Effectiveness of an education program for Caregivers Knowledge Related to Management of Children with Growth Hormone Deficiency in Outpatient Endocrine Clinics

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فاعلية البرنامج التثقيفي لمعارف مقدمي الرعاية تجاه التدابير العلاجية لاطفال نقص هرمون النمو في العيادات الخارجية للغدد الصم

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المستخلص

الهدف: تهدف الدراسة تقييم معارف مقدمي الرعاية حول التدابير العلاجية للأطفال الذين يعانون من نقص هرمون النمو من خلال فاعلية البرنامج التعليمي لهم وتحديد العلاقة بين فاعلية البرنامج و المعلومات الديموغرافية لهم.

المنهجية: دراسة شبه تجريبية في العيادات الخارجية للغدد الصم في مستشفى حماية الاطفال التعليمي في مدينة الطب، ومستشفى الطفل المركزي التعليمي ومدينة الامامين الكاظميين والمركز التخصصي للغدد الصم والسكري في الكرخ والمركز التخصصي للغدد الصم والسكري في الرصافة للمدة من السادس من تشرين الثاني   ٢٠١٧الى الاول من ابريل من ٢٠١٩

اختيرت عينة غير احتمالية (حدثية) تتكون من (٨٠) مقدم الرعاية للطفل اللذين يراجعون العيادات الاستشارية للغدد الصم والمراكز المتخصصة للغدد الصم والسكري

جمعت المعلومات من خلال استخدام استبانه مصممة ومكونة من جزئين ، الجزء الاول شمل (٧) فقرات للمعلومات الديموغرافية لمقدم الرعاية والجزء الثاني شمل(٣٣) سؤال اختيار من متعدد لمعارفهم   ، حددت مصداقية الاستبانة خلال (١٦) خبير و حددت ثباتيها من خلال الدراسة المصغرة.

استخدمت إجراءات التحليل الإحصائي الوصفي وإجراءات التحليل ألاستنتاجي من خلال برنامج الحزم الإحصائية للعلوم الاجتماعية (SPSS)النسخة ٢٣.

النتائج :أظهرت النتائج إن تطبيق البرامج التثقيفي كان فعالا من خلال تطوير و تحسين معارف مقدم الرعاية مقارنه قبل تطبيقه، وكما اظهرت النتائج ان معارفهم قبل تطبيق البرنامج كانت غير مقبولة في اكثر فقرات الاستمارة و قد تغيرت الى معارف وممارسات مقبولة مما يعكس تأثير البرنامج، واظهرت النتائج وجود علاقه ما بين عمر مقدمي الرعاية ، عدد الأطفال في العائلة و تاريخ بدء العلاج بينما اظهرت النتائج عدم وجود علاقه بين جنس مقدمي الرعاية و مستواهم التعليمي والحالة الاقتصادية مع التدابير العلاجية .

التوصيات: أوصت الدراسة بضرورة التشخيص المبكر عن نقص هرمون النمو للأطفال وتوفير ممرضين متخصصين في العيادات الاستشارية والمراكز المتخصصة لإعطاء رعاية متكاملة للأطفال والعمل على تثقيف الأطفال و ذويهم حول ملاحظة علامات واعراض نقص الهرمون للأطفال مبكرا وتثقيفهم حول التدابير العلاجية للطفل .

الكلمات المفتاحية: تقييم معارف مقدمي الرعاية، نقص هرمون النمو، التدابير العلاجية، المراكز والعيادات الصحية الخارجية للغدد الصم

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Abstract:

Objectives: The study aims to assess and evaluate the caregivers knowledge about management of the children with growth hormone deficiency and to find out the relationship between caregivers kowledge and caregivers age, gender, number of individual in house hold, Date of treatment started ,Caregivers level education and economic status
Methodology: Quazi expermental study design was carried out at (Child's Central Teaching Hospital, Medical City of Al Imamian Al Khadhmain Teaching Hospital, and National Centre for Treatment and Research of Diabetes,Specialized Center for Endocrine Diseases and Diabetes, and Department of Medical City Children Welfare Teaching Hospital started from novomber 6th , 2017 through july   1st , 2018 , accidental (non-probability) sample of (80) caregivers who were   attending to outpatient endocrine clinics and centers.The data were collected through the

use of constructed questionnaire , which consist of two parts (1) demographic characteristic (6)items (2) caregivers knowledge which consist from 3 sections of (33) items .Validity of the study was determined through the panel of (16) experts and the reliability of the study questionnaire through the pilot study.Descriptive statistical and inferential analysis by using spss , version 23

Results: The findings of the study indicated that there is statistical significant difference between caregivers knowledge and their demographic characteristic except gender, level of education ,and economic status.

The study recommended that: necessary for early detection of growth hormone deficiency for children, providing special nurse in endocrine clinics and center to give high quality care for children and education for children and their caregivers about signs and symptoms of growth hormone deficiency

Key words: caregivers assessment knowledge, growth hormone deficiency, management, endocrine clinics and centers.

Introduction

Growth is vital indicator of general health status of the children. Itis a consider as" process of physical maturation resulting an increase in size of the body and various organs. It accurse by multiplication of cells and an increase in intracellular substance it is quantitative changes of the body." Growth rate different from children to another depend on many factors that effect on growth. There is many factors that effect on growth which include age, gender, race, hormones, nutrition, sleep, exercise, diseases, family condition, and economic status. Any disturbance for factor lead to growth failure (GF). Growth failure is a pathologic state of abnormally low growth rate over time. It is may effect on health status of the children [1].

Assessing pediatric wellbeing or growth assessment, through anthropometric measurement like height, weight, head circumference, chest circumference, abdomen circumference, skin fold thickness, body mass index, wrist circumference, bone age and growth chart". Height , weight, and bone age most common for use to detect of growth hormone deficiencies [2] , [3] .

Growth hormone is a peptide hormone that stimulates growth, development. Growth hormone is synthesized in the somatotropic cells, which are found in the anterior pituitary gland. Any disturbance for rate growth hormone effect on growth and development of the children [4] .

Growth hormone deficiency (GHD) is a result of dysfunction of the hypothalamic pituitary axis either at the hypothalamic or pituitary levels and the gland un able to produce enough growth hormone. Low level of growth hormones can effect on health status (growth and development) of the children [5] .

Methodology

Design of the Study: Quazi experimental study design used to conduct the study.

Setting of the Study: Study carried out in outpatient endocrine clinics and centers at Baghdad City hospitals.

Sample of the Study: Accidental (non-probability) sample of (80) caregivers companion their children with growth hormone deficiency and agreed to participate in the study.

Instrument: A study instrument was designed and constructed by the researcher to measure the variables underlying the present study. A construction after a review of literature and related studies. The questionnaire format consisted of two parts Caregivers Demographic Characteristic and their knowledge questionnaire .

First part:

A demographic data sheet, consisted of (6) items, which included caregiver age, gender , level of education, date of treatment started, number of individual in house hold and their economic status

Second part:

knowledge questionnaire designed to measure the caregivers knowledge and it consists of (33) items that concerned with: of growth hormone replacement therapy dosage, rout of administration and the side effects, child nutrition status exercises and it is effect on child height and growth, and sleep disturbance

Validity: Content validity for the early developed instrument was determined through the panel of experts (who have had more than 5 years' experience in their Specialty field to investigate the clarity, relevancy, and adequacy of the questionnaire in the order to achieve the present study's objectives. A preliminary copy of the questionnaire was designed and presented to (16) experts. They were (7) faculty members from college of nursing /university of Baghdad, (6) endocrinologist faculty member from ministry of health (Central child teaching Hospital) (1)

Endocrinologist from Babylon collage of Medicine, (1) nutritionist from AL-kindy collage of medicine and (1) psychologist from Ibn Rushed Hospital.

Reliability: Determination of reliability of the questionnaire was based on test –retest method.

Statistical Methods: A statistical program such as SPSS (Statistical Package for Social Science) version 23 was used to analyze the data through descriptive data analysis that included frequencies, percentages, and arithmetic mean as well as inferential analysis, person correlation coefficient and T-test.

Ethical Considerations

The Institutional Review Board (IRB) at the University of Baghdad, College of Nursing approved the study to be conducted. The study protocol meets both the global & the Committee on Publication Ethics(COPE) standards of respecting humans subjects' rights.

Results:

Table (1): Distribution of caregivers general information

Variables	Frequency	Percent
Caregiver's age (Years): **Mean (SD): 39.36 ± 6.93**		
24-31	9	11.25
32-39	**35**	**43.75**
40-47	21	26.25
48-55	15	18.75
Total	80	100.0
Caregiver's Gender		
Male	21	26.25
Female	**59**	**73.75**
Total	80	100.0
Caregiver's Education		
Unable to read and write	9	11.25
Read and write	8	10.0

Primary School graduate	**30**	**37.5**
Secondary school graduate	20	25.0
Bachelor's degree	7	8.75
Graduate degree	6	7.5
Total	80	100.0
Number of individuals in household:		
M (SD): 7.1 ± 2.67		
4-5	2	2.5
6-7	20	25.0
≥ **8**	**30**	**37.5**
Total	28	35.0
	80	100.0
Date of treatment started		
<6 month	19	23.6
6- 12	**27**	**33**
13-19	15	18.8
20-26	7	8.6
More than 26	12	16
Total		
Family's Socioeconomic Status		
Low	37	46.25
Moderate	30	37.5
High	13	16.25
Total	80	100.0

The table shows that the caregiver's age more than two-third their age of 32-39-years-old (n = 35; 43.75%).Regarding to caregivers' gender, most of them are females (n = 59; 73.75%) . While caregivers' level of education, less than two-third are primary school graduates (n = 30; 37.5). Regarding the kinship to the children, most are child's mothers(n = 54; 67.5%) .   In relation to the number of individuals in household half of the study sample with their families consist of ≥ 8 members (n = 30;   Regarding the onset of the treatment there is two third 33% of the study sample started their treatment (6-12) month (n = 27; With respect to the family's socioeconomic status (SES), less than   half of the study sample were low SES (n = 37; 46.25%).

Table(2): Distribution and Significant Differences in Caregivers' Knowledge of Management for Children with Growth Hormone Deficiency According to the Result of an Educational Program and Follow up

Knowledge	N	M	SD	Sig
Pre-test	80	37.4625	3.73469	.000
t=89.719 df=79 p-value = .000, .000, .000				
Post-test 1	80	63.6375	3.86888	.000
t=147.121 df=79 p-value = .000, .000, .000				
Post-test 2	80	64.8000	1.07209	.000
t=540.618 df=79 p-value = .000, .000, .000				

M= Mean, N = number, SD= Standard Deviation ,t= t test, d.f. = degree of freedom, sig = significant

The table shows that there is a noticeable increase in caregivers' knowledge over time (Mean = 37.4625, 63.6375, 64.8000) respectively and there are statistically significant differences in caregivers' knowledge over time (p-value = .000, .000, .000) respectively.

Table (3): Correlation knowledge- caregiver's age, number of family members, date of treatment start and caregiver's knowledge

Variables	Management Pre-test	management Post-test 1	management Post-test 2
2. Caregiver's age	.220	.259	.285
3. Number of individuals in household	.239⁻	.127⁻	.146⁻
4. . Date of treatment started	.493	.315	.285

Correlation is significant at the 0.01 level (2-tailed).
Correlation is significant at the 0.05 level (2-tailed).

The table shows that there is a statistically significant positive correlation between child's age and their knowledge in the pre-test post- test 1 post- test 2 (r = .222, .248, .267 ; p-value < 0.05). On the other hand, there is a statistically significant positive correlation between caregivers' age and their knowledge in the pre-test post- test 1 post- test 2 (r= 220, .259, .285; p- value< 0.05).There is a statistically significant inverse correlation between number of individuals in household and caregivers' knowledge in the pre-test , post- test 1, and post- test 2 (r = .239⁻ , .127⁻ , 146-; p-value < 0.01) , there is a statistically significant positive correlation between . Date of treatment started caregivers' knowledge of growth hormone in the pre-test , post-test 1 post-test2 (r = .493, .315, .285 ; p-value < 0.05).

Table(4): Distribution and Significant Difference in Caregiver's Knowledge for Management of Children With Growth Hormone Deficiency and Their Gender According to the Result of Educational Program and Follow up

Knowledge	Caregiver's Gender	N	M	SD	Std. Error Mean
Pre-test	Male	21	38.3810	2.61680	.57103
	Female	59	37.1356	4.02774	.52437
F=1.844			**t=.318**	**df = 78**	
S=1.844			**1.606**	**54**	
Post-test 1	Male	21	64.0476	2.08509	.45500
	Female	59	63.4915	4.33658	.56458
F=2.079			**t= .563**	**df= 78**	
S= .079			**.767**	**70**	
Post-test 2	Male	21	64.8571	1.01419	.22131
	Female	59	64.7797	1.09965	.14316
F= .251			**t=283**	**df= 78**	
S= 1.215			**.294**	**37.949**	

M= Mean, N = number, SD= Standard Deviation ,t= t test, df = degree of freedom ,F=

The table shows that there is is no statistical significant difference in caregivers' knowledge between caregivers' gender group over time.

Table(5): Differences and Significant in Caregivers' Knowledge among Caregivers' Levels of an Education

ANOVA						
Knowledge		Sum	df	M	F	Sig
Pretest	Between Groups	203.700	5	40.740	3.356	.009
	Within Groups	898.188	74	12.138		
	Total	1101.888	79			
Posttest I	Between Groups	136.214	5	27.243	1.927	.100
	Within Groups	1046.274	74	14.139		
	Total	1182.488	79			
Posttest II	Between Groups	6.405	5	1.281	1.123	.356
	Within Groups	84.395	74	1.140		
	Total	90.800	79			

M= Mean, df =degree of freedom, sig= significance (p-value = .009), Sum = Summation of Squares

The table reveals that there is a statistically significant difference in caregivers' knowledge among their level of education groups (p-value =.009). In the post-test 1 and post-test 2, there is no statistically significant difference in caregivers' knowledge and their level of education.

Table(6) :Differences and Significant in Caregiver's Knowledge for Children with Growth Hormone Deficiency and their Socioeconomic Status According Result of an Educational Program and Follow up

ANOVA						
Knowledge		**Sum**	**Df**	**Mean**	**F**	**Sig**
Pre-test	Between Groups	127.897	2	63.948	5.056	.009
	Within Groups	973.991	77	12.649		
	Total	1101.888	79			
Post-test 1	Between Groups	3.355	2	1.677	.110	.896
	Within Groups	1179.133	77	15.313		
	Total	1182.488	79			
Posttest 2	Between Groups	.065	2	.033	.028	.973
	Within Groups	90.735	77	1.178		
	Total	90.800	79			

df =degree of freedom, sig= significance , sum = Summation of Squares

The table shows that there is a statistically significant difference in caregivers' knowledge among their socioeconomic status in the pre-test time (p-value = .009). In the post-test 1 and post-test 2, there is no statistically significant difference in caregivers' knowledge among their socioeconomic status.

Discussion

Effectiveness of an education program for caregivers that improve knowledge and understand parental perceptions and beliefs concerning management for children with growth hormone deficiency because the parents are first person responsible of caring to their children [6].

Regarding for caregiver's age the highest proportion of the study sample (43.75%) was (32- 39) years old (table 1). Concerning the caregivers gender the most of the study sample are(73.75%) was female (Table1).The female caregivers most common who provide care for children in circumstances in our society because the

father most time out the house for responsibility and for job.

Regarding the educational status, less than two third (37.5%) of the sample was Primary School graduate, (Table1). Researcher stated that some predisposing factors of growth hormone deficiency can be increase in low education level families and can be come with wrong believes and value that negatively reflect on children health status.

Regarding the family number, most of the study sample (72.5%) 6-8 number of family. Researcher show that most of Iraqi families consist from more than five members according their attitude, value and believes.

Regarding the family's socioeconomic status, most of study sample (83.30%) was low to moderate socioeconomic this findings agree with study which found 95% of the cases had low to moderate socioeconomic [7]. According scale of socio economic status researcher found most of families have poor housing conditions, some families not have a house, and family income that not enough.

The findings indicated that there was moderate caregivers knowledge about management of children with growth hormone deficiency (table 2)

The findings indicated that there was significant association between caregivers knowledge their age, that training of caregivers gradually increase through the proceeding in of age, (p value <0.05) (table3),

This result come with that training of caregivers gradually increase and explanations of difficulties to their specially an intervention descriptions [7].

The findings indicated that there was no significant association between caregivers knowledge and their gender (pretest, post 1and post 2) program and follow up (table 4) (p value >0.05) this result agree with[8]

Table (3) reflected the findings which indicated significant correlation between caregivers and date of treatment started (pre-test, post 1and post 2) program and follow up (p value <0.05) most of caregivers have knowledge about some aspect for treatment result from their experience and recurrent attending to the clinic and center and this supported by Essa (2010) reported that there is a significant response in the linear growth(height) after treatment patients with (GHD) [9].

The findings of the present study indicated that there was inverse correlation between care givers and the number of individuals in hose hold (pretest, post 1and post 2) program and follow up (p-value < 0.01) (table (3). Reflected this correlation. The parents belong to big or extended family have more responsibilities and duties than who belong to small number of children in the family.

Table (5) reflects that there was significant differences between caregivers and their education level in pretest1(p value <0.05), but there are no significant association between care givers and their education level in post 1and post 2) program and follow up (p value >0.05) this result might be due to simplicity of education program, simple word uses to suitable with all level education for caregivers. to be reachable for all level of caregivers and children education and achieve a high level of understanding.

Table(6) indicated that there was no statistical significant between caregivers and their socioeconomic status (pretest, post 1and post 2) program and follow up (p value >0.05). Socio economic status of the family has not effect on program but it has an effect on life style of children and their caregivers.

Recommendations: Provide specialized nurse in endocrine centers and clinics to give high quality care , implementation the educational program to educate children and their families at schools, nurseries and other institutes, and encouragement of children with growth hormone deficiency and their care givers about management through initiate of training session as group and incentive for children by educational media

like CD pamphlet, about normal range of height, weight, nutrition , exercise , and medication .

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