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Investigation Article

An Educational Intervention about Acute Diarrheal Disease in Mother of Children Less than One Year Old

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Abstract

Background: Acute diarrheal disease is the second leading cause of death in children in the first years of age.

Objective: To modify the level of knowledge on acute diarrheal disease.

Methods: An educational intervention was conducted on acute diarrheal disease. The universe of study was composed by 34 mothers of children less than one year old who were attended in the Universitary Hospital Armando Cardoso of Guaimaro, Camaguey, Cuba, from June 2016 to January 2017 who consented to participate; an educational intervention organized in three stages was applied. The information was obtained through a questionnaire that was applied before and after the intervention.

Results: It was found that before applying the educational intervention inadequate knowledge on acute diarrheal disease prevailed and after was predominant of the adequate knowledge.

Conclusion: The educational intervention modified the participants' level of knowledge favorably on acute diarrheal disease.

Keywords: *Acute Diarrheal Disease; Educational Intervention; Risk Factors*

Introduction

Acute diarrheal disease (ADD) is one of the main causes of infant morbidity and mortality, it represents the second cause of death in early childhood, causing 16% of deaths. Each year 2.5 billion cases of diarrhea are reported in children under the age of five and 1.3 million of these children die. In third world countries, between 750 and 1 billion diarrheal episodes are diagnosed in young children and about 5 million deaths occur annually from this cause; that is, about 10 deaths every minute. It is estimated that the global incidence of acute diarrheal disease in children under five years of age is 9 to 15 episodes/child/year [1]. Although mortality from diarrheal disease in children in developing countries has decreased in recent years, its incidence has not decreased in the same proportion, it has been estimated that in developing countries there are approximately between 2.2 to 3.5 episodes of diarrhea per child per year. Although diarrhea events occur less frequently in developed countries, the incidence of diarrhea is still estimated at between 1.3 to 2.3 episodes per child per year, or between 21 to 36 million episodes per year out of 16.5 million of children under five years of age [2].

In Cuba, mortality from this cause is minimal and morbidity is comparable to developed countries. However, morbidity from this cause represents around 10% of the total medical care provided to pediatric patients. In second place, after acute respiratory infections, as a cause of medical care provided annually by the Cuban health system [3]. According to the 2015 statistical yearbook, morbidity from acute diarrheal disease in the population under 1 year of age was 52,433 cases for a rate of 399.1 x 1000 inhabitants, hence the great importance of the therapeutic approach to these conditions [4].

The treatment of acute diarrheal disease is primarily supportive, aimed at preventing dehydration in the patient, and the fundamental method consists of therapy with oral rehydration solutions and maintaining adequate dietary intake. Errors such as the non-use of ORS, the use of rehydration in mild or moderate dehydrated cases, the suppression of the oral route inappropriately, and the abuse of antimicrobials and anti-diarrhea, are still committed by parents of children suffering from diarrhea, which shows insufficient knowledge about the management of the disease. Another problem is the lack of knowledge that parents present about the danger signs that indicate when a child must be cared for in a health center. The delay in the consultation of children with signs of danger of ADD can cause the deterioration of the child and even lead to death [5].

The aforementioned motivated to carry out the investigation with the objective of modifying the knowledge about acute diarrheal disease in mothers of infants belonging to the Guáimaro municipality.

Methods

A single-group quasi-experimental educational intervention study was carried out at the Armando Cardoso University Hospital of the Guáimaro municipality, Camagüey province, in the period between June 2016 and January 2017. The universe of study was made up of 34 mothers of children under one year (11 months and 29 days old) who expressed their informed consent to participate in the research.

Analysis-synthesis, induction-deduction were used as theoretical methods. To obtain the information, a questionnaire was used (Annex 1) that was applied by means of the survey technique that consists of seven closed questions with several alternative responses. Its objective is to identify the level of knowledge of mothers in relation to acute diarrheal disease.

The questionnaire was prepared from the bibliographic review and validated according to the Nominal Group consensus method. The selection of 10 experts was made, the years of experience, the results of professional activity and the development of research related to the subject were taken into account. The group of experts was made up of four first- and second-degree specialists in pediatrics, two first-degree specialists in Hygiene and epidemiology, and four first-degree specialists in comprehensive general medicine. The coordinator and a rapporteur participated in the technique, the time used was three hours with the group of specialists gathered, the coordinator presented the questions individually and the rapporteur wrote them for the group. Individually, each of the specialists was able to redesign the question and after this process the discussion was opened that officially determined how each of the questionnaire questions was written, accepted by 100% of the group of specialists.

In the results of the evaluation carried out by the experts, there is sufficient evidence to suggest that they agree, both in the methodological conception of the questionnaire and in the contents that are explored in it.

In order to achieve the proposed objective, the following variables were reviewed: knowledge about acute diarrheal disease, in aspects such as: definition of the disease, risk factors for its appearance, home management, prevention of dehydration, use of oral rehydration, warning signs and dehydration. According to the marked response option, a qualitative rating of knowledge about each aspect of the disease was established as adequate or inadequate:

1. Knowledge about the definition of acute diarrheal disease was assessed: adequate if it marked both answers, and inadequate if it marked less.

2. Knowledge about the risk factors for acute diarrheal disease was assessed: adequate if you checked more than five factors, and inadequate if you checked less.
3. Knowledge about the management of acute diarrheal disease at home was assessed: adequate if you marked the four correct answers, and inadequate if you marked less.
4. Knowledge about preventing dehydration from acute diarrheal disease was assessed: adequate if you checked all three answers, and inadequate if you checked less.
5. Knowledge about the use of oral rehydration solutions in acute diarrheal disease was evaluated: adequate if you marked four or more answers, and inadequate if you marked less.
6. Knowledge about the warning signs of acute diarrheal disease was assessed: adequate if you scored four or more responses, and inadequate if you scored less.
7. Knowledge about the signs of dehydration due to acute diarrheal disease was assessed: adequate if you scored four or more answers, and inadequate if you scored less.

The research was carried out in three stages.

Stage 1: Diagnosis: The basic knowledge of the mothers about acute diarrheal disease was evaluated by means of a knowledge questionnaire that was designed according to the objectives set. The information was recorded by the mothers participating in the research (self-filling), who, prior to filling in this instrument, clarified the unknown and doubtful terms. It was not mandatory to fill it out, giving you the option of returning it blank. The same was to be answered individually, ensuring the total confidentiality of the information obtained. The application lasted about 50 minutes.

Stage 2: Educational intervention: A program was carried out that included topics related to diarrheal disease in children. The training program was carried out in the premises that the office occupies. A total of five meetings were held and each one lasted one hour. The intervention was given by the author of the research with the help of pediatric specialists in the health area.

Stage 3: Evaluation: At the end of the intervention, an evaluation of the level of knowledge reached by the participants was carried out through the application of the questionnaire.

To carry out the study, the approval of the Ethics and Teaching and Research committees of the institution was previously obtained, and the ethical aspects of research in human beings were considered. Participating mothers were informed of the reasons for the study, their duties and rights, their approval was requested in writing by signing the mother's informed consent form.

The data were processed in a computerized way using the statistical analysis program SPSS version 25.0 for Windows. Descriptive statistics were used to make the frequency distribution in absolute value and in hundreds. By means of inferential statistics using the non-parametric method of Mc Nemar, it allowed to establish the significance of the changes before and after the intervention was applied. It was worked with a reliability of 95% and an error less than or equal to 0.05. The results were outlined in tables that facilitated their analysis and discussion.

Results

Table 1 shows the level of knowledge of the mothers before and after the educational intervention on the aspects of the acute diarrheal disease evaluated. Before the intervention, 15 (44.1%) mothers knew the definition of diarrhea and then 34 (100%). Table 2 found that 22 (64.7%) participants identified risk factors for acute diarrheal disease and then 29 (85.3%) mothers. Table 3 shows that the level of knowledge about the management of diarrhea at home that 12 (35.3%) presented was adequate and after the educational intervention

the proportion of mothers with this evaluation increased at 34 (100%) mothers. About the prevention of dehydration pre-educational intervention, 15 (44.1%) mothers showed adequate knowledge and then 33 (97.1%) mothers (Table 4). Regarding the mothers' knowledge about oral rehydration solutions. Table 5 shows that before 20 (58.8%) showed adequate knowledge and post-educational intervention 33 (97.1%) achieved this evaluation in this regard.

Knowledge	Before		After	
	No.	%	No.	%
Suitable	15	44,1	34	100,0
Inappropriate	19	55,9	-	
Total	34	100,0	34	100,0

Table 1: *Knowledge of mothers about the definition of diarrhea (P < 0,05).*

Knowledge	Before		After	
	No.	%	No.	%
Suitable	22	64.7	29	85.3
Inappropriate	12	35.3	5	14.7
Total	34	100,0	34	100,0

Table 2: *Mothers' knowledge of factors at risk of diarrhoea (P < 0,05).*

Knowledge	Before		After	
	No.	%	No.	%
Suitable	12	35.3	34	100
Inappropriate	22	64.7	-	-
Total	34	100,0	34	100,0

Table 3: *Mothers' knowledge of the annex of diarrhoea at home (P<0,05).*

Knowledge	Before		After	
	No.	%	No.	%
Suitable	15	44,1	33	97,1
Inappropriate	19	55,9	1	2,9
Total	34	100,0	34	100,0

Table 4: *Mothers' knowledge of the prevention of dehydration.*

Knowledge	Before		After	
	No.	%	No.	%
Suitable	20	58,8	33	97,1
Inappropriate	14	41,2	1	2,9
Total	34	100,0	34	100,0

Table 5: *Mothers' knowledge of oral rehydration solutions.*

Before the intervention, 9 (26.5%) mothers showed adequate knowledge about the alarm signs and after this evaluation was achieved by the 34 (100%) participants, as detailed in table 6. Table 7 shows that 7 (20.6%) mothers adequately recognized the signs of dehydration before receiving the educational program, and afterwards this figure rose to 31 (91.2%). The results of the McNemar statistical test (P < 0.05) show that the improvement in the level of knowledge about the different aspects of acute diarrheal disease that the mothers showed after they received the educational intervention is significant.

Knowledge	Before		After	
	No.	%	No.	%
Suitable	9	26,5	34	100
Inappropriate	25	73,5	-	-
Total	34	100,0	34	100,0

Table 6: *Mothers' knowledge of alarm signs.*

Knowledge	Before		After	
	No.	%	No.	%
Suitable	7	20,6	31	91,2
Inappropriate	27	79,4	3	8,8
Total	34	100,0	34	100,0

Table 7: *Mothers' knowledge of the ignos of dehydration (P < 0,05).*

Discussion

Regarding the definition of diarrhea, the reports by Flores Santillán C [6] in Lima and Lojan Lojan CE [7] in Ecuador detect that most mothers define it correctly. A similar proportion of mothers correctly indicated that diarrhea was defined as liquid stools and increased number of stools, according to the study by Nauca Amésquita YJ [8] in Peru. Meanwhile, Andrade García DM., *et al*. [9] found that around half of mothers know the true meaning of diarrhea. Quiroz Proaño MB [10] in a series of 260 interviewees found that the majority did not know about acute diarrheal disease.

Flores Santillán C [6] points out that two-thirds know the risk factors for acute diarrheal disease. However, Lojan Lojan CE [7] and Andrade García DM., *et al*. [9] in Ecuador find that more than half of the mothers have poor knowledge about the conditions that favor their appearance.

When Ferreira-Guerrero E., *et al*. [11] inquired about the management of diarrhea at home, they found that less than half of the parents reported administering oral rehydration therapy to children with diarrhea and a third incorrectly reduced the amount of food administered during the morbid period.

Regarding the practices of mothers in the face of acute diarrhea in children, Chávez Conde LK [12] reports that the treatment referred by them was to give oral rehydration solutions, followed by the use of home remedies and antibiotics. However, Zahid SS., *et al*. [13] in a settlement in Karachi, found that half of them think incorrectly about feeding the child with diarrhea, although the majority indicated that breastfeeding should be continued and knew the oral rehydration salts, their preparation and duration.

The study by Bernis Maren M., *et al*. [14] points out that the mother's inappropriate behavior in the face of diarrhea ended up being another risk factor for dehydration in children with diarrhea.

The literature highlights that the decision to suspend feeding during the episode of diarrhea is totally inappropriate, since it is the same substrate that facilitates the recovery of the intestinal mucosa, favoring a faster recovery from the picture. Continuing with normal feeding, including breastfeeding during diarrheal episodes and increased fluids, in general, are important components in current diarrhea treatment recommendations in addition to the use of low osmolarity oral rehydration salts, which could be more effective than the original formulation, as well as zinc treatment, which reduces the duration and severity of the condition [15].

Flores Santillán C [6] in Lima and Lojan Lojan CE [7] in Ecuador point out that most mothers report that they offer oral rehydration salts or homemade serum to the child when they have diarrhea and that they administer liquid immediately or on demand after the diarrheal episode to prevent dehydration.

Bajaña Zambrano LE [5] when gathering knowledge about the prevention of dehydration reports that two thirds of mothers indicate that since the beginning of the episode of diarrhea they begin to increase the water intake to their children and most do so with water and in lower percent with oral rehydration serum. It also points out that a high percentage of the population knew how to prepare oral rehydration salts, which coincides with the report by Andrade García DM., *et al* [9].

Ferreira-Guerrero E., *et al*. [11] reports on the poor knowledge of the warning signs recognized by the parents of the child with Acute Diarrheal Disease, limited to the increase in the frequency of evacuations, the presence of vomiting and fever, without identifying alarm data such as other signs indicative of dehydration or invasive diarrhea (crying without tears or blood in the stool).

Flores Santillán C [6] in Lima, Lojan Lojan CE [7] in Ecuador point out that most of the mothers are unaware of the alarm signs and the main signs of dehydration. Quiroz Proaño MB [10] at the General Provincial Hospital of Latacunga de Ambato in Ecuador reports that of a total of 260 interviewees, most do not know correctly the signs of dehydration in the child. Several authors coincide in pointing out in their respective reports the predominance of mothers who do not have adequate knowledge about the signs of dehydration [9,16,17].

Conclusion

The educational intervention favorably modified the knowledge about acute diarrheal disease in most of the participating mothers.

Annex 1

Questionnaire

1. **From the following definitions of diarrhea, indicate which one is correct:**

1.1. Increase in the number of bowel movements per day ___

1.2. Frequent stools of less consistency than usual ____.

2. Check the conditions that in your opinion favor the development of diarrhea:

2.1. Breastfeeding for less than four months____

2.2. Bottle use ___

2.3. Lack of hygiene when handling food ___

2.4. Introduction of food before the fifth month of life ___

2.5. Foods highly concentrated in sugar or fat___

2.6. Offer more food than the corresponding amount for the age__

2.7. Offer foods that are not age appropriate __

2.8. Not washing hands after having a bowel movement, after disposing of children's feces or cleaning diapers, and before preparing or serving food ___.

3. For the proper management of a child with diarrhea, which of the following measures should be applied:

3.1. Give frequent fluids ____

3.2. Feed him frequently _____

3.3. Do not suspend any food _____

3.4. Do not suspend milk _____

3.5. Decrease food _____

3.6. Use metronidazole _____

3.7. Offer cooking _____

3.8. Using metoclopramide _____

3.9. Use antimicrobials _____

3.10. Use antidiarrheals _____.

4. Point out the measures that can be applied to a child with diarrhea to avoid dehydration:

4.1. Offer ORS after each diarrhea _____

4.2. Offer frequent homemade liquids such as: breast milk, fruit juices, broths and coconut water ____

4.3. Give liquids with a teaspoon ___.

5. Regarding oral rehydration solutions, indicate the correct ones:

5.1. Offered after each deposition _____

5.2. They are prepared with boiled water _____

5.3. They prevent dehydration ____

5.4. They are used to treat dehydration ____

5.5. They should be found with a teaspoon ___

5.6. Each sachet must be diluted in one liter of boiled water at room temperature ___

5.7. It keeps 24 hours at room temperature and 48 hours refrigerated______.

6. Check the signs that, when present in a child with diarrhea, indicate that he is in danger and should be evaluated by the doctor immediately:

6.1. Frequent watery stools _____

6.2. Lack of fluid intake ____

6.3. Repeated vomiting_____

6.4. Decay _____

6.5. Fever _____

6.6. Blood in the stool _____

6.7. Increased thirst ____.

7. Of the following signs, which you consider to be present in a dehydrated child:

7.1. Is thirsty _____

7.2. Does not urinate _____

7.3. Has a dry mouth _____

7.4. Hollow eyes ____

7.5. Cry without tears _____

7.6. Irritable ____

7.7. Sunken head ___.

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