ASSESSMENT OF KNOWLEDGE REGARDING LIFESTYLE MODIFICATION FOR CHILD WITH TYPE 1 DIABETES AMONG CAREGIVERS

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Abstract

Objective – The purpose of this study was to find the Knowledge of life style modification for children with type 1 Diabetes among their Caregivers

Research Design and Methods - A pilot study was conducted on 20 Caregivers of child with Type 1 Diabetes. Knowledge of Caregivers regarding lifestyle modification for child with Type 1 Diabeteswas assessed in Paediatric OPD using self reported Questionnaire. The laboratory value of HbA1c in children was also recorded.

Result-The study show that maximum caregivers (95%) has average knowledge about life style Modification practices forchild with type 1 Diabetes and only 5% has good knowledge. The HbA1c level of children was also recorded which an indicator of glycemic control is in past three months and it was found to be poor in 18 children (90%) and the value was more than 8% it was found good in 2 children (10%) and the value was between 7-8%.

Conclusion - The knowledge of life style Modification practices forchild with type 1 can help in maintaining the Blood sugar level in child and also to maintain the Glycemic control with Insulin therapy, diet, Physical activity, prevention and management of Hypoglycemia which can prevent long term complications in children.

Keywords:- Type1 diabetes, lifestyle modification, glycemic control

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Eur. Chem. Bull. **2023**, *12(Special Issue 5), 584 – 589*

584

Introduction-
Children's are future of tomorrow, hence need to be healthy. Type 1 diabetes is a disease which occurs due to destruction of insulin secreting pancreatic β cells. In 2013 the report given by International Diabetes Federation, in India 67,700 children less than 15 years of age are suffering with type 1 Diabetes and 10,900 are newly diagnosed per year. The incidence of type 1 diabetes as per Karnataka Diabetes Registry (1995 - 2008) is 308 per 100,000 people in India. It also reports that there is a huge gap in practice of caring the patients with type 1 diabetes and the International standard of care which results in high HbA1c level.

Lack of knowledge among children and caregivers also leads to more Microvascular complications like Retinopathy, Neuropathy, and Nephropathy Macrovascular Complications are Coronary artery disease, cerebrovascular disease and peripheral vascular disease. hence the investigator felt the need of assessing the knowledge of caregiver based on which teaching can be given which will be helpful to decrease the further morbidity and mortality.

Review of Literature
A study was conducted on Adolescents in Delhi. It was a cross sectional study which was conducted in community set up, in which 'Knowledge, Attitude, and Practice of adolescents were assessed regarding Diabetes and Hypertension'.

Adolescents who were in between the age group of 10 to 19 years were included in the study. Around One thousand and five adolescents, who were residing in 3 urban neighborhoods of central Delhi, were selected for the study.

A semi structured questionnaires was used to collect the data. Every second house was selected as proportionate to population size and the eldest adolescent was selected by house to house survey.

The findings of the study shows that majority of the adolescents were having lack of knowledge about diabetes (85.6%) and hypertension (84.6%). Half of the adolescents accepted that diabetes and hypertension were serious illnesses (49.5% and 49.9%). 38.1% and 37.3 % adolescent agreed that diabetes and hypertension can be effectively managed. Regarding regular exercise and balanced dietary pattern it was followed by only 27.1% and 20.6% of subjects.

It was also found that adolescents with higher level of education were having higher more Knowledge of diabetes and hypertension.

A similar survey type of study was conducted at three centers in Dhaka i.e BIRDEM (Bangladesh Institute of Research and Rehabilitation for Diabetes, Endocrine and Metabolic Disorders). Knowledge, Attitude, and Practice regarding Diabetes Mellitus was assessed among 202 patients with type 1 diabetes. A structured questionnaire was used to assess knowledge, attitude and practice along with socio demographic data, clinical history of diabetes and clinical data reflecting diabetes Complications of the patients Knowledge of sign and symptoms of diabetes was present in 97.52% patients, 78.71% patients were having awareness about the risk factors of diabetes and around 51.49% patients were having knowledge about causes of diabetes. Awareness regarding symptoms of hypoglycemia was present in 88.61% patients and only 27.72 patients knew their HbA1C level.

Regular routine follow up diet and exercises were followed by 99% patients. The glycemic control which was check by HbA1c level was poor among 46.67% of patients and 62.38% patients never performed self –blood sugar test due to lack of knowledge or lack of feeling of necessity to do it. .

Research Design and Methods
Setting
This Pilot study was conducted at Dr.D.Y.Patil hospital Pimpri Pune, Vatsalya hospital Landewadi Bhosari Pune and Dr Anu Gaikwad Clinic Bhosari Pune from 9 December 2020 to 30 June 2021on 20 children with type1 diabetes and their Caregivers. The reason for selecting this hospital is geographic proximity and availability of children with type 1 diabetes.

Formal permission was taken from hospital authority to conduct the study.

The caregiver who has child with type 1 diabetes for more than 6 months and those who are willing to participate were included in the study.
The children within the age group of 5 to 15 years were included in the study.

Sampling technique –
Purposive sampling technique is used for the study

Eur. Chem. Bull. **2023**, *12(Special Issue 5), 584 – 589*

585

Tool and technique -

The knowledge of caregiver was assessed with the help of self structured questionnaire, consisted of section I which was related to Demographic variables of children and their caregivers and clinical profile of the child and the section II with 28 questions on the life style modifications required in children with type 1 diabetes which were related to diet, insulin therapy, Blood sugar monitoring, prevention and management of hypoglycaemia in children with type 1 diabetes. Pre-test was administered to the caregivers to collect the data related to knowledge of life style practices for child with type 1 diabetes.

The glycemic level of children was also recorded. BMI is measured by using IAP growth chart which is based on height and weight of the child.

Inclusion and exclusion criteria-

- The child who has type 1 diabetes for more than 6 months are included in this study.
- Caregivers who are not willing to participate and those who has child with type 1 diabetes less than 5 years and more than 15 are excluded from the study

Ethical approval –

Ethical approval for the study was obtained from ethical committee of Dr .D.Y.Patil University

Sample Calculation –

This study is done as pilot study on 10 % of actual study sample which is 200, hence sample size is 20.

Tool validity and Reliability

The tool is prepared by author based on the content referred through review of literature and text book.

Content validity of the tool is done from 10 experts from Nursing and Medical field. Reliability of the tool was done by using Split half technique .the questionnaire which consists of 28 items was administered to 20 caregivers of child with type 1 diabetes. The scoring was divided in odd no and even number questions.

The R value is found to be 0.88 hence the tool is reliable. The formula used for reliability was spearman brown prophecy.

Results–

The analysis of Demographic variables of caregivers is summarized in table no 1A

Table 1AFrequency and percentage distribution of Demographic Variables of Caregivers of Children with Type 1 DiabetesN=20

Sr. No	Demographic Variables	Category	Frequency(f)	Percentage (%)
1	Age	21-30 years	9	45.00
		31-40 years	6	30.00
		41 & above	5	25.00
2	Gender	Male	4	20.00
		Female	16	80.00
3	Relation with the child	Mother	16	80.00
		Father	3	15.00
		Grandmother	0	0.00
		Grandfather	0	0.00
		Uncle	1	5.00
		Auntie	0	0.00
		Any other specify	0	0.00
4	Monthly Income	<10000/-	10	50.00
		10001-20000/-	6	30.00
		20001/- - 30000/-	3	15.00
		30001/- & above	1	5.00

Table no 1A show that most of the samples were between the age of 21-30 years (45%), maximum Samples were Females (80%), the Relation of Maximum Caregivers with the child with Type 1

Diabetes was Mother (80%), and the Monthly Family Income of Maximum Samples was less than Rs 10,000 (50%).

Table 1B in includes the analysis of Demographic Variables of Caregivers of Children with Type 1 Diabetes

Table 1BFrequency and percentage distribution of Demographic Variables of Caregivers of Children with Type 1 Diabetes

SECTION I. Demographic variables of Caregivers of Childrenwith type I Diabetes   N=20

Sr. No	Demographic Variables	Category	Frequency(f)	Percentage (%)
5	Education of the Primary Care giver	Primary (up to 4th std)	6	30.00
		Secondary (5th to 10 std)	9	45.00
		Higher secondary (11th to 12th std)	4	20.00
		Graduation and above	1	5.00
6	Occupation of Primary Caregiver	House maker	13	65.00
		Laborer	3	15.00
		Service	4	20.00
		Business	0	0.00
		Any other	0	0.00
7	Resident of Primary Care giver	Urban	12	60.00
		Rural	5	25.00
		Semi Urban	3	15.00

Table 1B show that Education of maximum Caregivers was till Secondary (45%), the Maximum Caregivers was homemakers (65%) and the Residence of maximum Caregivers was Urban (60%).

Table 2A includes the analysis of Demographic variables of children with type I Diabetes Frequency and percentage distribution of Demographic variables of children with type I Diabetes N=20

Sr. No	Demographic Variables	Category	Frequency(f)	Percentage (%)
1	Age	5-7	10	50.00
		8-10	4	20.00
		11-13	4	20.00
		14-16	2	10.00
2	Gender	Male	9	45.00
		Female	11	55.00
3	BMI	Underweight	1	5.00
		Healthy weight	4	20.00
		Risk of Overweight	10	50.00
		Overweight	5	25.00
4	Age at which diabetes diagnosed	<4years	10	50.00
		5-8	6	30.00
		9-12	3	15.00
		13-16	1	5.00

Table 2A show that maximum Children were between the age of 5-7 years (50%), Most of the children were Females (55%) the BMI of most of the children was in risk of overweight (50%) and age at which Diabetes was diagnosed in most of the children was less than 4 years (50%)

Table 2B includes the analysis of Demographic variables of children with type I Diabetes Frequency and percentage distribution of Demographic variables of children with type I Diabetes N=20

Sr. No	Demographic Variables	Category	Frequency (f)	Percentage (%)
5	Duration of diabetes	Less than 1 year	11	55.00
		1-3 year	6	30.00
		3-5 years	1	5.00
		>5 years	2	10.00
6	Family History of type 1 diabetes	Yes	3	15.00
		No	17	85.00
7	If Yes, which family member is type 1 diabetic	Mother	0	0.00
		Father	2	66.67
		Both	0	0.00
		Sibling	1	33.33
		Any other	0	0.00
8	Hours of daily sleep	Less than 7 hr	1	5.00
		8-10 Hr	12	60.00
		More than 11 Hrs	7	35.00

Table 2B show that the duration of type 1 Diabetes in maximum children was for less than 1 year (55%) , the family history of diabetes was not present in maximum caregivers (85%) whereas father was diabetic in 66.67% . the duration sleeping hours in maximum children was 8-12 years (60%).

Eur. Chem. Bull. **2023**, *12(Special Issue 5), 584 – 589*

587

SECTION II

Table no 3 it includes the analysis of assessment of Caregivers knowledge of Life Style Modification practices forchild with type 1 Diabetes

Table 3- Mean and SD of knowledge of caregivers on Life Style Modification practices child with type 1 Diabetes.N=20

Level of knowledge	Score	Frequency (f)	SD
Poor	Less than 7	0	
Average	8-14	19	1.79
Good	15-21	1	
Excellent	22-28	0	

The above table shows that maximum (95%) Caregivers has average knowledge regarding Life Style Modification practices forchild with type 1 Diabetes and only 5% has good knowledge.
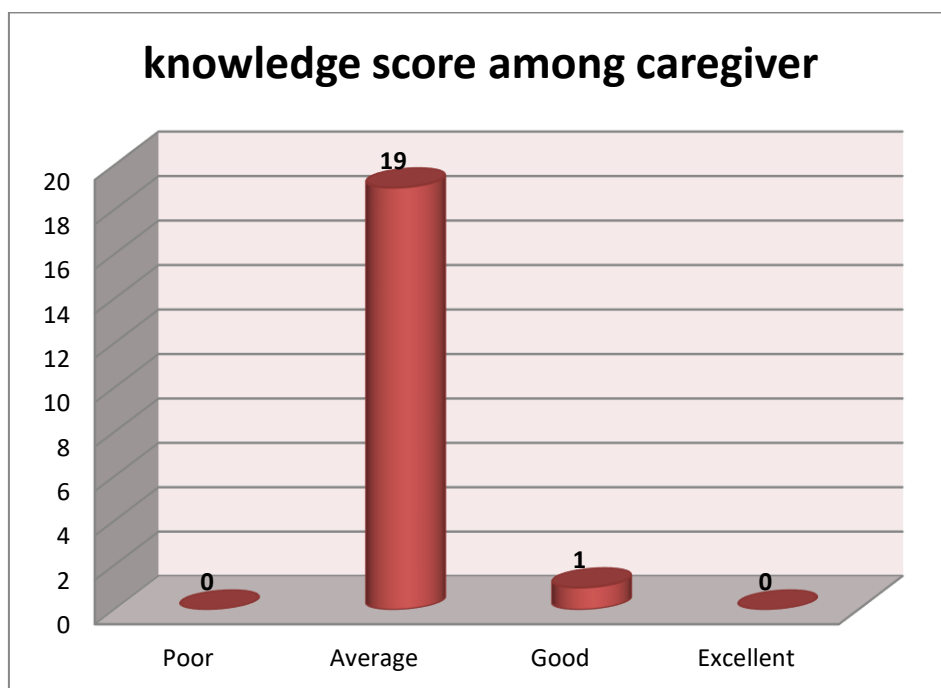

Fig1 Bar diagram showing frequency distribution of Caregivers knowledge of Life Style Modification practices forchild with type 1 Diabetes

This diagram show that maximum caregivers (95%) were having average knowledgeabout life style Modification practices forchild with type 1 Diabetes

The glycemic control of children

The laboratory value of HbA1c level of children was also recorded which an indicator of glycemic control is in past three months and it was found to be poor in 18 children (90%) and the value was more than 8% it was found good in 2 children (10%) and the value was between 7-8%.

Discussion –

The findings of this study is similar to the study done by Pretty Paul in which the knowledge and practices of diabetic care was assessed among Caregivers and their children. The result of the study shows that most of the caregivers had fair knowledge (64.4%) and fair practices (56.7%) and the mean knowledge score and practices score was 16.1±2.9 and 18.1±2.0[4]the glycemic control was

also checked by measuring HbA1C level which was found suboptimal (HbA1C level between 7.5 – 9%) among 41.6% and poor (HbA1C level more than 9%)among 39.3% children. another similar study done byTonyushkina et al on youth with type 1 diabetes and their caregivers shows that the knowledge of diabetes was average score of 86% among children and 84% among caregivers[5]

Conclusion-

The study concludes that caregivers of children with type 1 diabetes has average knowledge regarding life style modification that required for children with type 1 diabetes which may leads to poor glycemic control in children and development of acute and chronic complications of

Eur. Chem. Bull. 2023, 12(Special Issue 5), 584 – 589

588

children so it is necessary to educate them regarding life style modification needed.

Conflict of Interest
The author declares that there is no conflict of interest with respect to the authorship and publication of this paper.

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