



Evaluations of Intervention Program on Nurses' Practices about Care of Children with Diabetic Ketoacidosis

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ABSTRACT

Objective(s): To evaluate of intervention program on nurses' practices about care of children with diabetic's ketoacidosis.

Methodology: A quasi-experimental design that applied at teaching hospitals for pediatric in AL Ramadi city to establish the Effectiveness of Intervention Program on Nurses' Practices about Care of Children with Diabetic Ketoacidosis from 3th of March 2022 till 20 of March 2023. Non-probability (purposive) sample of (50), likewise was alienated into the study (experimental) group. The study group included (50) nurses non-randomly selected from AL-Ramadi Teaching Hospital.

A preliminary study has conducted in AL-Ramadi Teaching Hospital The whole number of nurses was (20) for 4 days, by using questions of the open-ended answers. The validity of the questionnaire and educational program are tested by (25) experts from related fields.

Results: Reliability of survey and program tried through a pilot investigation of It included (10) medical caretakers, non-randomly selected from AL-Ramadi Teaching Hospital (this sample was excluded from the original study sample) by using test-retest technique and Cronbach's Alpha measurement, the results for practice was (0.933).

The study findings have proved the effectiveness of the program through high percent obtained between the pre-test and post-test1 and post-test 2. It was sample study group results in pre-test is 31.76% (19) with regard to them on a not acceptable level, but post-test 1 is 77.04% (26) through esteem to them on a good level, and also post-test 2 remains 80.98% (24) with esteem to them on a good level.

Conclusions: The study concluded that the intervention program has significant effect on nurses practice about diabetic's ketoacidosis. It is improving nurses practice from poor to good practice after implementation of the intervention program.

Recommendations: the study has recommended that training courses and workshops for nurses of the hospital teaching of pediatric regarding Diabetics Ketoacidosis care, increasing nurses' numbers especially those who hold nursing Bachelor's degrees to work at pediatric teaching hospitals for their ability and background.

تقويم برنامج تداخلي على ممارسات الممرضين حول العناية بالأطفال المشخصين بالحمض الكيتوني السكري

المستخلص:

الاهداف: لتقويم برنامج تداخلي على ممارسات الممرضين حول العناية بالاطفال المشخصين بالحمض الكيتوني السكري .
منهجية البحث: تم استخدام البحث الكمي وتصميم التقويم الوصفي في هذه الدراسة، وأجريت الدراسة في مستشفى النسائية والأطفال بمدينة الرمادي لتقويم فعالية برنامج التداخلي على ممارسات الممرضين حول رعاية الأطفال المصابين بالحمض الكيتوني السكري من 2 مارس الي 2022 مارس 2023. غير احتمالية (عينة غرضية قوامها (50) ، كما تم عزلها ضمن مجموعة الدراسة (التجريبية). ضمت مجموعة الدراسة (50) ممرضة وممرض تم اختيارهم بشكل عشوائي من مستشفى الرمادي التعليمي للنسائية والاطفال. أجريت دراسة أولية من مستشفى الرمادي التعليمي للنسائية والاطفال بلغ العدد الكلي للممرضين (20) لمدة 4 أيام ، وذلك باستخدام أسئلة الأجوبة المفتوحة. تم اختبار صلاحية الاستبيان والبرنامج التعليمي من قبل (25) خبيراً من المجالات ذات الصلة. **النتائج:** تم اختبار موثوقية الاستبيان والبرنامج من خلال دراسة تجريبية شملت (10) ممرضات ، تم اختبارهم بشكل غير عشوائي من من مستشفى الرمادي التعليمي للنسائية والاطفال (تم استبعاد هذه العينة من عينة الدراسة الأصلية) باستخدام تقنية الاختبار-إعادة الاختبار وقياس كرونباخ ألفا ، وكانت نتائج الممارسة 0.933). أثبتت نتائج الدراسة فاعلية البرنامج من خلال النسبة العالية التي تم الحصول عليها بين الاختبار القبلي والبعدي 1 والاختبار البعدي 2. وكانت نتائج مجموعة الدراسة في الاختبار التمهيدي 31.76% (19) فيما يتعلق بها في مستوى غير مقبول ، ولكن الاختبار اللاحق 1 هو 77.04% (26) من خلال التقدير لهم على مستوى جيد ، وأيضاً بعد الاختبار 2 يظل 80.98% (24) مع التقدير لهم على مستوى جيد. **الاستنتاجات:** خلصت الدراسة إلى أن برنامج التدخل له تأثير كبير على ممارسة الممرضات حول الحمض الكيتوني السكري. إنه يحسن ممارسة الممرضات من الممارسات السيئة إلى الممارسات الجيدة بعد تنفيذ برنامج التدخل.

التوصيات: أوصت الدراسة بعقد دورات تدريبية وورش عمل للممرضات في المستشفى لتدريب طب الأطفال فيما يتعلق برعاية مرضى السكري من الحمض الكيتوني ، وزيادة أعداد الممرضين وخاصة أولئك الذين يحملون درجة البكالوريوس في التمريض للعمل في المستشفيات التعليمية للأطفال لقدراتهم وخلفيتهم.

Introduction

Type 1 diabetes mellitus (T1D) is one of the most widely recognized ongoing illnesses of young life. In Croatia, there is a rising rate of T1D among youngsters and teenagers, in this way setting Croatia among the high-risk nations for T1D. A study distributed in 2014 showed that the frequency of T1D in Croatian kids matured 0-14 north of 2004-2012 was 17.23/100,000/year with a yearly increment of 5.87% and is higher than the European normal, which is 3.9% (1).

Glycemic DKA hospitalizations could have brought about an expansion in the quantity of hospitalized patients named having DKA, yet NIS doesn't have research center information to certify this speculation. This theory expects that DKA case definitions are consistently applied in clinical practice, which in a call for normalization of symptomatic standards for DKA was exhibited to be improbable (2).

Ketone bodies, while consistently present in blood, increment to pathologic levels when the body can't use glucose: low

blood glucose levels during fasting, starvation, overwhelming activity, or optional to an imperfection in the insulin creation. In type-2 DM, insulin creation might be typical yet underneath the level expected to shunt glucose into cells (3).

Generally statement of the DKA can be the main show of T1DM in recently analyzed patients. In any case, it is normally connected with an encouraging variable in patients recently known to have T1DM and on insulin treatment. This could be because of diseases or different sicknesses, issues with insulinization according to specialized, psychosocial issues, or due to other undercurrent occasions, like a medical procedure (4).

Methodology

Study Design:

A quasi-experimental design that implemented at the teaching hospitals for pediatric in the Ramadi city to ascertain the effectiveness of the interventional program on nurse's practices. Has regarded Diabetic's

ketoacidosis care from 3rd of March 2022 till 20th of March 2023.

Study Sample:

The non-probability convenient sample was connected in this study, that comprised (50) nurses from pediatric wards of Ramadi teaching hospital for pediatrics and maternity, likewise was alienated into the study (experimental) group. The study group included (50) nurses non-randomly selected from the nurses are exposed to a Ramadi Teaching Hospital for pediatrics and maternity.

Study Instrument

The study tool was constructed through intensive review of related literatures and previous studies, it includes: **Part I:** Socio-demographic data: nurses' age, gender, years of hospital service, years of emergency room experience, and training.

Part II: The last of instrument part represents as checklist involves (9) sections concerning nurses practice connected to standard procedure application for nursing care and management in pediatric according to standard guideline of WHO. This part of instrument is mostly constructed on the information related to the preliminary study results, literature review information, and the experts' opinion. This part contents.

Validity of the Study:

Content validity is determined by a panel of (25) experts were from Nursing Faculty / Baghdad University, Babylon University, medicine Faculty / al_Anbar University and expert from Pediatric Nutrition Research Institute in Baghdad.

Reliability of the Study:

The reliability of the still up in the air through the calculation of Alpha Cronbach's test (Alpha Connection Coefficient); interior consistency technique was utilized for deciding the dependability. The Alpha Relationship Coefficient was applied to decide the dependability of the current review instrument by use of Measurable Bundle for Sociology Program (IBM SPSS) adaptation 26.0.

Data Collection:

Nurses' practice measures are assessment needs through open-ended question. Data is mainly collected before the start of an interventional program, immediately after the completion of the program and pilot study.

After this Implementing the current interventional program, nurses' practice from a list of (9) items study group. Then the questions (2) parts were used as post-test 1 that was applied to on the completion of an interventional program for each of the study group that obtained the program. The post-test 2 is conducted of the study group that obtained the program. The gathered information was done from selected teaching hospitals in AL-Ramadi City pediatric wards. They were Ramadi Teaching Hospital, from the period from 6 up to the 9 of September/ 2022.

Data Analysis:

. The Social Science Statistical Package (SPSS) variant 25 used to dissect information of this investigation. For that the statistical approaches rummage-sale to analyze the data and evaluate the outcomes includes:

Descriptive Statistical Data Analysis:

- 1- The description of demographic structures is planned using frequencies and percentages.
- 2- The means then standard deviation are rummage-sale to approximation the data value.

Results**Table (1): Evaluation of Nurses' Practices about Application of Safety Measures**

List	1. Application of safety measures	Pre-test (N=50)		Post-test1 (N=50)		Post-test2 (N=50)	
		Mean	Asses.	Mean	Asses.	Mean	Asses.
1	Confirmation of the patient's identity (for example, name, date of birth)	.88	Fair	1.20	Fair	1.84	Good
2	Puts instructions for contraindications and explanatory signs on the door of the sick child's room	.84	Fair	1.24	Fair	1.76	Good
3	Provides clarification on the steps and actions that must be taken to complete the intervention	.76	Fair	1.30	Fair	1.72	Good
4	Wash hands with soap and other disinfectants using standard sterile technology	.70	Fair	1.50	Good	1.70	Good
5	He wears medical paws before starting any procedure with the sick child	.66	Poor	1.36	Good	1.54	Good
6	It prepares all the tools and parts of the ideal method and connects them tightly	.56	Poor	1.52	Good	1.44	Good
7	Uses the ideal method of sterilization to reduce transmission and prevent complications	.50	Poor	1.48	Good	1.50	Good
8	Ensuring patient privacy and dignity	.72	Fair	1.40	Good	1.40	Good
9	Wear a mask and a head covering during every nursing procedure	.72	Fair	1.38	Good	1.40	Good
10	Can distinguish by clinical signs of affected children	.60	Poor	1.40	Good	1.20	Fair
Total		.69	Fair	1.38	Good	1.55	Good

f: Frequency, %: Percentage, Asses: Assessment, (Mean: Poor= 0-0.66, Fair= 0.67-0.1.32, Good= 1.33-2)

The table (1) presents the items of nurses' practices related to domain of "application of safety measures"; the findings of this domain reveals that nurses show fair level of practices during pre-test time (Mean score= .69) in which they show fair levels among all items of the scale except items 5, 6, 7, and 10 that show poor. During the post-test 1, the nurses show good level of practices (Mean score= 1.38) in which the mean scores show good level among all items except items 1, 2, and 3 that show fair level. During the post-test 2, the nurses maintain showing good level of practices (Mean score= 1.55) in which the mean scores show good level among all items except item 10 that show fair level

Table (2): Evaluation of Nurses' Practices about Observation of Vital Notes.

List	2. Observation of vital signs	Pre-test (N=50)		Post-test1 (N=50)		Post-test2 (N=50)	
		Mean	Asses.	Mean	Asses.	Mean	Asses.
1	Priority resuscitation of the injured child (A, B, C)	.62	Poor	1.48	Good	1.24	Fair
2	Evaluation of the percentage of dehydration according to the degree of dehydration	.62	Poor	1.36	Good	1.34	Good
3	Follows the ideal method while providing the service according to the medical instructions	.54	Poor	1.38	Good	1.34	Good
4	Full examination. Especially looking for any evidence such as cerebral edema or infection.	.54	Poor	1.26	Fair	1.34	Good
5	Implementation of the observations by the nursing staff responsible for the workplace in the lobby on a regular basis and according to priority	.52	Poor	1.34	Good	1.44	Good
6	The child is comfortably placed, preferably on a bed and in a semi-seated position	.50	Poor	1.20	Fair	1.30	Fair
7	Prepares all the tools and parts of the perfect method and connects them tightly	.44	Poor	1.28	Fair	1.40	Good
8	Continuously assessing the child's health status through clinical examination	.50	Poor	1.22	Fair	1.38	Good
9	Assesses the level of the child's condition before, during and after the therapeutic nursing intervention	.46	Poor	1.36	Good	1.24	Fair
10	Implementation of the protocol in the treatment established by the Ministry of Health and according to the doctor's instructions	.58	Poor	1.32	Fair	1.12	Fair
11	Notice any signs and symptoms of high diabetic ketoacidosis, such as resting mouth, frequent urination and blurred vision	.54	Poor	1.34	Good	1.10	Fair
12	Capable of documenting all medical and nursing information and interactions	.44	Poor	1.20	Fair	1.24	Fair
Total		.52	Poor	1.31	Fair	1.29	Fair

f: Frequency, %: Percentage, Asses: Assessment, (Mean: Poor= 0-0.66, Fair= 0.67-0.1.32, Good= 1.33-2)

The table (2) presents the items of nurses’ practices related to domain of “observation of vital signs”; the findings of this domain reveals that nurses show poor level of practices during pre-test time (Mean score= .52) in which they show poor levels among all items of the scale. During the post-test 1, the nurses show fair level of practices (Mean score= 1.31) in which the mean scores show fair level among items4, 6, 7, 8, 10, and 12 while show good among remaining items. During the post-test 2, the nurses showing fair level of practices also (Mean score= 1.29) in which the mean scores show good level among items 2, 3, 4, 5, 7, and 8 while show fair level among remaining items.

Table (3): Evaluation of Nurses’ Practices about Patient’s Comfort

List	3. Patient’s comfort	Pre-test (N=50)		Post-test1 (N=50)		Post-test2 (N=50)	
		Mean	Asses.	Mean	Asses.	Mean	Asses.
1	Preparing the appropriate bed and a quiet room for medical and nursing interventions	.58	Poor	1.30	Fair	1.28	Fair
2	Psychological support for the injured child and make him feel safe and reassured	.54	Poor	1.28	Fair	1.28	Fair
3	Providing all the special needs of each child from a playroom and toilet according to the child's age	.46	Poor	1.30	Fair	1.34	Fair
4	Interact with the injured child inside the hallway and avoid isolation with the participation of the child's parents	.62	Poor	1.28	Fair	1.30	Fair
Total		.55	Poor	1.29	Fair	1.30	Fair

f: Frequency, %: Percentage, Asses: Assessment, (Mean: Poor= 0-0.66, Fair= 0.67-0.1.32, Good= 1.33-2)

The table (3) presents the items of nurses’ practices related to domain of “patient’s comfort”; the findings of this domain reveals that nurses show poor level of practices during pre-test time (Mean score= .55) in which they show poor levels among all items of the scale. During the post-test 1 and 2, the nurses show fair level of practices (Mean score= 1.29 and 1.30) in which the mean scores show fair level among all items of the scale.

Discussion

Table (1): Evaluation of Nurses' Practices about Application of safety Measures

The table (1) presents the things of medical attendants' practices connected with area of "application of safety measures" the discoveries of this space uncovers that attendants show fair degree of works on during pre-test time (Mean score= .69) in which they show fair levels among all things of the scale aside from things 5, 6, 7, and 10 that show poor. During the post-test 1, the attendants show great degree of practices (Mean score= 1.38) in which the mean scores show great level among all things aside from things 1, 2, and 3 that show fair level. During the post-test 2, the medical caretakers keep up with showing great degree of practices (Mean score= 1.55) in which the mean scores show great level among all things aside from thing 10 that show fair level.

The review uncovered that there is factual critical relationship between medical caretakers' degree of schooling and medical caretakers' long stretches of administrations in NICU and their insight toward the Constant Positive Aviation Route Tension (CPAP) Machine at (post-2) of instructive program follow up (p esteem > 0.05). There is no measurable huge relationship between medical caretakers' age, medical caretakers' orientation, long periods of administration in nursing field, attendants' instructional class and their insight toward the Constant Positive Aviation Route Tension (CPAP) Machine at (pretest, post-1 and post-2). The current review reasoned that high level of staff attendants were graduate middle school nursing and the majority of them had been taken part in instructional classes about CPAP. ⁽⁹⁾

This study agree with a sum of 99.2% idea CPGs were great clinical devices, 98.3% happy with, really believed in advanced CPGs, and would prescribe them to their partners to utilize, and 94.6% concurred they were savvy. The favored configuration for CPGs was paper (46.6%) and electronic (42.9%). The DKA-CPG helped in overseeing patients and

respondents were undeniably fulfilled and had certainty with it (100 percent). The reasoning and goals of the DKA-CPG were clear for 99.25%; 98.5% idea the design was clear and efficient and easy to use (96.2%). Contrasted and nurture, doctors had a higher discernment towards CPGs overall ($P < .05$) and the DKA-CPG ($P < .05$). ⁽⁵⁾

The Finding the relationships between the nurse practices toward neonatal with hydrocephalus and socio-demographic characteristics such as (age, gender, level of education training session). Evaluation the effectiveness of an educational program for nurse. ⁽⁸⁾

In point of my view The evaluation of nurses' practices around the principle of safety was very weak, and then the application of the program improved their role, for example, checking the identity of the child and the date of birth according to age. This axis of questions must be implemented well. Providing nursing services for children with diabetic ketoacidosis.

Table (2): Evaluations of Nurses' Practices about Observation of Vital notes

The table (2) presents the things of medical attendants' practices connected with area of "observation of vital notes" the discoveries of this space uncovers that attendants show unfortunate degree of works on during pre-test time (Mean score= .52) in which they show unfortunate levels among all things of the scale. During the post-test 1, the attendants show fair degree of practices (Mean score= 1.31) in which the mean scores show fair level among items 4, 6, 7, 8, 10, and 12 while show great among outstanding things. During the post-test 2, the medical attendants showing fair degree of practices moreover (Mean score= 1.29) in which the mean scores show good level among items 2, 3, 4, 5, 7, and 8 while show fair level among remaining items.

The results disagree with the total nurses' knowledge about care for children treatment with ventricular peritoneal shunt, that 53.3% (16) of the sample at Poor Knowledge level in pretest, but 90.0% (27) of the sample at good knowledge level in posttest 1, also 70.0% (21)

of the sample at good knowledge level in posttest 2. With most of the sample practice in pretest at some time level, but in posttest1 and posttest2 that most of the sample practice at always level (17).

That's what the review uncovered (60%) of youngster were young men, and (48.3%) was preterm. For precise body peculiarities (30%) archived for gastrointestinal framework, (26.7%) cardiovascular and (23.3%) focal sensory system. The outcome likewise showed (66.7%) of mother > 34 years, (61.7%) with BMI ≥ 30 , (56.6%) with hypertension, (63.3%) iron deficient, (60%) self-drug, (80%) have positive family ancestry, (58.3%) lived close to portable station, (56.6%) connection, (70%) didn't take folic corrosive, (65%) with low financial status.⁽¹⁰⁾

The outcomes uncovered insufficient medical caretaker's information about torment the executives for leukemic youngster under chemotherapy, two third (75 %) of the example has unfortunate information toward pharmacological and non-pharmacological agony the board strategies⁽¹⁶⁾.

As respect to DKA follow sheet cleared that, the larger part (80.7%) of the review bunch had ordinary pulse, glucose and electrolyte level after execution of CP, while 43.3% of kids in the benchmark group had bradycardia and a big part of them (half) had hyperglycemia and 53.3 had lopsidedness of electrolyte after execution of routine consideration. with genuinely huge distinction between the two gatherings in all things of DKA follow sheet ($p < 0.001$)⁽⁶⁾.

The absolute medical attendants' information about care for kid's therapy with ventricular peritoneal shunt, that 53.3% (16) of the example at Unfortunate Information level with mean (1.53) and standard deviation (0.629) of information in appraisal result⁽¹⁷⁾.

The finding shows that most youngsters with intelligent pubescence experience body disappointment, the greater part of kid's experience despondency signs, school

accomplishment shows critical relationship with their downturn signs.⁽¹⁹⁾

In point of my view Assessment of nurses' practices about observing and measuring vital signs. Applying some of the information that was taught to them during the application of the program according to priorities and according to the situation during the stages of controlling the level of diabetes in the blood of a child with diabetes. But the application of the protocol is not in all its sections.

In point of my view Work according to the available capabilities and according to the cases. we note that due to the high pressure on the hospital, the lack of psychological support for the patient and places of entertainment for the affected children, along with the lack of health awareness on the part of the family and society, which leads to a failure to provide comfort for children with diabetes and its complications, according to the results of this table.

Table (3): Evaluation of Nurses' Practices about Patient's Comfort

The table (3) presents the things of medical caretakers' practices connected with space of "patient's comfort" the discoveries of this area uncovers that attendants show unfortunate degree of works on during pre-test time (Mean score= .55) in which they show unfortunate levels among all things of the scale. During the post-test 1 and 2, the medical attendants show fair degree of practices (Mean score= 1.29 and 1.30) in which the mean scores show fair level among all things of the scale.

The aftereffect of the review showed (45.3%) of moms at 25-34 years, (24.4%) have elementary school training, (65.8%) was housewives, (45.7%) have moderate pay, (55.1%) use medicine without solution, (46.2%) their hotspot for drug from drug specialists, and (26.7%, 26.2%) their purposes behind self-prescription were mother's encounters and not accessibility of close to wellbeing administrations. The mean score of moms' mentalities showed moms with unacknowledged perspectives toward OTC anti-toxins⁽¹²⁾.

This study agree with findings of the study showed the mean of nurses` practices assessment scored (≤ 1.66), 56.7% of them has diploma in nursing, 86.7% with no training courses about poisoning first aids, and more than half of them have less than 5 years of experience⁽¹³⁾.

There is brief period to give the abilities and instruction, as well as daily encouragement, for a smooth change to home. It is a test to accomplish these objectives in the event that the main asset individual for diabetes training is the clinical medical caretaker subject matter expert (CNS). The CNS for a 14-bed pediatric unit tried to extend the job of the bedside medical caretaker to being the essential instructor of patients with diabetes through training and backing. All medical attendants went to an eight-hour studio on diabetes. A DKA convention was created through multidisciplinary cooperation, and medical caretakers were taught on this convention. Furthermore, the CNS coordinated a diabetes asset truck that contains the instruments for diabetes schooling. The convention and schooling materials were transferred in the Pediatric SharePoint site to make them available to attendants. In particular, the CNS fostered an organized patient schooling plan that is result situated, and in view of survey of current writing and practices in the unit. This drive brought about an expansion in nursing certainty and mastery connected with diabetes care as exhibited by abilities met by attendants and narrative proof from attendants and patients' guardians⁽⁷⁾.

The data showed that all of the (24) neonatal intensive care unit nurses had an Inadequate level of Practice in the pre-test, while the results of the post-test after implementing the program was adequate through apply all steps the suctioning procedure⁽¹¹⁾.

In point of my view Work according to

the available capabilities and according to the cases. We note that due to the high pressure on the hospital, the lack of psychological support for the patient and places of entertainment for the affected children, along with the lack of health awareness on the part of the family and society, which leads to a failure to provide comfort for children with diabetes and its complications, according to the results of

Conclusions

The nurses of the hospital of teaching for pediatric at Ramadi city ensure no have appropriate and adequate nurses' practice regarding the nursing care and management for pediatric patient with diabetic's ketoacidosis.

Recommendations

Anbar health Directorate at Iraqi Health Ministry to upcoming improve for policies interventions that aimed to assisting, understanding and then supporting the nurses and ill children with diabetic's ketoacidosis lasts instructional programs for nurses must be recognized to elevate the nurses' practice regarding the diabetics' ketoacidosis to be expert. Training course and workshops for nurses of the hospital teaching of pediatric in Ramadi city regarding diabetics' ketoacidosis.

Conflict of Interest

None.

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