

MOTHERS' KNOWLEDGE ON THE USE OF BRONCHODILATOR IN CHILDREN WITH BRONCHOPULMONARY DYSPLASIA AT HOME

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ABSTRACT

The objective of the study was to know the knowledge of mothers on the use of bronchodilators in their children with bronchopulmonary dysplasia (BPD) at home. Descriptive and exploratory, qualitative study. The study used a semi-structured interview with 14 mothers of children with BPD, attended at a pulmonology outpatient clinic. The data were submitted to the thematic content analysis, originating three categories that were interpreted in light of the theoretical conceptions of Paulo Freire for the family care, namely: Mothers' knowledge on the action of the medicine; Warning signs perceived by the mothers for the use of the medicine in the child; The reactions perceived by the mothers after the use of the medication, which showed that most mothers can identify the main actions of the bronchodilator. Respiratory effort is a warning sign for mothers to use medication; the improved breathing appears as a prevalent sign detected by them after using the bronchodilator. The study concludes that understanding this knowledge is essential to construct actions that respond to their needs in the medical care to their children when at home.

Keywords: Child. Bronchopulmonary dysplasia. Pediatric nursing. Mothers.

INTRODUCTION

Technological advances enabled structuring neonatal and pediatric intensive care units, allowing health teams to become empowered to care for children who, previously, were not able to survive. Technological progress has helped to prevent the death of children with chronic and/or disabling diseases, so that, without this progress, they would not be able to survive. However, this has led to the emergence of a group of children who depend on health care^(1,2).

In Brazil, these children were called Children with special health needs (CRIANES). These needs are classified, according to a type of care, in four groups: demands for development, technologies, medicaments and habitual modifications^(3,4). Of these children, the most important are those with medication demands and bronchopulmonary dysplasia (BPD), who depend on bronchodilator, oral or inhaled drugs.

Regarding bronchodilators, there are three classes of drugs, namely β 2-agonists, methylxanthines and anticholinergics. Although these medicines benefit clients, they can cause side effects such as: tremor of extremities, tachycardia, nausea, vomiting, abdominal pain, headache, tremors, arrhythmias, dry mouth and urinary retention. In addition, these medicines, when improperly administered, can cause harmful effects⁽⁵⁾.

Thus, due to the importance of using the drugs in the treatment of the child with bronchodysplasia when at home, as well as the value of giving mothers a voice about their knowledge on the use of bronchodilators in their children, the study guiding question was: What are the mothers' knowledge on the use of the bronchodilator in their children with pulmonary bronchodysplasia? The study objective was to know the mothers' knowledge on the use of bronchodilator in their children with bronchopulmonary dysplasia at home.

Contributions of Paulo Freire's reference to family care

The choice of the theoretical-philosophical principles of Paulo Freire to conduct the research of this study is due to the contemporaneity of his thought, which inspires the practice of education. In addition, it represents the belief in human beings as capable of building their history, their knowledge and their culture⁽⁶⁾.

He advocated a differentiated education, without the existence of supremacy of the educator, besides promoting the knowledge exchange⁽⁶⁾. The learner has an active participation in the teaching-learning process. Still, according to the author, the educational process

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must be essentially dialogic, because he believes that, without dialogue, there is no education. Those involved in this process must be willing to open to the new and be convinced that there is always something new to learn and teach⁽⁷⁾.

Liberating education is capable of providing the educator and the learner with the opportunity to become active agents, participants in social transformation, enabling both to observe reality, to reflect, and to search for possible means to change it⁽⁸⁾.

Freire's ideas base the care based on listening, learning based on own experiences and culture. From this point of view, the nurse, in its educational and care practice, needs to know the world and the reality of the mothers of children with BPD using bronchodilator in order to guide them to the correct realization of the care with their children, considering their knowledge, their socio-cultural context, their experiences.

METHODOLOGY

This is a descriptive study, with a qualitative approach. The setting was a pneumology outpatient clinic, located in the city of Rio de Janeiro. In this outpatient clinic, there were 14 mothers of children with bronchopulmonary dysplasia, with ages ranging from 0 to 2 years, and all voluntarily accepted to participate in the study, after signing the Informed Consent Form.

The choice of the children's mothers occurred from a list requested to the professional responsible for the care of these children, who, in the case of this outpatient, is a doctor.

With the children's names, the medical records were requested from the head of the department and their reading was done in order to confirm the inclusion criteria and the specificities of these children.

During the consultations held together with the doctor, the mothers were approached and informed about the accomplishment of the research and its respective objectives. After these clarifications, the invitation was prepared so that they could participate as volunteers of the research.

The data were collected through semi-structured interviews, in July 2014. These occurred in a unique way, conducted individually, in one of the rooms of the outpatient clinic. The interview guiding questions were: What do you know about this medicine (bronchodilator) used by your child? What signs make you realize that your child needs to take this

medicine? What reactions does your child experience after taking the medication?

After the data collection phase, the interviews were fully transcribed and analyzed following the three phases of the thematic analysis. The first one concerns the pre-analysis, with floating reading to know the content of the empirical material generated by the interviews. The second refers to the exploitation of the material, when the raw data were transformed into units that represented meanings and then aggregated into the categories, and finally, treatment and interpretation of the results⁽⁹⁾.

This research was registered in the Brazil platform and submitted to the Research Ethics Committee (CEP) of the institution that was scenario of the study, being approved with the opinion number 732766. In this sense, the volunteers signed the Informed Consent Form (ICF), receiving information on the objectives of the research and the guarantee of their anonymity. In this study, each participant is identified by the letter E - entrevistada (interviewed in Portuguese) - followed by a number according to the order of interviews (E1, E2 etc.).

RESULTS AND DISCUSSION

The study included 14 mothers of children with bronchopulmonary dysplasia, whose ages ranged from 0 to 2 years, and who used bronchodilator medications for at least two months.

The results were organized into three empirical categories: 1) Mothers' knowledge on the drug's action; 2) Warning signs perceived by the mothers for the use of the medication in their children and 3) The reactions perceived by the mothers after using the bronchodilator.

Mothers' knowledge on the drug's action

The first category consists of five signification units (SUs), namely: improves breathing, slows down tiredness, expands lungs, avoids respiratory crisis and eases respiratory crisis. They mention how to avoid the respiratory crisis and improve breathing, since they dilate the lungs. This is evident in the following statements:

[...] he (the child) began to suffer from shortness of breath after returning home, then the pulmonologist attended him, and prescribed these medicines [...] I think it is because he (the child) was very tired, as if the air was not passing [...] the medicine helps him to breathe better. (E3)

[...] she acquired the disease because she spent a lot of time in oxygen [...] these medicines help her breathe better, decrease that tiredness, you know (E8).

[...] I know they have prescribed for his "tiredness". [...] due to fatigue. [...] the doctor explained that he has difficulty breathing. That it helps to breathe better, he will no longer get tired. These things. (E11)

The statements show that the mothers mention the action of bronchodilators in accordance with the literature, such as "improve breathing" and "will no longer get tired". Knowing that dyspnea is considered the most uncomfortable symptom, the bronchodilator is an important therapeutic agent. In addition, premature infants with BPD present bronchoconstriction, which favors the occurrence of bronchospasm and wheezing, justifying the use of beta-agonists to control these symptoms⁽⁵⁾.

Moreover, the mothers' speeches also showed that the knowledge on the use of the bronchodilator occurred from guidelines provided, basically, by the medical professional during the consultations of their children.

An explanation for this fact is that, in this outpatient clinic, the nurse mainly performs bureaucratic activities. With this, the health education activities end up under the responsibility of another health professional, although the nurse is not prevented from transiting in this scenario of education, due to the activities that it carries out.

However, the health education process should focus on a collective work, involving all health professionals. Thus, nurses, since they are more often in contact with the assisted clientele, should also exercise their role as educators, especially in the sense of trying to avoid adverse events from the wrong use of this medicine.

In order for the health education process to make the educator aware (in this case, the mothers), it needs to happen through a dialogic practice, mediated by the active, critical, dialogic and questioning participation of the family caregiver. Only dialogue, which implies critical thinking, is also capable of generating an education process. Without dialogue, there is no communication and, without it, there is no real education⁽⁸⁾.

Another important characteristic, mentioned by the mothers, was the use of the bronchodilator as a possibility of dilating the lungs:

[...] it opens his pores so he can breathe better. (E1)

[...] breathe [...] help his bronchi to open. [...]. (E2)

[...] they said it was a drug that he had to use to improve his breathing, did you understand? To expand his lung, to open more his lungs, understood? The bronchodilator does it, opens the lung and he breathes better. (E10)

The mothers' speeches are in agreement with the scientific literature, as, even using vocabularies that are part of their daily life, such as "help his bronchi to open", "it opens his pores", "expand his lung", they can demonstrate that they have grasped the message about the drug's action.

Beta-agonist bronchodilators induce bronchodilation, relieving dyspnea and cough crises. The main objective of these drugs is to activate mechanisms that induce relaxation of the respiratory smooth muscle and reduce the action of prostaglandins and neurotransmitters that cause bronchospasm⁽¹⁰⁾.

Given the relevance of the action of this drug on the issue of bronchodilation, these relatives need to receive this information in a way close to their vocabulary universe, so that they accurately understand the importance of offering the appropriate medication to these children.

In this sense, for the efficient development of communication, the educator (health professional/nurse) needs to know the conditions in which this language, this thinking is constructed⁽¹¹⁾. Furthermore, dialogue is indispensable in educational practices for the shared construction of knowledge⁽⁸⁾.

Thus, other testimonies evidenced the mothers' recognition of inconsistent information on the action of the bronchodilator. This becomes clear in the following lines:

I practically know nothing. [...] I know very little, you know. M. left the hospital and was later sent here. He had a lot of trouble breathing, he got very tired. Then she passed the little bombs to improve his breathing. [...] as I recall, the remedy means to help him breathe better, not to get tired. (E6)

I know almost nothing [...] she started to use it when she was few months old, the doctor said it was to open her lungs [...] and he breathed better. I only know this ... I did not try to know more. It is because he stayed in the ICU in oxygen, and when he left, the doctor said that he would have to use it to breathe better [...] she had bronchodysplasia, I think. (E13)

In the statements above, although the mothers report that the bronchodilator serves to "improve breathing" and "open the lungs", they report having little knowledge on the action of this medication.

Importantly, E6's son remained hospitalized in an intensive care unit for 25 days and E13's son, for 60

days. Another important aspect is the fact that E6's child used the medication for 14 months and E13's child, for 16 months. This time is sufficient for health professionals to clarify mothers' doubts about bronchodilator action and care.

It is possible to perceive a distancing of the health professional from these caregivers, expressing the educational banking model, in which the educator places its knowledge on the family members, who lack more accurate information on the use of bronchodilators⁽⁸⁾.

In addition, these reports seem to reveal an invisibility of the nursing team in this scenario of childcare, regarding the process of health promotion and education.

Warning signs perceived by the mothers for the use of the medication in their children

The second category consists of the following signification units: respiratory alteration, fatigue, alteration in sleep pattern, alteration in motor activity, preference for maternal lap, increased need for water intake and alteration of eyes.

Well, I am beginning to see his little eye, which lies deep [...] it gets deep in the throat part (close to the neck) - [...] and he begins to get tired, more than normal, because he is already a little tired, because of the bronchodysplasia. Sleepy [...] he begins to get very tired, with shortness of breath. Breathing. He gets very thirsty too [...] he just wants to stay on my lap. (E1)

The breath gets fast, the belly rising and falling fast. Oh, and something else, the nose, it gets beating fast. Then, I already know, he is in crisis. (E2)

[...] so only when I see that his breathing is very breathless, then I look at his belly and his nostrils. If his nostrils are beating, then I use the [...] Sinking from the sides. (The child's belly). (E5)

She keeps crying, tired, breathing through her mouth. The little ribs are all coming in. (E13)

The reports show that respiratory effort is the main warning sign for mothers to start using the bronchodilator. Due to pulmonary and airway abnormalities that characterize BPD, children with this condition require close monitoring, as such changes emphasize the pulmonary susceptibility of these children to frequent respiratory infections⁽¹²⁾.

According to the mothers' statements, they are able to identify the signs of the respiratory crisis from the position taken by their children, from the signs presented by them. Difficulty breathing is perceived by

the discomfort that children present, evidenced by the words "tiredness", "breathless" and "fast breathing". In this way, they understand the need for using the medicine; otherwise, their child's condition may get worse.

Signs of respiratory effort indicate the patient's attempt to compensate for the worsening of gas exchange, with increased respiratory work. The progression of signs of respiratory effort leads to a greater impairment of the respiratory pattern⁽¹³⁾.

Clinically, such signs are characterized by the presence and intensity of intercostal tracings, sternal furcula retractions, subcostal and xiphoid appendages, as well as nasal flapping and back-and-forth movements of the head, which may indicate increased severity⁽¹⁴⁾.

Mothers bring in their stories words that are part of this daily life experienced by them and their children, when the children are in respiratory crisis. This vocabulary - translated into phrases "the nose keeps beating", "the tummy gets up and down", "he starts to get tired" - demonstrates how they identify the signs of respiratory crisis and warning in their children and acts promptly, in order to prevent this crisis from worsening.

In this perspective, in order for mothers to understand, in fact, the care process which involves the issues related to their children's pathology, the correct use of the bronchodilator, as well as the recognition of the warning signs of the respiratory crisis, it is important that health professionals explore the vocabulary universe of these women and know their experience on the subject.

Thus, the educator (health professional), mediated by the Freirian ideas, is responsible for prioritizing the baggage of knowledge brought by the clientele (mothers), in order to construct a liberating, critical practice based on dialogicity. Problematising education is the one that establishes a horizontal and dialogical relationship between educator and learner, and that, therefore, knowledge of both should be considered during educational interaction⁽⁸⁾.

The reactions perceived by the mothers after using the bronchodilator

This category consists of the following SUs: improved breathing, restlessness, tachycardia, restoration of sleep pattern, recovery of quality of life, relief, tremor, and possibility to play.

With regard to improved breathing, the mothers mentioned:

[...] - he breathes much better and almost does not get tired, [...] only S., when he is tired, diminishes a little the fatigue. [...] I use S. and he breathes much better. (E2)

[...] but he really gets accelerated after the medicine. And, throughout time, he calms down until breathing normally. [...] L. was calming him, he got to breathe slowly again. When he breathes better, he stays calm, breathes slowly [...] and even sleeps better, longer. (E7)

[...] She is so calm that she even goes to sleep. [...] she slowly calms down and all the signs of fatigue slowly disappear, the belly gets quiet, the nose stops beating. That is it. (E12)

He even feels better, the tiredness decreases. He stops breathing hard, you know, forcing his little ribs. The wheezing in the chest decreases. [...] He sleeps better. (E14)

The β_2 -agonist bronchodilators are responsible for activating the β_2 receptors of the sympathetic system. These will produce relaxation in the bronchial smooth muscle, and thus bronchodilation, consequently improving respiration⁽¹⁵⁾.

As for the signs of cardiac agitation and acceleration, the mothers spoke:

[...] he gets agitated ... he gets very agitated. Sometimes when he sleeps, he shakes. So, I am not sure, but I think it is due to the medication. [...] he screams, knocks, gets ... agitated. I do not know how to explain to you, he gets agitated. And I notice it is after using the medicine. (E5)

[...] it may accelerate his heart a little, [...] he gets a little agitated. He was trembling a little and his heart felt like it was coming out of his mouth. (E6)

[...] her heart keeps beating hard and she gets a little pale after the medication. [...] side effect of the medicine, agitation, shaking. If you give many medications together on the same time, it can happen. (E8)

[...] that after the medicine, she gets a little shaken, I realize that. [...] she takes more time to sleep, wants to continue playing, she walks from one place to another. But it lasts about 10 minutes, then she calms down. [...] I have heard the neighbors saying that it accelerates the heart, but I have never realized it. (E13)

Beta-agonists are potent bronchodilators, whose application is through inhalation since the desired effects are faster and the undesirable effects almost do not occur. Changes, such as tremor of extremities and tachycardia, occur due to absorption of the oral fraction of the inhaled dose, and the patient should perform oral hygiene after each application⁽¹⁶⁾.

Therefore, the relatives of these children should receive information on the drug's correct

administration, as well as the expected effects after its use.

The most common side effects derive from sympathetic system stimulation, including fine tremors, agitation, nervousness, palpitations, tachycardia, and somnolence⁽¹⁷⁾.

Thus, in light of these findings, the importance of family counseling on the side effects of bronchodilators is reaffirmed, starting from contemplating the need of each learner in a horizontal and dialogical relationship between educator and learner⁽⁸⁾.

[...] Look, they say it has, but I have never seen it in him. So, his behavior does not change, like some bad effect of the drug. [...] On the contrary, he lives much better - I see that he lives better. [...] he is breathing better [...] he can play [...] and he sleeps better when he uses these medicines. (E1)

E1's report reveals that her child is able to play when his respiratory condition improves with the use of the medication.

Undoubtedly, the improvement of the respiratory condition is a factor that gives the child the desire to play. As play is of paramount importance in child development, this is also one of the points that health professionals shall value when addressing the positive aspects of using the medicine in the child's life.

FINAL CONSIDERATIONS

This study sought to know the mothers' knowledge on the medical care of children with special health needs; in this case, those with bronchopulmonary dysplasia.

Thus, in the mothers' understanding, using the bronchodilator intends to avoid the respiratory crisis, to dilate the lungs and improve their children's breathing. Regarding the knowledge to identify the signs and symptoms of respiratory crisis in their children, the mothers emphasized respiratory effort as the main warning sign to use the bronchodilator. Regarding the identification of the behavioral changes, after using the bronchodilator, they pointed out those related to the improvement of the respiratory condition, as well as those related to the side effects of the medications, such as tachycardia, agitation, improvement of the sleep pattern and quality of life.

In this perspective, health professionals - and especially nurses - are responsible for mediating and developing educational practices that allow the recognition of this new reality by caregivers so that

they can appropriate the process of caring for their children.

In the educational process, in order to instrumentalize mothers in drug therapy, problematizing education must prevail, since it considers dialogue, which is a precondition for knowledge.

Home visits should be developed as a resource to understand better the knowledge and care practices of mothers regarding the use of their children's medicines. This visit should identify the fragilities in this care, drawing, together, plans of action and care based on a dialogic relationship, reflection-action of this reality. In

addition, discussion spaces should be constructed, either in the outpatient clinic or in the home visit.

Regarding professional training, there should be provision of educational health strategies that take into account the inclusion and effective participation of the family in the care process of its child, in a dialogical perspective, with the assisted clientele.

A limitation of this study is the clipping of a single outpatient reality, being able to be extended, in a multicenter, to a greater understanding of the studied problematic.

SABERES DAS MÃES SOBRE O USO DE BRONCODILATADOR EM CRIANÇAS COM DISPLASIA BRONCOPULMONAR NO DOMICÍLIO

RESUMO

O objetivo do estudo foi conhecer os saberes das mães sobre o uso de broncodilatador em seus filhos com displasia broncopulmonar (DBP) no domicílio. Estudo descritivo e exploratório, qualitativo. Utilizou-se a entrevista semiestruturada com 14 mães de crianças com DBP, atendidas em um ambulatório de pneumologia. Os dados foram submetidos à análise de conteúdo temática, sendo extraídas três categorias que foram interpretadas à luz das concepções teóricas de Paulo Freire para o cuidado familiar, a saber: Conhecimento das mães sobre a ação do medicamento; Sinais de alerta percebidos pelas mães para o uso do medicamento na criança; As reações percebidas pelas mães após o uso do medicamento, as quais mostraram que a maioria das mães consegue identificar as principais ações do broncodilatador. O esforço respiratório configura-se como sinal de alerta para as mães utilizarem a medicação; a respiração melhorada surge como sinal prevalente detectado por elas após o uso do broncodilatador. Conclui-se que a compreensão desses saberes é imprescindível à construção de ações que respondam às suas necessidades no cuidado medicamentoso a seu filho quando no domicílio.

Palavras-chave: Criança. Displasia broncopulmonar. Enfermagem pediátrica. Mães.

SABERES DE LAS MADRES SOBRE EL USO DE BRONCODILATADOR EN NIÑOS CON DISPLASIA BRONCOPULMONAR EN EL DOMICILIO

RESUMEN

El objetivo del estudio fue conocer los saberes de las madres sobre el uso de broncodilatador en sus hijos con displasia broncopulmonar (DBP) en el domicilio. Estudio descriptivo y exploratorio, cualitativo. Se utilizó la entrevista semiestructurada con 14 madres de niños con DBP, atendidas en un ambulatorio de neumología. Los datos fueron sometidos al análisis de contenido temático, siendo extraídas tres categorías que fueron interpretadas a la luz de las concepciones teóricas de Paulo Freire para el cuidado familiar, a saber: Conocimiento de las madres sobre la acción del medicamento; Señales de alerta percibidas por las madres para el uso del medicamento en el niño; Las reacciones percibidas por las madres tras el uso del medicamento, mostrando que la mayoría de las madres logra identificar las principales acciones del broncodilatador. El esfuerzo respiratorio se configura como señal de alerta para que las madres utilicen la medicación; la respiración mejorada aparece como una señal prevalente detectada por ellas después del uso del broncodilatador. Se concluye que la comprensión de esos saberes es imprescindible a la construcción de acciones que respondan a sus necesidades en el cuidado medicamentoso a su hijo cuando en el domicilio.

Palabras clave: Niño. Displasia broncopulmonar. Enfermería pediátrica. Madres..

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