

Application of audiovisual distraction to reduce pain in children with thalassemia and acute disease

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Abstract

Background: Pain during invasive procedures is an unpleasant thing experienced by all children when hospitalized, including children with acute illnesses or chronic diseases such as thalassemia. Nurses need to implement interventions from atraumatic care to reduce the pain felt by children, such as by providing audiovisual distraction techniques. This study aimed to see the difference in pain felt by thalassemia and non-thalassemia children after being given an audiovisual distraction technique intervention.

Methods: This study uses a quasi-experimental method by comparing the pain of thalassemia children with non-thalassemia children with an age range of 1-12 years during invasive procedures (infusion or vein insertion) after being given audiovisual distraction techniques. The data collection period was from May to August 2022 on 33 children (15 thalassemia children and 18 non-thalassemia children) using purposive sampling techniques from 3 hospitals in Jambi.

Results: Thalassemia children felt no significant difference in pain compared to non-thalassemia children who were given audiovisual distraction techniques.

Conclusion: All children feel pain even though children with chronic diseases have repeated hospitalization experiences, so it is important to provide nursing interventions for pain management, especially in children with chronic conditions (thalassemia), to prevent further effects of recurrent pain felt by children.

Keywords: Thalassemia, Child Pain, Invasive Action, Audio Visual Distraction

Abstrak

Latar Belakang: Nyeri saat tindakan invasif merupakan hal tidak menyenangkan yang dialami semua anak saat hospitalisasi, termasuk anak dengan penyakit akut maupun anak dengan penyakit kronik seperti anak talasemia. Perawat perlu mengimplementasikan intervensi dari asuhan atraumatic untuk mengurangi nyeri yang dirasakan anak, seperti dengan pemberian teknik distraksi audiovisual. Tujuan dari penelitian ini adalah untuk melihat perbedaan nyeri yang dirasakan anak talasemia dan anak non talasemia setelah diberikan intervensi teknik distraksi audiovisual.

Metode: Studi ini menggunakan metode quasi eksperimen dengan membandingkan nyeri anak talasemia dengan anak non talasemia dengan rentang usia 1-12 tahun saat tindakan invasive (pemasangan infus atau penusukan vena), setelah diberikan teknik distraksi audiovisual. Periode pengambilan data mulai Mei – Agustus 2022 pada 33 anak (15 anak talasemia dan 18 anak non talasemia) dengan teknik teknik purposive sampling dari 3 rumah sakit di Jambi.

Hasil: Tidak ada perbedaan nyeri signifikan yang dirasakan anak talasemia dibandingkan dengan anak non talasemia yang diberikan teknik distraksi audiovisual.

Kesimpulan: Semua anak merasakan nyeri meskipun anak dengan penyakit kronis yang memiliki pengalaman hospitalisasi berulang, sehingga penting untuk memberikan intervensi keperawatan sebagai manajemen nyeri terutama pada pada anak dengan penyakit kronik (talasemia) untuk mencegah dampak lanjut dari nyeri berulang yang dirasakan anak.

Kata kunci: Talasemia, Nyeri Anak, Tindakan Invasif, Distraksi Audio Visual

INTRODUCTION

Thalassemia is an inherited blood disorder characterized by faster destruction of red blood cells, resulting in moderate or severe anemia (1). The Ministry of Health noted that the incidence of thalassemia in Indonesia had almost doubled in 2018. The incidence of thalassemia is estimated to increase by 2500 children/per year (2).

Thalassemia children require routine hospitalization to maintain hemoglobin levels above 10 g/dl, which can cause pain during infusion. Hospitalization also occurs in children with acute illnesses who experience pain. However, the attention of parents and health workers to children with chronic and acute diseases has different concerns. Children with chronic diseases are often thought to be able to cope with the pain they experience during invasive procedures. This is due to frequent hospitalization, so children are considered accustomed to experiencing pain. Meanwhile, children with the acute illness show a clear pain response, so parents and staff will pay more attention (3). In Addition, Parents of children with chronic diseases physically and psychologically experience fatigue which may reduce the focus of attention on the child's pain (4).

Based on observations of three school-age thalassemia children who were given an intravenous infusion, the child seemed calm and gave his hand to the nurse. In comparison, three school-age children with acute illness seemed to cry loudly and pulled their hands away. However, repeated pain in children with chronic diseases such as thalassemia children can cause behavioral changes in thalassemia adolescents, such as anxiety, social problems, and decreased attention. This condition can further impact the quality of life of thalassemic children as adults (5). Therefore, nurses must provide specific interventions to improve the child's comfort during invasive procedures.

Comfort is one of the targets in nursing care. It aims to increase comfort and improve patients' healthy behavior (6). The discomfort felt by the child due to repeated procedures must be overcome by applying atraumatic care. This care is needed to prevent the

effects of pain during the procedure, especially in children with chronic diseases such as thalassemia (7).

Atraumatic care choice interventions include; play therapy, music therapy, hot compresses, vibration, storytelling, distraction with audio, and audiovisual and fun games (8). Among all these techniques, the audiovisual distraction technique mentioned by several researchers is a technique that can be implemented in various age ranges and is easy to apply in health care services. In addition, various studies show the generality of this technique to distract the child so that the child's pain and anxiety during the venipuncture procedure can be reduced (9, 10).

The novelty of this research is the implementation of audiovisual technic distraction in thalassemia patients. Audiovisual distraction techniques have been shown to reduce pain in children during invasive procedures (3, 9, 11). However, no studies apply this intervention to thalassemia children, while thalassemia children routinely get intravenous infusion or blood sampling in their care. Observation surveys also show that most children often watch their favorite shows on their cell phones, but nurses often ask children to put down their cell phones or stop watching when an invasive procedure is to be performed. This is the research subject for researchers to prove the effectiveness of reducing pain, especially in thalassemia children, so that it can be proposed as an intervention in pain management in children including thalassemia.

This study aimed to compare the pain of thalassemia children and children with acute illness who received atraumatic care intervention: audiovisual distraction technique.

METHODE

The method used was quasi-experimental in 2 groups of sick children aged 1-12 years, namely thalassemia and non-thalassemia children who received infusion or vein insertion in Jambi. The sample required based on Lemeshow found that the minimum sample for each group is 15 children. The

selection of hospitals in Jambi was made randomly so that three hospitals were selected, namely Mitra Hospital, Arafah Hospital, and Ahmad Ripin Muaro Hospital Jambi. Samples of acute children were taken from Mitra Hospital as many as 18 children by purposive sampling, 6 samples of thalassemia children from Mitra Hospitals, 3 samples of thalassemia children from RSI Arafah, and 6 samples of thalassemia children from RSUD Ahmad Ripin with total sampling.

The study has been tested for ethical feasibility at the Health Research Ethics Committee number LB.02.06/2/16/2022. Researchers prepared a child pain observation sheet using the Children's Anxiety Pain Scale (CASP). This scale can be used with children up to 12 years of age (11).

Before data collection, the researcher conducted a suitability test between data takers and the Altman bland. The results of the conformity test on ten children showed a limit of agreement -3.6 - 3.6, which means it can be concluded that the observers have a good agreement.

Fisher's exact test analyzed data by comparing the pain experienced by thalassemia and non-thalassemia children who were given audiovisual distraction intervention.

The audiovisual distraction technique is given using the child choosing the video he likes. The child watches the video for 5 minutes before the invasive procedure. Then the nurse performs stabbing and pain measurements with CASP-pain (Children Anxiety and Pain Scale) while the child is still given audiovisual distraction during the invasive procedure.

RESULTS

Univariate analysis of characteristics consisting of children's age, gender, history of hospitalization, and pain in both thalassemia and non-thalassemia children is shown in table 1. In contrast, the comparison of pain in thalassemia and non-thalassemia children is shown in table 2.

Table 1. Frequency Distribution of Respondents' Characteristics and Child Pain

No	Variable	Frequency
Respondents Non-Thalassemia Children (n=18)		
1	Children's Age	
	- Preschool-age children (1-<6 years old)	- 9 children (50%)
	- School-age children (6-12 years old)	- 9 children (50%)
2	Gender	
	- Girl	- 6 children (33,3%)
	- Boy	- 12 children (66,7%)
3	Hospitalization	
	- ≤3x	- 18 children (100%)
	- > 3x	- (0%)
4	Type of invasive procedure:	
	- Infuse insertion	- 16 children (89,5%)
	- Vein insertion for blood sampling	- 2 children (10,5%)
5	Pain Scale	
	- Mild pain	- 16 children (83,3%)
	- Severe pain	- 2 children (16,7%)
Respondents Thalassemia Children (n=15)		
1	Children's Age	
	- Preschool-age children	- 2 children (13,3%)
	- School-age children	- 13 children (86,7%)
2	Gender	
	- Girl	- 8 children (53,3%)
	- Boy	- 7 children (46,7%)
3	Hospitalization	
	- ≤ 3x	- (0%)
	- > 3x	- 15 children (100%)
4	Type of invasive procedure:	
	- Infuse insertion	- 9 children (47,4%)
	- Vein insertion for blood sampling	- 6 children (31,6%)
5	Pain scale	
	- No pain	- 2 children (13,3%)
	- Mild pain	- 13 children (86,7%)

In table 1, it can be seen that the respondents started from preschool-age and school-age children of all genders. All non-thalassemia children (100%) were treated 3x, while all thalassemia children (100%) had repeated hospitalizations (>3x hospitalizations). In non-thalassemia children, despite being given pain management with audiovisual distraction, they still experienced mild pain (83.3%) and severe pain (16.7%), while in thalassemia children, 13.3% had no pain and 86.7% had mild pain.

Comparative analysis of pain in children with thalassemia and thalassemia was analyzed using Fisher's exact test, which is depicted in table 2.

Table 2. Comparison of pain in children with thalassemia and non-thalassemia gave audiovisual distraction intervention

	Pain Scale of Non-Thalassemia Children		P-value
	Mild	Severe	
Pain scale of Thalassemia Children			0,629*
- No pain	2	0	
- Mild	10	3	

*fisher exact test

DISCUSSION

Pain during invasive procedures is something that children feel during invasive procedures. Psychological pain is felt by everyone, both children and adults, with different levels of pain. The experience of pain did not significantly affect the level of pain felt by the child. For example, children who receive hospitalization repeatedly still feel pain, so it is necessary to apply general and easy-to-apply pain interventions to overcome this (12, 14).

Audiovisual distraction techniques have been widely used as non-pharmacological interventions to reduce pain and anxiety in children. The advantages of this technique are presented in several research results which prove that when this technique has

been proven to reduce children's pain in various procedures such as dental procedures, infusion procedures, blood sampling, after-anesthesia procedures in surgery, and even hospitalization anxiety (8, 9, 10, 21, 22). This technique is generally applied at ages 1-12 years, even up to 19 years, but by adjusting the given spectacle to give the desired distraction effect (8, 9, 10, 21, 22). Furthermore, there was no relationship between age, gender, and type of action to decrease pain response when administering audiovisual distraction techniques (23).

This study shows that thalassemia and non-thalassemia children experience pain due to invasive procedures performed during hospitalization. Moreover, both of them still feel pain due to invasive procedures. However, the pain was felt more by non-thalassemia children who were given audiovisual distraction intervention; namely, 16.7% experienced severe pain, and 83.3% experienced mild pain. On the other hand, in contrast to thalassemia children who were given audiovisual distraction techniques, the percentage of children experiencing mild pain was 86.7%, and 13.3% had no pain at all.

Statistical calculations show no significant difference between the pain felt by non-thalassemia children and thalassemia children after giving atraumatic care intervention through audiovisual distraction techniques. This happened because both groups responded equally with decreased pain to the audiovisual distraction technique. This is in line with several studies showing the effectiveness of audiovisual distraction techniques in reducing pain in children with acute illness (11, 12, 13, 14).

The results of this study also show that children with chronic diseases continue to experience pain from invasive procedures, although with lower pain levels. The experience of pain in children is very individual, and the experience of pain they feel can affect the child's psychology (14).

There are not many studies that discuss pain management in thalassemia children. Many studies have focused on the pain in children with cancer or acute illness. Meanwhile, we know that thalassemia

children also receive invasive measures in the form of infusions for routine blood transfusion needs. Several studies have shown that thalassemia children who routinely undergo hospitalization and recurrent pain may be at risk of developing depression that can be identified during school age and adolescence (5, 15, 16, 17).

A further worrying impact on thalassemia children is decreased quality of life. Several studies state that adolescents and adults with thalassemia feel the burden of the disease is too heavy, affecting their emotions. This condition reduces their ability to function and control their emotions. This domain is more prominent in adolescent and adult thalassemia than in perceived physical deficiency (18, 19).

Nurses have an essential role in preventing depression or even decreasing the quality of life in people with thalassemia, especially those who receive blood transfusions regularly. In addition, Atraumatic care with audiovisual distraction techniques can be an effort for pain management that is easier to facilitate in every effort to reduce child pain, especially during invasive procedures (20).

CONCLUSION

All children who undergo hospitalization and actions that cause pain need to be given atraumatic care to prevent trauma to children both physically and psychologically. The audiovisual distraction technique is one of the interventions of atraumatic care that can be applied to children of various ages so that, in the short term, it can reduce the pain felt by children and can suppress the further consequences of pain felt by children during invasive procedures during hospitalization, both in children with acute illness. (non-thalassemia) or in children with thalassemia.

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