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Use of therapeutic play during intravenous drug administration in children: exploratory study

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ABSTRACT

Objective: To identify the reactions of children during intravenous drug administration before and after the use of a therapeutic play technique and to analyse their companions' perceptions regarding the technique's effects on the child's preparation for intravenous drug administration. **Method**: An exploratory study with a qualitative approach conducted through observations of intravenous drug administration and therapeutic play sessions with children and semi-structured interviews with their companions. The data were subjected to thematic analysis. **Results**: Children who had difficulty accepting intravenous medication, especially those between 4 and 6 years, presented positive behavioural changes after the use of therapeutic play. The children's companions recommended the use of this technique to improve care and reduce stress during drug administration. **Conclusion**: Therapeutic play is a relevant nursing intervention for minimizing children's reactions during intravenous drug administration, and the training of nurses and the promotion of technique are important for improving care.

Key words: Intravenous Administration; Hospitalized Child; Games and Toys; Paediatric Nursing.

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INTRODUCTION

Play during hospitalization minimizes a child's trauma, positively affects his or her physical and emotional recovery, helps in coping with atypical situations and speeds up recovery[1,2].

Play during hospitalization includes therapeutic play, which comprises specific activities guided by health professionals to promote the physical and emotional well--being of a child who is experiencing an unusual situation for his or her age[3]. Thus, play becomes a tool that health professionals can use to provide substantial care to hospitalized children[4], providing relief from the anxiety caused by atypical experiences for the child's age that are perceived as threatening[5, 6].

The threatening experiences that children encounter during hospitalization include intravenous (IV) drug administration. Although it is among the most routine invasive procedures, it is stressful for children and their companions[7].

Children who are subjected to this type of drug therapy often show resistance and can remain in a constant state of alert, trying to anticipate its approach. This situation generates anxiety, fear and insecurity, fomenting behaviours that hinder IV drug administration[6], even via an access device previously connected to the blood vessel[8].

To minimize the negative impact on the child, the use of therapeutic play (TP) during hospitalization is recommended to provide humanized, atraumatic care as part of current practices in paediatric nursing care[1-3]. The use of TP, according to resolution COFEN 295 /2004[9], falls under the purview of the paediatric nurse while providing care to a hospitalized child and his or her family. However, the technique is rarely applied in hospitals[6]. The major factors discouraging its use are a lack of time to play, a lack of training on the technique and a lack of material resources[1].

The TP technique is developed through structured, non-directive play that allows the children to express their perceptions of difficult and threatening situations[3]. This technique can fall into the following categories: dramatic or cathartic, which allows the child to relieve emotional stress related to the event; instructional, which prepares the child for a procedure; and training, which helps them develop or improve physiological functions[6]. The category selected for this study was instructional therapeutic play.

Although studies[1-2,5,7-8,10,14,19] have examined the use of TP to prepare children for venous puncture and other invasive procedures, little is known about the effects of the technique on preparing children for IV drug administration, which demonstrates the need for further studies on the topic.

In this context, the following questions were raised: What are the child's reactions during IV drug administration before and after the TP session? What are the child's companion's perceptions regarding the effects of the TP technique on the child's preparation for undergoing IV medication administration? Therefore, the objectives of this study were to identify the reactions of children during IV drug administration before and after the instructional therapeutic play technique and to analyse the child's companion's perceptions regarding the technique's influence on the child's preparation for undergo IV drug administration.

METHOD

This was an exploratory study with a qualitative approach that was conducted in

the Paediatric Clinic of a federal hospital in Paraíba, Brazil, from November 2014 to January 2015. The study involved nine hospitalized children and their companions, who met the inclusion criteria: children of both genders, between 4 and 8 years of age, with peripheral venous access for IV medication administration, accompanied by a primary caregiver who witnessed at least two IV drug administrations during the present hospitalization. Children with motor and/or cognitive impairment and companions with communication and/or cognitive problems were excluded from the study.

The data were obtained in four stages. In the first stage, a guide was used to observe the reactions and behaviours of the children during IV drug administration before the TP session. The following aspects were considered: I - What was the child's reaction when he or she learned of the procedure?; II - How did the nursing professional explain the procedure to the child?; and III - What was the child's reaction during the procedure?

The second step, which comprised the application of the instructional TP, took place during a 20- to 35-minute session conducted after drug administration in the presence of the companion. At the beginning of the session, the child chose a name for a doll, and the interventionist engaged the child in a story in which the doll character became sick and needed hospitalization. The child was encouraged to assign symptoms to the character and asked what should be done to help it recover. Materials were available to allow the children to simulate IV procedures during the TP session. The children always chose to first perform a venipuncture and then the IV drug administration because the dolls did not have an access device.

For this step, the child observation guide included checking for the following actions: I - Interacted; II - Assigned the toy behaviours similar to those that he or she had presented at the time of drug administration; III - Presented some difficulty or resistance during the session.

The third step was to observe the child's reactions during IV drug administration after the TP session (a 2- to 12-hour interval), using the following questions as guidelines: I - What was the child's reaction upon learning of the procedure; II – How did the nursing professional explain the procedure to the child?; and III - What was the child's reaction during the procedure.

In the last step, the companions of the children who participated in the previous steps participated in a semi-structured interview, which was digitally recorded and guided by the following questions: I - Comparing the IV drug administration before and after the TP session, did you notice any change in the child's behaviour? II - What is your opinion regarding the influence of TP on your child's preparedness for IV drug administration? Data saturation was the criterion for ending data collection[11].

The children were observed individually, and after all of the steps were completed for one child, the observation of another child was initiated. All observations were recorded in a field diary, and the semi-structured interviews were conducted by the same researcher, who had experience using the TP technique. The focus of the study was to observe the reactions and behaviours of the child independent from the administration of the medication in bolus and/or through an infusion pump. No clinical complications occurred during drug administration, and none of the children required a new venipuncture during data collection.

Data were interpreted based on the following steps of thematic analysis: transcription

of the recorded interviews and organization of the field diary data pertaining to the child observations and exhaustive and repeated reading of the texts to determine their relationship with the study objectives, identify clusters of meaning, group the most relevant themes and construct thematic categories[11].

The study was approved by the Research Ethics Committee of the study hospital (Opinion no. 1,039,807 and CAAE 30925814.5.0000.5183) and complied with Resolution No. 466/2012 of the National Health Council (Conselho Nacional de Saúde - CNS)[12]. The companions signed an informed consent form, and the children signed an informed assent form after the companion's authorization was received. The nurse responsible for IV drug administration also signed an informed consent form.

To maintain the anonymity of the study participants, data obtained during the observations were labelled with the letter "C" and a number from 1 to 9, corresponding to the order of the interviews, to identify the child; followed by the letter "O", in reference to the observation number (O1, O2 or O3); and age of the child (Cn, On, age of the child). The data from the interviews were identified with the letter "I", corresponding to the word "interview", followed by the child's identification number and age.

RESULTS

Of the nine participating children (Figure 1), five had chronic diseases; four were aged 4 to 6 years and five were aged 7 to 8 years. None of the children had previously participated in TP sessions, according to their companions.

Regarding the children's companions, all were female (eight mothers and an aunt), literate, and aged between 21 and 39 years. None was aware of the existence and applicability of TP during hospitalization.

The data analysis allowed the construction of two thematic categories: The reactions and behaviours of children using IV medication and TP, which were subdivided into the following subcategories: I – before the TP session, II - during the TP session, and III- after the TP session; and the companions' perceptions regarding TP.

Reactions and behaviours of children using IV medication and TP

I - Before the TP session

The most frequent reaction observed in children upon learning of an upcoming IV drug administration was anxiety, expressed

Figure 1 - Characteristics of the children who participated in the study (age, gender, clinical diagnosis and number of hospitalizations), 2015, João Pessoa.

Child	Age	Gender	Clinical diagnosis	No. of previous hospitalizations
C1	6 years	F	Cystic fibrosis	19
C2	8 years	M	Bacterial adenitis	02
C3	8 years	F	Salmonellosis	-
C4	7 years	M	Acute lymphoblastic leukaemia	Many
C5	5 years	F	Pneumonia	-
C6	7 years	F	Cystic fibrosis	Many
C7	4 years	M	Nephrotic syndrome	Many
C8	8 years	F	Bronchitis	02
C9	6 years	F	Pneumonia	-

in looks and gestures of concern, especially among the children aged between 4 and 6 years old:

> The child said "no", with characteristics of tantrum, when noticing the presence of the nurse responsible for administering the medication; hides the arm that had the access to the medication. Closed the eyes when the nurse connected the syringe to the device to administer the medication (C7, O1, 4 years old).

> [...] he usually just keeps looking, asks if it is going to hurt [...] closes his eyes, waiting for pain. I also noticed that today (I7, 4 years old).

The children in this age range were strongly opposed to receiving the medication after they became being aware of the procedure, reacting negatively in an effort to prevent its administration:

> The child made it difficult to perform the procedure, hiding the arm behind the body. The medication was only administered after the companion put the child in her lap (C5, O1, 5 years old).

> When the nurse arrives, she gets very upset. Does not want to receive medication and sometimes tries to pull the syringe from the nurse's hand (I5, 5 years old).

> The child made it difficult to administer the medication. She tried to disconnect the drug administration device (C9, O1, 6 years old).

> [...] the situation is very stressful, not only for her but for me and even for the nurse [...] she cries, screams [...] I sometimes lose my patience and say that if she doesn't stop crying, I will slap her or she will not get to play with the toys I brought (I9, 6 years old).

None of the children between 7 and 8 years old had difficulty accepting the procedure, although some expressed anxiety about when it would end:

> The child was quiet, calm. She accepted the medication without difficulty and calmly stated when the procedure began to bother her (C8, O1, 8 years old).

> Her behaviour today was the same as always [...]. Of course she doesn't like it, but doesn't give us a hard time. She stays quiet, does not make a fuss. If it hurts or bothers her in any way, she says so (I8, 8 years old).

> The child showed no difficulty and remained calm during the drug administration, but demonstrated anxiety for it to end because she wanted to return to her drawing activities (C3, O1, years old).

> Her behaviour was the same as every day since she began receiving intravenous medication. I know that she doesn't like being hospitalized and need to be medicated, but she stays very quiet, does not make a fuss or cry [...]. She does not complain and is already at an age where she unders-

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tands that the medication will help her get well and go home (I3, 8 years old).

A child from the study was hospitalized during both those age ranges, and the companion compared those hospitalizations:

> His behaviour was normal [...]. He already understands that he needs the medication to get better and go home, so his behaviour was good; he was quiet. [...] He has already needed other hospitalizations, and only when he was younger did he give a bit of trouble because he didn't want to stay quiet and thought something was going to hurt. Over time, [...] he ended up getting used to the medications (I6, 7 years old).

II - During the TP session

Some of the 7- to 8-year-old children initially showed shyness but became excited when they were allowed to handle the materials to simulate the procedures with the doll.

> The child was shy at the beginning of the TP session; however, as the story began to be told, he became more comfortable participating in the development of the story; he assigned the toy the symptoms that led him to be hospitalized and simulated the venipuncture and drug administration procedures, explaining them step by step. The character that the child created did not like the venipuncture because it was painful and received the medication well because he wanted to leave the hospital (C2, O2, 8 years old).

> During the play, initially, he was embarrassed [...] but later got excited [...]. The story about the doll becoming sick and needing to be hospitalized, going through the same procedures that he is going through [...] was very good and allowed him to get involved. [...] He became more engaged and joined the play, [...] applied the medication to the doll. He watched carefully how the procedure was done and did the same (I2, 8 years old).

During the session, the children assigned their names and sickness conditions to the doll during the simulation portion of the TP, thus reproducing the care they had received in the characters that they created:

> The child assigned her name to the toy and interacted well during the play. She mentioned that the character did not like the hospital because it has medicine and needed to "take little holes". When asked if the toy would be placed in her lap to receive the medication, the child said that was not needed, but she asked the character to stop crying and threatened to "spank" it if it did not behave, simulating the voice of her companion (C5, O2, 5 years old).

> She was very relaxed, comfortable playing; she got involved in the story as it began, [...] gave her name to the doll, performed the venous access, administered the medication in the "vein" of the doll [...]. She behaved like the doll's nurse and made the doll behave like her (I5, 5 years old).

III - After the TP session

Greater calmness and better acceptance of the IV medication was observed in children who were previously resistant to the procedure after the TP session:

> The child did not show any reactions of insecurity and anxiety regarding the procedure, did not try to stop it, and did not make a facial expression as if expecting pain (C7, O3, 4 years old).

> I noticed he was less tense. [...] I noticed he didn't close his eyes and didn't make a face as if he thought it would hurt. I didn't think there would be a difference between the medication before the play and after [...] (E7, 4 years old).

> The child showed significant improvement in the acceptance of IV medication. She was not irritated, did not try to stop the procedure, and allowed the professional to administer the medication (C1, O3, 6 years old).

> [...] Her behaviour during drug administration after the play was very good. She accepted the medication well, did not cry, did not complain, showed no resistance and did not say that it was hurting. She had very good behaviour compared with the administration before (I1, 6 years old).

The children who previously showed no resistance to receiving the IV medication continued to show good acceptance of the procedure, with little change in behavioural patterns:

> The child continued accepting medication without difficulty and showed no anxiety for it to be over. He was relaxed during the procedure (C4, O3, 7 years old).

> When receiving the medication after the play, he remained quiet, calm and accepted it well, as usual, but I noticed that he was more relaxed. [...] He receives many medications, and some take a long time. [...] He accepts it, but that doesn't mean he likes it. [...] I think he accepted it even better (I4, 7 years old).

The companions' perceptions of TP

The companions noted different purposes for TP:

> [...] The play allowed him to become more relaxed and to transfer to the toy the situation that he's living. This [...] certainly helped him better assimilate the importance of the medication for his improvement (E2, 8 years old).

> With the play, she can place herself on the other side and "be" the person who provides care and not the sick child being cared for. I think she felt important, being able to give medicine to the doll, and when the nurse arrived, she even gave medicine to her, and she allowed it because she

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> was still in that playing mood [...] (I5, 5 years old).

The companions expressed the desire to use this resource to prepare the child for peripheral venous access (PVA), the procedure that they believe causes the most suffering to the child and, consequently, to them too.

> Certainly, at the time of the puncture, it would be great if this play was implemented. [...] He suffers, and I suffer with him. If I had this moment [...] that shows that the procedure is important and needs to be done, I think he'd be more calm and resist less (I4, 7 years old).

> I really liked that the play was done with him. It was great that he had that moment of fun together with the learning experience and even a little of responsibility, but I don't think it influenced his behaviour when receiving the medication. [...] I believe that if it was used to help with the puncture, the result would be more evident (I6, 7 years old).

DISCUSSION

Drug administration in children is a common procedure in nursing care. However, when drugs are administered intravenously, the experience can be stressful and can lead to confrontations among the child, the companion and the professional who administers the medication[8]. The visible approach of the procedure can trigger feelings of alertness and mistrust in the child.

This study found that children aged 4 to 6 years exhibited more aggressive behaviour and had more difficulty accepting IV medication compared with 7- to 8-year-old children. This fact was observed both in children who were hospitalized for the first time and those who had undergone previous hospitalizations. Both groups showed equally negative reactions when informed of the need for IV drug administration, even before the procedure began.

In this stage of life, children typically use combative resources, such as screaming, excessive crying and attempts at physical assault, to signal when they do not like something[6].

This behaviour can be explained by the fact that children this age rely heavily on their imaginations to interpret real situations. Faced with an unknown situation that feels threatening, children will trust their imaginations more than something that another person says in an effort to make them accept the situation[13]. In this stage, children exhibit accelerated development of their creativity and often confuse fantasy and reality; this confusion can transform a new experience into an event of monstrous proportions in their imaginations, making it difficult for them to accept that the reality may not be that scary[14].

Unlike the younger children, those aged 7 to 8 years showed awareness that the procedure was important for improving their condition and presented behaviour that was favourable toward the procedure, regardless of whether they had undergone previous hospitalizations. This finding indicates that over time, cognitive development influences the child's perceptions regarding the procedure and, consequently, the child's behaviour. This finding is strengthened by the report of a companion of a child who was hospitalized during both of these age ranges; the compa-

nion reported a positive change in the child's behaviour over time, thus corroborating the findings.

It is understandable that a child's age influences his or her reactions, and professionals must consider this factor when performing invasive procedures. From this perspective, the professional can plan differentiated approaches for these children that can help them feel good during the procedure.

Play is one of the most important aspects in the life of a child and one of the most effective instruments for controlling stress. Play is essential to the mental, emotional and social well-being of children and must be maintained during hospitalization[15]. Although all of the children were receptive to participating in the TP session, the technique is not used by nurses in the care for hospitalized children and their families, despite the recommendations of resolution COFEN 295 /2004[9].

During the TP session, the 7- to 8-year-old children demonstrated the procedure and explained the need for it and its importance. For these children, TP provided an opportunity for relaxation, for expressing their feelings about the hospitalization and for showing that they had knowledge about the procedures and the disease itself.

The 4- to 6-year-old children, who had greater difficulty accepting the medication, showed greater involvement and spontaneity during the TP session.

By performing the procedure on the doll, the child becomes familiar with the procedure and demystifies it, thus minimizing the fears and anxieties associated with the event and preventing the construction of something that is not real in his or her imagination[8].

With the simulation, children become more familiar with aspects of the IV drug administration, and by experiencing it, they have the opportunity to realize that the procedure can only be successful with their help.

The TP session enabled each child to express his or her feelings of insecurity, impatience and fear about the procedure and provided an opportunity for role reversal. Compared with the older children, the younger children more strongly reproduced the behaviours and the discourse of their companions and health professionals during their interaction with the doll.

When taking responsibility for "medicating" the doll during the TP session, the children transferred to the inanimate object – the doll – their own feelings during the first drug administration and adopted the role of a health professional. In doing so, the children were better able to assimilate the procedure, which was previously unknown and terrifying in their imaginations.

The observations after the TP session showed significantly positive changes in the behaviour of children who had previously shown resistance to IV medication administration. The children were more quiet and relaxed, and they cooperated with and showed confidence in the professional who administered the drug.

The dynamic, playful, therapeutic and inclusive aspects of TP help the children better understand the need for the procedure, thus encouraging them to cooperate. As a result, the children are able to better control their emotions, decrease their fear and anxiety and consequently, reduce their resistance to the medication[16, 17].

Even children without difficulties in receiving the first medication had benefits because they showed signs of stress and anxiety when receiving multiple long-term medications. After having that playing time with the BT, the children become more relaxed and calm when receiving subsequent medication.

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The use of instructional TP is of great importance in preparing children for procedures because it promotes their cooperation with and adherence to treatment and decreases the anxiety generated throughout the process[8]; however, there is a possibility that the behaviour will remain unchanged[18].

The companions, including those of the children who had no difficulty accepting IV medication, identified different purposes for TP. TP was perceived as facilitating the child's understanding of the procedure, as a way for the children to relax and as a way for them to express their observations about the environment.

Another study on parents' perception of the use of TP to prepare children for venipuncture revealed that the unstable and irritable behaviour of children during PVA was related to the children associating the procedure with the invasion and mutilation of their body and/or punishment for having done something wrong[7].

In the same study, the parents approved and acknowledged the benefits of TP for preparing their children for venepuncture because it promoted greater peacefulness and calmness for the children and helped them to understand and accept the procedure[7].

Despite the benefits identified above, this practice is still rarely used in health care institutions, mainly because of a lack of trained professionals and a lack of structure and/or resources[2, 17].

CONCLUSION

The results of this study revealed that the variation in the behavioural reactions of children using IV medication can be directly linked to age. Most of the participating children between 4 and 6 years old showed unhappiness and had difficulty accepting the procedure prior to TP, regardless of whether they had undergone previous hospitalizations. However, the same children stopped creating problems and showed better acceptance of the medication after the TP session.

The companions of the children who showed some difficulty accepting the medication indicated that TP was an important factor in improving acceptance. In turn, the companions of the children who did not have difficulties highlighted the importance of TP as recreational element and suggested using the technique for other procedures.

It is worth noting that none of the professionals explained the procedure to the children or used TP when administering IV medication. The evidence regarding the importance of TP in child care, along with its limited use in health services and the companions' lack of knowledge regarding this method, point to the need for paediatric institutions to promote its use among health professionals.

Once they become aware of the importance of this strategy in child health care, health professionals can use it in their interventions and thus benefit children by providing improved and humanized care, as the present study shows.

We expect that the study will encourage and support other studies of the benefits of all forms of TP, thus contributing to greater recognition and appreciation of this type of intervention and its possibilities for improving paediatric nursing care.

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