. The total study population was divided in to two groups of 70 members each. The group-1 was considered as control and 2 is considered as experimental group. A three month education course was provided to group-2 members during their antenatal visit. The education mainly focused on the information about the essence of GDM, complications of improper disease management and proper diet regimen. The education also covered the general concept of GDM self monitoring and the importance of active participation of patient in the treatment. The QOL and the knowledge of the participants were assessed in the beginning and the end of educational session with the help of semi structured questionnaire. The data collected was analyzed by using statistical package for the social sciences (SPSS) software. Analysis of data collected before and after counselling clearly indicated a significant improvement in the knowledge about GDM and QOL of participants belongs to group-2 comparing with group-1. Collectively, these results suggested that the educational approach is a necessary step for the better management of GDM and also future direction should focus on the earlier prediction and effective preventive measures before GDM development.

Key words: Gestational diabetes mellitus, Quality of life, Patient knowledge, Patient education

INTRODUCTION

Diabetes mellitus is a clinical syndrome considered one of the emerging threats of 21st century¹. Globally, across all age groups, the incidence and prevalence of diabetes mellitus increases significantly. It was estimated that the number of affected is expected to increase up to 552 million people by 2030². Diabetes mellitus is significantly more in the urban population due to dietary practices and lifestyle practices³. India has the highest population of diabetic patients in the world and has the dubious distinction of being the diabetes capital of the world⁴. In India, more than 50 million people were affected with type-2 diabetes mellitus⁵. Gestational diabetes mellitus (GDM) is a subtype of diabetes; its prevalence is increases constantly⁴. It is defined as carbohydrate intolerance of different severity with onset or first recognition during pregnancy^{4, 6, 7}. GDM is closely related with the risks of pre-eclampsia for mothers in the antepartum period and may leads to the development of hypoglycemia, hypocalcemia, respiratory distress syndrome, macrosomia, jaundice and polycythemia in infants⁴. Moreover, after delivery, though the glucose level return to normalcy, the mother is at a higher risk for type- 2 diabetes mellitus and also the child is at a higher risk for metabolic syndrome^{4, 6, 7}. Awareness and knowledge about GDM will beneficial for the early diagnosis and its prevention. Educational programs and counselling may helpful to improve the awareness and knowledge. With this view, the present study was designed to evaluate the knowledge about GDM, quality of life and the impact of counselling provided to the patients with GDM

METHODS

After getting necessary approval from institutional ethical committee (IHEC 9/15/2014) a prospective, case-control study was conducted for a period of six months from October -2014 to March 2015 in the Department of Obstetrics and Gynaecology, Cosmopolitan Hospitals Pvt. Ltd., a 550 bedded multispecialty hospital located in Thiruvananthapuram, Kerala, South India with the object to assess the effectiveness of an educational program on knowledge regarding GDM and QOL of patients with GDM.

140 pregnant women in second trimester without severe complications of diabetes were selected for the study.

The inclusion criteria were

- Pregnant women between 18 to 40 years of age with GDM

The exclusion criteria were

- Pregnant women without GDM
- Pregnant women in first trimester
- Pregnant women with severe complications of diabetes, infectious diseases and additional disorders

The participants were informed about the study and their consent was received in the prescribed format. Information from the study subjects were collected by direct interview method by using a semi structured interview schedule. Initially, the demographic data was collected from all the participants. The total 140 study participants were divided in to two groups of 70 members each. The group-1 was considered as control and 2 is considered as experimental group. A three month education course was provided to group-2 members during their antenatal visit. The education mainly focused on the information about the

essence of GDM, complications of improper disease management and proper diet regimen. The education also covered the general concept of GDM self monitoring and the importance of active participation of patient in the treatment. At the end of first meeting in the education program, each patient was supplied with written materials that illustrate the most important aspects of every educational lecture. The QOL and the KAP of the participants were assessed in the beginning and the end of educational session with the help of semi structured questionnaire^{4, 6}. In case of KAP assessment, a score of 1 was given to each correct response and each woman was scored out of a total of 12. A score of 0 - 4 was considered as poor

knowledge, 5 - 8 as fair, and 9 - 12 as good knowledge of GDM. The QOL questionnaire answers were coded as it follows: 5 – “all the time”; 4 – “most of the time”; 3 – “most half of the time”; 2 – “less than half of the time”; 1 – “part of the time” and 0 – “never”.

The data collected was analysed by using statistical package for the social sciences (SPSS) software. The statistical techniques such as Chi - square tests, independent t test were employed. The ‘P’ value less than 0.05 was considered significant.

Table 1: Level of knowledge of study subjects about GDM

Knowledge distribution		Before counseling		After counseling	
		Count	Percent	Count	Percent
Group-1 (Control)	Poor	28	40.0	24	34.3
	Fair	39	55.7	43	61.4
	Good	3	4.3	3	4.3
Group-2 (Experimental)	Poor	34	48.6	0	0.0
	Fair	36	51.4	49	70.0
	Good	0	0.0	21	30.0

Table 2: Quality of life of study subjects before counseling

QOL questionnaire		Control		Experimental		Z#	P
		Count	Percent	Count	Percent		
I was in good mood (1)	Normal	0	0.0	1	1.4	6.57**	0.000
	Part of the time	8	11.4	33	47.1		
	Less than half of the time	17	24.3	26	37.1		
	Most of half of the time	19	27.1	9	12.9		
	Most of the time	23	32.9	1	1.4		
	All the time	3	4.3	0	0.0		
Mean ± SD		2.9 ± 1.1		1.7 ± 0.8			
I was calm and being easy (2)	Normal	1	1.4	2	2.9	5.08**	0.000
	Part of the time	14	20.0	33	47.1		
	Less than half of the time	22	31.4	30	42.9		
	Most of half of the time	25	35.7	5	7.1		
	Most of the time	8	11.4	0	0.0		
	Mean ± SD	2.4 ± 1		1.5 ± 0.7			
I was social active (3)	Normal	11	15.7	24	34.3	3.42**	0.001
	Part of the time	12	17.1	20	28.6		
	Less than half of the time	25	35.7	15	21.4		
	Most of half of the time	16	22.9	8	11.4		
	Most of the time	6	8.6	3	4.3		
	Mean ± SD	1.9 ± 1.2		1.2 ± 1.2			
I woke up fresh and rested (4)	Part of the time	14	20.0	23	32.9	2.85**	0.004
	Less than half of the time	22	31.4	28	40.0		
	Most of half of the time	27	38.6	19	27.1		
	Most of the time	7	10.0	0	0.0		
	Mean ± SD	2.4 ± 0.9		1.9 ± 0.8			
I was more physically active (5)	Normal	0	0.0	2	2.9	2.89**	0.004
	Part of the time	16	22.9	27	38.6		
	Less than half of the time	31	44.3	31	44.3		
	Most of half of the time	21	30.0	7	10.0		
	Most of the time	2	2.9	3	4.3		
	Mean ± SD	2.1 ± 0.8		1.7 ± 0.8			

Mann-Whitney U test; ** Significant at 0.01 level

Table 3: Quality of life of study subjects after counseling

QOL questionnaire		Control		Experimental		χ^2	P
		Count	Percent	Count	Percent		
I was in good mood (1)	Part of the time	7	10.0	1	1.4	1.06	0.289
	Less than half of the time	14	20.0	1	1.4		
	Most of half of the time	24	34.3	50	71.4		
	Most of the time	20	28.6	16	22.9		
	All the time	5	7.1	2	2.9		
	Mean \pm SD	3 \pm 1.1		3.2 \pm 0.6			
I was calm and being easy (2)	Part of the time	11	15.7	0	0.0	4.3**	0.000
	Less than half of the time	26	37.1	11	15.7		
	Most of half of the time	25	35.7	46	65.7		
	Most of the time	8	11.4	13	18.6		
	Mean \pm SD	2.4 \pm 0.9		3 \pm 0.6			
I was social active (3)	Normal	11	15.7	6	8.6	2.47*	0.014
	Part of the time	12	17.1	9	12.9		
	Less than half of the time	28	40.0	24	34.3		
	Most of half of the time	15	21.4	17	24.3		
	Most of the time	4	5.7	14	20.0		
	Mean \pm SD	1.8 \pm 1.1		2.3 \pm 1.2			
I woke up fresh and rested (4)	Part of the time	12	17.1	0	0.0	6.81**	0.000
	Less than half of the time	22	31.4	2	2.9		
	Most of half of the time	30	42.9	35	50.0		
	Most of the time	6	8.6	30	42.9		
	All the time	0	0.0	3	4.3		
	Mean \pm SD	2.4 \pm 0.9		3.5 \pm 0.6			
I was more physically active (5)	Normal	2	2.9	0	0.0	6.98**	0.000
	Part of the time	26	37.1	1	1.4		
	Less than half of the time	24	34.3	12	17.1		
	Most of half of the time	15	21.4	39	55.7		
	Most of the time	3	4.3	15	21.4		
	All the time	0	0.0	3	4.3		
	Mean \pm SD	1.9 \pm 0.9		3.1 \pm 0.8			

Mann-Whitney U test; ** Significant at 0.01 level

RESULTS

A prospective, case control study was conducted from October - 2014 to March - 2015 among the GDM patients of Department of Obstetrics and Gynaecology, Cosmopolitan Hospitals Pvt. Ltd. Thiruvananthapuram, Kerala, South India. 140 pregnant women between the ages of 18 to 40 years were covered during the study period. Semi structured interview schedule was used to collect the data by direct interview method and the collected data was analyzed by using SPSS software.

In case of control group, the results showed that 32 of 70 members (46%) were aged between 25-29 years. 24 participants (34%) were come under below 25 years and rest 14 participants (20%) were belongs to above 30 years age group. Regarding with occupation, the results showed that 37 participants (52.8%) were house wives, 10 candidates (14.2%) were engineers, bank employee and teachers were individually constituted 6 members (8.5%), 4 members (5.7%) were staff nurse and remaining 3 participants (4.2%) were students. Analysis of educational status revealed that majority of participants, 58 candidates (82.8%) were graduates, 6 participants (8.5%) were post graduates, 4 candidates (5.7%) were completed higher secondary and remaining 2 candidates (2.8%) were completed high school level. Analysis of type of family showed that majority of participants 36 out of 70 participants (51%) were belongs to nuclear family type and remaining 34 members (49%) were belongs to joint family.

In case of experimental group, the results of age distribution showed that the majority of study subjects, 35 of 70 participants (50%) were aged between 25-29 years. 18 participants (26%) come under below 25 years and 17 participants (24%) belongs to above 30 years age group. Regarding with the occupation of

study subjects, the results showed that 28 of 70 participants (40%) were house wives, 12 candidates (17.1%) were teacher, 11 members (15.7%) were engineers, and 6 participants (8%) were staff nurse. Students and pharmacists individually constituted 4 members (6%) and remaining 5 candidates (7%) were bank employees. Analysis of educational status revealed that majority of study subjects 54 of 70 participants (77.1%) were graduates 7 candidates (10%) were post graduates, 6 candidates (8%) were completed higher secondary and remaining 3 candidates (4%) were completed high school level. It was found that 38 of 70 participants (54.2%) were belongs to nuclear family and remaining 32 candidates (45.7%) were belongs to joint family structure.

Majority, 82 of 140 participants (58.5%) were primigravida. It was found that majority of study subjects 41 of 70 participants (58.6%) in group-1 and 43 of 70 participants (61.4%) in group-2 were affected with GDM at the gestational age of 23-24 weeks. A total of 101 among 140 study subjects (72%) have family history of GDM. 48.6% (34 candidates) in group-1 and 55.7% (39 candidates) in group-2 have history of diabetes mellitus in father. Only 19 members of 140 participants (13.5%) have diabetes prior to pregnancy. All patients were taken iron, calcium and folic acid tablets regularly. 48.5% subjects (68 members) were using insulin and 51.5 % candidates (72 members) were using oral hypoglycemic agents.

Regarding with life style, the results showed that 103 of 140 study subjects (73.5%) were taking mixed diet, 77.8% (109 candidates) were doing exercise mainly walking. It was found that generally, the major sources of awareness of GDM were hospital notice board/chart, information form health worker and newspaper/magazine. Before counseling, the level of knowledge on GDM was analyzed. The results showed that overall, 55.7%

(39 women) in group-1 and 51.4% (36 women) in group-2 have fair knowledge regarding GDM. 40% (28 women) in group-1 and 48.6% (34 women) in group-2 have poor knowledge regarding GDM. 4.3% (3 women) in group-1 and none of the women in group-1 have good knowledge. But the evaluation after education revealed that the knowledge about GDM was significantly improved in experimental group comparing with control group. The results showed that 61.4% (43 women) in group-1 and 70% (49 women) in group-2 have attained fair knowledge after education. None in group-2 had good knowledge regarding GDM before education, but 30% (21 women) have attained good knowledge after education. 48.6% (34 women) in group-1 had poor knowledge before education, while none in group-2 have poor knowledge after education (Table 1).

Results of analysis of quality of life of study subjects before education showed that the mean \pm SD for group-1 was 2.9 ± 1.1 and in case of group-2, it was 1.7 ± 0.8 for the answer "I was in good mood". For the answer "I was calm and being easy" the group-1 showed the mean \pm SD of 2.4 ± 1 and for group-2 it was 1.5 ± 0.7 . The response to "I was social active" showed the mean \pm SD of 1.9 ± 1.2 in case of group-1 and for group-2, it was 1.2 ± 1.2 . The response to "I woke up fresh and rested" showed the mean \pm SD of 2.4 ± 0.9 in case of group-1 and for group-2 it was 1.9 ± 0.8 . The response to "I was more physically active" showed the mean \pm SD of 2.1 ± 0.8 in case of group-1 and for group-2 it was 1.7 ± 0.8 . These results clearly indicate the level of quality of life of group-1 subjects was better than the group-2 before education (Table 2).

The results of evaluation of quality of life after counselling showed that the mean \pm SD for group-1 was 3 ± 1.1 and in case of group-2, it was 3.2 ± 0.6 for the answer "I was in good mood". For the answer "I was calm and being easy" the group-1 showed the mean \pm SD of 2.4 ± 0.9 and for group-2 it was 3 ± 0.6 . The response to "I was social active" showed the mean \pm SD of 1.8 ± 1.1 in case of group-1 and for group-2, it was 2.3 ± 1.2 . The response to "I woke up fresh and rested" showed the mean \pm SD of 2.4 ± 0.9 in case of group-1 and for group-2 it was 3.5 ± 0.6 . The response to "I was more physically active" showed the mean \pm SD of 1.9 ± 0.9 in case of group-1 and for group-2 it was 3.1 ± 0.8 . These results clearly indicate the level of quality of life of group-1 subjects was better than the group-2 before education. These results clearly indicated that the quality of life of group-2 study subjects were improved significantly after counselling comparing with group-1 study subjects (Table 3).

DISCUSSION

In the present study, majority of the women were in the 25-29 age groups. Advancing age was found to increase risk for earlier development of GDM. Average age of the population of present study was more than 25 years. Most of them were house wives. Majority of them have higher education. Majority of the participants of the present study were primigravida. A proportion of those with a family history of diabetes among first degree relatives were more among experimental group as compared to control group. Incidence of diabetes in father of women with GDM in experimental group was 55.7%, while, in control, it was 48.6%. This shows that paternal history have a significant association with the development of GDM. The present study revealed that most of the study subjects taking mixed diet; most of them are doing exercise, mainly walking. Insulin is more preferred than oral hypoglycemic agents. This study shows that only a small proportion of ante natal women had knowledge about GDM. For women who take proper precaution and self care, it is important that they have good

knowledge about the risk factors and the consequences that they may face if they have untreated GDM. Results of the present clearly indicate that there is a significant improvement in knowledge regarding GDM in experimental (3.24 ± 1.13) than control (0.09 ± 0.37). This finding suggests that educational intervention to the experiment group was beneficial in increasing the GDM knowledge. The results from the twice applied questionnaire assessing the quality of life of patients in the beginning and in the end of the educational program clearly indicate the improvement in the knowledge of the participants. Hence clinical pharmacists have a major role in educating the patient regarding GDM complications and its management, thus improving the quality of life.

CONCLUSION

A prospective study was carried out on GDM patients of tertiary care, corporate hospital. The study was focused on assessing the effectiveness of counselling provided to the pregnant women with gestational diabetes. After collecting six months of data, statistical tests were applied and the results were obtained. This study proves that the educational approach is a necessary step for the better management of GDM and the pharmacists are capable to perform it to minimize the risks and complications. For women to take proper precautions and self care, it is important that they have a good knowledge about the risk factors and the consequences that they may face if they have untreated GDM. The results of the present study showed the improvement in their knowledge about their disease, complication and proper diet and insulin therapy and also their quality of life. The future direction should focus on the earlier prediction and effective preventive measures before GDM development. Therefore a need for patient counselling is essential to reduce the GDM patients in future.

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