Effect of Health Education Program for Diabetic Children

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Abstract

Background: It is estimated that about 80.000 children develop the disease each year.

Objectives: To determine the effectiveness of health education program of diabetic children& their families.

Methodology: The present study included 50 children with type1diabetes and their families, their age ranged from 6 to 10years; attended to National Institute of Diabetes& Endocrinology from 1st of July 2015 to the end of June 2016, for 6 months health educational program. Health education program was directed to children and their families aiming to increase awareness of those children.

Results: Patients responded correctly to the questions, reported significant difference in their HRQOL at follow up r= 0.68. also reported significant improvements on the General Health (P< 0.001) scales, the relationship between domains of HRQOL before& after the program was: physical health (r= 0.36, p= 0.01), psychological health (r= 0.62, p< 0.0001), social health (r= 0.77, p< 0.0001), environmental health (r= 0.82, p< 0.0001). HA1C at baseline& follow up were strongly correlated (r= 0.54), HA1C increased significantly (mean 9.22 Vs 12.43, p<0.001).

Conclusion: Health education programs are effective in increasing knowledge and awareness of children with type1 diabetes and their families and improving their quality of life.

Keywords: Type1 Diabetes, Health Education, Quality of Life, School Children.

دراسة أثر برنامج للتثقيف الصحى للأطفال مرضى السكري

المقدمة: داء السكرى هو مرض استقلابى الأكثر شيوعا فى مرحلة الطفولة. داء السكرى من النوع الأول يمكن تمييزها عن النوع الثانى عن طريق اختبار الأجسام المضادة. ويمكن أيضا للمقايسة سى- ببتيد، والذى يقيس انتاج الانسولين الذاتية.

الهدف من الدراسة: تقييم مدى فعالية التثقيف الصحى للأطفال السكرى وأسرهم على نوعية الحياة والالتزام بطرق العلاج.

المنهجية: تدخلية على ١٠٠ طفلا من المصابين بداء السكرى النوع الأول وأسرهم الذين يترددون على معهد السكر وسوف تكون مدة الدراسة سنة واحدة ابتداء من يوليو ٢٠١٥ إلى نهاية يونيو ٢٠١٦. ولجميع الطفال تم عمل: التاريخ المرضى الكامل والفحص الطبى الشامل ونسبة السكر فى الدم، الهيموجلوبين السكرى التراكمى، وتقييم جودة الحياة من منظمة الصحة العالمية وتنفيذ برنامج التثقيف الصحى.

النتائج: أوضحت الدراسة زيادة الوعى الصحى والثقافى لدى الأطفال المصابين بمرض السكرى النوع الأول وأسرهم وتحسن فى نوعية الحياة لديهم.

الخلاصة: الاهتمام بالتثقيف الصحى فى جميع المنشات الطبية التى تتعامل مع الأطفال مرضى السكرى النوع الأول للأطفال وأسرهم.

الكلمات الافتتاحية: الأطفال- مرض السكرى- التثقيف الصحى- جودة الحياة.

Introduction:

Diabetes mellitus is the most common metabolic disease in childhood (Ismail et.al., 2008). Type1 diabetes can be distinguished from type2 by autoantibody testing. The C- peptide assay, which measures endogenous insulin production, can also be used (WHO, 2013).

Globally, the number of people with DM type 1 is unknown, although it is estimated that about 80.000 children develop the disease each year. Within the United States the number of affected persons is estimated at one to three million (Chiang et.al., 2014).

Type1 diabetes mellitus and other chronic diseases in children are well known to adversely affect linear growth and pubertal development growth impairment reported in diabetic patients is dependant on abnormalities in physiological bone growth and corresponds to abnormalities of the growth hormone- insulin- like growth factor1 (GH- IGF- 1) axis (Chiarelli et.al., 2004).

Health education is the profession of educating people about health (Mckenzie et.al., 2009). Areas within this profession encompass environmental health, physical health, social health, emotional health, intellectual health, and spiritual health (Donatelle, 2009).

The World Health Organization defined Health Education as "Comprising of consciously constructed opportunities for learning involving some form of communication designed to improve health literacy, including improving knowledge, and developing life skills which are conducive to individual and community health". (World Health Organization, 1998).

Aim of the Study:

To determine the effectiveness of health education program of diabetic children& their families.

Design of study:

An intervention study.

Subjects:

The present study will be conducted on 50 children with type1 DM, and their families who attended to national institute for Diabetes& Endocrinology from the 1st of July 2015 to the end of June 2016 after fitting the inclusion and exclusion criteria.

Inclusion criteria:

Cases diagnosed as type I diabetes mellitus. Age, (6- 10) years. HbA1c> 9%. Diabetes duration>1month. IQ score higher than 70.

Methods:

All patients will subjected to: Full medical history taking, Clinical examination. Laboratory investigation: fasting blood sugar& 2h post-prandial, Glycated hemoglobin (HA1c). WHO Quality of Life Assessment (The WHOQOL- 100 quality of life assessment was developed by the WHOQOL Group).

Statistical Analysis:

The collected data will be organized, tabulated and analyzed using the statistical package for the social science (SPSS) on the computer (SPSS, 2011).

Ethical consideration:

Written informed consent will be obtained from parents after explanation of the aim of the study and its benefits.

Results:

Table (1) Children distribution according to general health

		No.	Percent
General Health	Good Before	25	50.0
	Good After	24	48.0
	Fair Before	24	48.0
	Fair After	18	36.0
	Very Good Before	1	2.0
	Very Good After	8	16.0
	Total	50	100.0

Table (2) Children distribution according to high blood sugar before and after the program

		No.	Percent
Severely high blood sugar> 300 before	Yes	36	72.0
	No	14	28.0
	Total	50	100.0
Severely high blood sugar> 300 after	No	47	94.0
	Yes	3	6.0
	Total	50	100.0

Diabetic children were suffering more severely high blood sugar before the program implementation.

Table (3) Mean value and SD of glycated hemoglobin, fasting blood sugar and 2h post-prandial (n= 50)

		Mean	±S. D.	P Value
Pair 1	Ha1c. Before	9.2	1.79	0.000
	Ha1c. After	12.4	2.5	
Pair 2	Fbs Before	131.0	32.9	0.000
	Fbs. After	179.4	37.3	
Pair 3	2hpp Before	225.5	51.9	0.004
	2hpp. After	300.7	68.5	

Shows significant improvement in the glycemic control in diabetic children after the program.

Table (4) Mean& SD of physical, psychological, social and environmental health (n= 50).

		Mean	±S. D.	T- Test	P Value
Pair	Phy. Before	21.840	2.46	9.2	0.000
	Phy. After	25.240	2.10		
Pair	Psy. Before	16.760	2.20	6.6	0.000
	Psy. After	18.680	2.46		
Pair	Soc. Before	9.940	1.39	3.7	0.001
	Soc. After	10.400	1.16		
Pair	Env. Before	19.000	3.98	15	0.000
	Env. After	23.900	3.09		
Pair	Gh. Sum. Before	72.280	8.91	7.9	0.000
	Gh. Sum. After	84.640	7.60		

There was improvement in the 4 domains of WHOQOL questionnaire in diabetic children and their families comparing themselves before the program.

There is significant correlation in the improvement of WHOQOL according to the improvement of general health& the main 4 domain in those diabetic children and their families after the program.

Discussion:

Like free diabetes care and self- monitoring of blood glucose played a significant role. This is supported by the findings of Dehayem et.al.

(2012) who showed that blood glucose frequent monitoring led to a significant reduction in HbA1c levels in diabetic children. Also, the education of patients may have a positive impact on glycemic control (Mancuso& Caruso- Nicoletti, 2003).

Brosowska B et.al. (2013) proved that the level of health knowledge had an influence on metabolic control only in children with good or satisfactory HbA1c. Additional operation should be targeted to patients with unsatisfactory metabolic control.

Results suggest that a better glycemic control could be a tool for enhancing health status as the statistical results found high significant correlation improvement in the general health and the main 4 domains of WHOQOL questionnaire "Physical, psychological, social and environmental domains" in diabetic children& their families after the program comparing themselves before that.

Structured education should be available to all people with diabetes at the time of initial diagnosis, Education should be provided by an appropriately trained interdisciplinary team (Franklin et.al., (2006), telephone reminders and support but is used most effectively in interactive modes (Northam et.al., 2006). Group education may be more cost effective and enhanced by peer group or school friendships (Knowles et.al., 2006).

In the present study, there is no significant difference in type I diabetes between males and female and therefore there is no sex related difference in type I diabetes. There are high significant correlation between poor glycemic control and diabetic complications, poor rate of quality of life and this finding was in agreement with McPherson et.al. (2008) who reported that good metabolic control during childhood and adolescence is crucial for the future health and life quality of these patients. There are many complications as long term micro- and macro vascular complications are challenging health problems which affect both quality of life and life expectancy in diabetic patients.

Kann and Brener (2001) reported that education for health begins with people. It hopes to motivate them with whatever interests they may have an improving their living conditions. Its aim come is to develop in them a sense of responsibility for health conditions for themselves as individuals, as members of families, and as communities.

Parameters such as age, level of education, duration of diabetes, glycemic control, and the presence or absence of diabetes acute complications do not significantly affect the total score of the HRQoL and they recommend developing and testing new interventions that together with the diabetes treatment, could lead to an overall improvement in patients' QoL.

There was another variable that significantly affect the affect the awareness of families of children with type I DM and their quality of life was the socioeconomic status, as lower socioeconomic status which was measured by income predict lower level of quality of life and these come in adherent with the Maddigan SL et.al. (2005).

Conclusion:

Health education programs are effective in increasing knowledge and awareness of children with type1 diabetes and their families and improving their quality of life.

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