Nursing Process of Postoperative Children with Digestive Surgical Case in Children Surgical Ward

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Abstract

Objective: This scientific paper is aimed to provide an overview of nursing care post-operation in children with digestive surgery case as well as to provide an overview of the effect of non-pharmacological application of cutaneous stimulation cold application in reducing postoperative wound pain.

Methods: One example of pain management interventions that can be done is cutaneous stimulation. This technique aims to divert the child's attention to the tactile stimuli provided and inhibits the transmission process and pain perception so as to decrease the pain scale of the child.

Results: There were four nursing problems identified. They were acute pain, an imbalance of nutrients less than the body's needs, the risk of damage to the integrity of the skin, and the risk of infection.

Conclusion: The main problem is acute pain. The results of the intervention after five days of treatment concluded that the use of cold application could meet the desired outcome criteria in acute postoperative pain nursing problems.

Keywords: child, digestive surgery, non-pharmacologic, pain, postoperative

Introduction

Gastrointestinal problems have a large proportion as a cause of death in Indonesia, which is around 30%, along with non-communicable diseases1. This condition is also supported by data on the results of the recording of inpatients in Children Surgical Ward at X Hospital from January to March 2018, which is about 33.77% of patients registered with gastrointestinal problems, such as atresia ani, hernia, choledochal cysts, appendicitis, and hirschsprung.

The prevalence of choledochal cysts case has increased, especially in children aged newborns and children in Asian countries such as Indonesia2. Based on the results of the patient's recording at X Hospital from January to March 2018, cases of children with choledochal cysts have increased to 7.69%. Choledochal cysts is one of the congenital malformations that is quite often found in newborns to children3.

Case Management of choledochal cysts is a definitive surgical procedure by excision of cysts and reconstruction of bile ducts4. This surgical procedure will cause pain as the nursing problems in the postoperative phase. An acute pain that is not adequately treated can cause physiological and psychological problems in children, so that it can prolong the length of treatment. In addition, according to the International Association for the Study of Pain (IASP), pain is included in one component of vital signs that needs attention for all health workers or called "the fifth vital sign"5.

In general, pain responses can be observed through behavior, facial expressions, crying, and physical changes such as increased blood pressure, pulse, sweating, pupil dilatation, reddish skin color, and decreased appetite6. In
the first 48th hours postoperative, patient tends to experience moderate to severe pain, so patient urgently needs pain management6,7. Pain that is not treated properly can cause other health problems that prolong the length of hospitality.

The child's response to pain varies according to the stage of their age. In pediatric ward, nurses are expected to be able to use pain scale assessment instruments that are adapted to the stages of age and patient’s ability to describe perceived pain perception. Nurses play an important role in identifying pain responses comprehensively and helping to improve patient’s comfort status in the postoperative phase6.

Nurses play an important role in conducting non-pharmacological pain management. Nonpharmacological pain management is safe, has no side effects, easy to do, and is an independent nurses intervention7. Types of nursing interventions in nonpharmacological pain management include distraction, relaxation, imagination therapy, hypnosis, cutaneous stimulation, acupuncture, acupressure and Transcutaneous Electrical Nerve Stimulation (TENS)8.

The effectiveness of the implementation of non-pharmacological pain management is expected to reduce the child's pain perception slowly. Therefore, nurses play an important role in optimizing nonpharmacological pain management.

Case Report

“L” Child, aged 4 years and 2 months, was treated at dr. Cipto Mangunkusumo on April 30th, 2018 with a complaint of abdominal enlargement since January 2018, especially in the upper right abdomen and there was pain in the area. After an MRI examination, there was found choledochal cysts type IVa. Her parent said that patient's feces was in putty (pale coloured), her urine was dark yellow like tea’s colour, accompanied by fluctuating fever ranging from 40°C. Patient looked pale with stertorous due to an enlarged abdomen.

Then on May 4th, 2018 laparotomy and cyst drainage have been performed. The amount of bile released during the operation is ± 2200 cc and its colour is greenish. At the time of the study, patient was treated after the second surgical procedure (Day+3) that was held on May 11th, 2018, namely laparotomy surgery, choledochal cysts mucosectomy, and End-to-side Roux En-Y Hepatojunostomy.

Based on the results of the assessment process, there were four main nursing problems in this patient. The first nursing problem was an acute pain. She felt pain in the abdomen, especially the right upper to middle (location of surgery) and does not want to be touched by the abdomen. Her parent said that she was very fussy and has difficulty in taking a rest especially at night. She often complained that pain appears erratically, usually when parents or children changed her position consciously or unconsciously when she was asleep. They also said that she was difficult to calm if she cried, especially when and after dressing changes or examination in her stomach.

Patient often rubbed the area of the abdomen around her wound dressing operations while crying or complaining. She tended to avoid movement especially in the right abdominal area and sleep in a curled position to the right. The result of pain assessment using FLACC scale is 6 (moderate pain). Her nonverbal expressions against pain include grimacing, tend to avoid movement in the right abdominal area, fussy, and slightly stiff and curled. Patient cried for a long time and was difficult to calm especially when the area around the abdomen was pressed.

In this nursing problem, interventions have been conducted including monitoring vital signs, conducting a comprehensive pain assessment including location, frequency, and trigger factors for the emergence of pain, as well as assessing patient's resting patterns, appetite, and behavior as a result of the pain he feels.

Then, followed by observing the expression of patient's nonverbal in responding to pain while evaluating the effectiveness of medication therapy which is Paracetamol 3×170 mg as oral analgesic therapy. Nurse also involve parents in providing comfort and distraction to reduce child postoperative pain, such as carrying patient’s favorite objects, such as pillows or doll, and her toys. Then, nurse provide education about nonpharmacological techniques in reducing child pain, which includes deep breathing techniques, audiovisual distraction, physical distractions which include grasping and hugging, and cutaneous stimulation application of cold compresses in painful areas. Nurse provides a more in-depth explanation of the ways, techniques, duration, and contraindications to the use of cutaneous stimulation in the application of cold compresses in the area of patient's surgical wound.

As an evaluation after 5 days of intervention, among others, patient said the pain in her stomach was gone, parents reported that patient was not fussy and could rest well. She have been able to mobilize gradually, such as sit in bed by herself. The change in pain scale until the fifth day was reduced from the pain scale 6 (moderate pain) to a scale of 0-1 (mild pain) using the FLACC pain scale. Pain appeared on scale 4 when postoperative wound dressing was replaced, but pain was reduced to a scale of 3 with the use of cold compresses in the area around the surgical wound. Patient's body posture seems relaxed and calm when approached by nurses and doctors. The results of measurement of patient's vital
signs are within normal limits (vital signs on May 18th, 2018 are blood pressure: 95/59 mmHg, pulse: 161 times/minute, respiratory rate: 27 times/minute, temperature: 36.8°C). So it was concluded that the problem of acute pain was resolved.

The second nursing problem is an imbalance of nutrients less than the body's needs. Based on assessment data, her parents said she often complained of hunger and wanted to eat rice since postoperatively but patient was still monitoring a gradual diet. Her parents said that she was not nauseous or vomited. Parents said that since January she had decreased appetite and had a significant weight loss since last January at around 3 kg. Patient's body weight before illness (in December) is ±13 kg, while the child's weight after surgery is 9420 grams. She looked thin and lack appetite.

During the postoperative treatment patient is given a gradual diet, starting from a clear fluid 8x10 cc to solid foods. However, she tend not to spend the portion given. The result of consultation with a nutritionist is that the diet rises gradually to eat 8x50 cc/24 hours of liquid food (milk). She is installed with NGT flow hose with a minimum production of the 3rd postoperative day (±15 cc). Her anthropometric measurement results are body weight 9420 grams, height 93 cm, upper arm circumference (LLA) 10 cm. Her nutritional status is malnutrition (Z < -3 SD). She looked thin and limp. She only want to lie in bed and sometimes are lazy to drink. The results of her liquid balance measurement is -38 cc without the sign of dehydration.

The interventions that carried out on this issue are assessing nutritional status, allergies, patient’s favorite foods, and patient’s tolerance in digesting food. Children are given a stepped-up diet, starting from clear fluid 8x10 cc per day to a liquid diet (formula milk) 8x50 cc per day with the addition of total parenteral nutrition (TPN), that is Dextrose 10% (311 ml) + Dextrose 40% (85 ml) + Aminofluid 5% (220 ml) + Intralipid 20% (55 ml) + NaCl 3% (43 ml) + KCl (11 ml) with the number of drops 30.6 ml per hour on May 15, 2018. Diet rises gradually until May 18th becomes soft meal two times a day with additional nutrition 7x150 cc per day, which is peptamen and the total parenteral nutrition is stopped. Her parents said that since the postoperative period patient becomes reluctant to drink milk through oral medication, so parents give it through the NGT tube so that patient's nutrition is fulfilled. She tend to eat more snacks such as bread, chocolate and biscuits than rice that had given.

The results of these nursing intervention were an increase in her nutritional intake either through oral or with the help of NGT hoses. In addition, she appear to be calmer, fresher and more energetic than their first day of care. She also gained weight from 9420 grams to 10150 grams on the fifth day of treatment. Parents already understand about the recommended diet for patient when preparing to go home, which is high protein, high in calories, and low in fat.

The third nursing problem is the risk of damage to the integrity of the skin. Her parents said their children often complain of itching in the area around the operation and ask for their mother's carding. Gauze-covered surgery wound. The doctor's documentation when replacing the wound dressing in the Room Pediatric Intensive Care Unit (PICU) was a clean wound, there was no pus or discharge. The wound was still slightly wet and the edges of the wound had formed and were reddish. Parents understand the information that the condition of the surgical wound must remain clean and dry, so that when they bathing the child only by wiping it by keeping the dressing from getting wet.

In this problem an intervention is carried out in the form of monitoring the condition of the postoperative wound, observing the presence of seepage, redness and moisture in the area of the skin around the wound. In addition, nurse also encourage parents to use coconut oil at least every bathing time to prevent the emergence of pressured wounds and maintain the moisture of patient's skin, especially in the area of protrusion and long pressure (shoulder, back, buttocks, and others). Results of these intervention for five days treatment is the condition of clean postoperative wound, there is no sign of redness or skin irritation, the wound has formed the edges of the wound and the condition of the wound is quite dry. The moisture of the skin around the postoperative wound area both with awake dressing remains dry, so after the fifth day of treatment the intervention is stopped due to damage skin integrity does not occur.

The other nursing problem is the risk of infection. Based on assessment data, there were surgical lesions around 12 cm in the upper right lateral abdominal area (Day+3 surgery). The condition of the wound was good, quite moist, and covered with gauze. The cleanliness of the area around the surgical wound is good, not wet / seepage. Her nutritional status is malnutrition. In addition, the child is also attached to a nasogastric tube (NGT) and access to the dorsal metacarpal peripheral vein.

In this problem an intervention is carried out in the form of examining the condition of the postoperative wound, observing signs of worsening of the wound, and signs of infection (changes in temperature, color, and there is a discharge from the wound). Nurse also observe signs of local and systemic infections in patient on a regular basis. In five days patient does not have a fever (the temperature of patient ranges from 36.6°C to 37.2°C). Nurse always do hand hygiene every time before and after performing nursing actions in patient. In addition, parents also educated on hand hygiene and how to use and maintain feeding tubes on a nasogastric tube (NGT). Nurse also did peripheral venous access care and monitor for indications of venous access site replacement, such as
local edema, changes in skin color and temperature. The results of the intervention carried out during five days of treatment were no signs of infection (a sign of redness, temperature change, discharge from the surgical wound). The condition of the surgical wound is clean, there is no seepage and the healing process of the wound is running normally marked by the formation of a good wound edge. Peripheral venous access conditions can be maintained patents during treatment. In addition, when parents were observed they were able to do hand hygiene and maintenance of NGT hoses and feeding tubes. So it can be concluded that the problem of nursing risk of infection is resolved.

**Discussion**

Nurses play a role in doing pain management, especially non-pharmacologically. One intervention in nonpharmacologic pain management is cutaneous stimulation. Cutaneous stimulation techniques aim to improve patient's comfort by inhibiting the body's physiological response to pain perception. This technique aims to divert patient's attention to the tactile stimuli given to reduce pain perception.

One example of cutaneous stimulation is the application of cold or cold compress. Application of cold compresses can cause vascular vasoconstriction, reduce capillary permeability and cellular metabolism, slow the delivery of pain impulses, and can be an effect of local anesthesia. Based on Saeki's research, cold compresses can suppress the body's autonomic nervous system response so that it increases the pain threshold and reduces pain sensations. The study also found that the use of cold compresses can reduce blood flow, conductivity level or impulse delivery, and pain sensation. Cold stimulation can also help reduce swelling, inflammation, muscle spasms and stop bleeding.

During the implementation of nonpharmacological pain management with cutaneous stimulation techniques in “L” Child, the nurse performed cold compresses using cold pack media. Before doing cold compresses, the nurse performs pain assessment first in patient using the FLACC scale. During the five days of treatment, patient's pain scale ranged from mild to moderate pain before a cold compress. In addition, nurse also study the skin area around surgical wound dressing as indicated. The skin condition around the wound dressing is clean, warm enough, and there are no signs of tissue damage so that cold compresses can be done. Then, the nurse intervenes stimulation with the movement of attaching cold compress media to the area around the surgical wound that is adjusted to the comfortable conditions for patient. The nurse keeps the wound dressing dry so that it does not interfere with the healing process of patient's surgery wound. Then after completing the cold compress, the nurse conducts an assessment of the area of the skin around the location of the cold compress and reviews the scale of patient’s pain.

In the research of Indriyani, Hayati, & Chodidjah which compared the pain scale of patient during infusion with the effect of cold compresses and warm compresses on the control group. The study concluded that the administration of cold compresses was more effective in reducing pain during infusion in patient.

According to Watkins, et al., it was concluded that cold packs were easy to use and effective in reducing abdominal postoperative pain. In Kristanto & Arofiati's research, it was concluded that the use of cold compress intervention with cold pack media was more effective in reducing pain scale compared to deep breath relaxation intervention in post ORIF patients. The study was supported by the research of Anugerah, Purwandari, & Hakam. The results showed that there was a change in pain scale before and after being given an intervention for cold compresses, namely from pain scale 3 to scale 2 in patients with ORIF postoperative placement.

The duration of the cold application does not exceed 15 minutes. In Arofiat's research, a cold compress was applied for 5-12 minutes as a reference that in this duration the mechanism of body compensation in the form of vasodilation has not occurred in order to prevent hypoxia due to constriction of the blood vessels for too long. Based on literature studies that have been done, the authors set the duration when doing cold compresses is 5 minutes using cold pack.

Based on the results of evaluations of nonpharmacological pain management performed, the use of cold application of cutaneous stimulation can be said to meet the criteria of results on acute pain nursing problems in “L” Child. The results of implementation for five days of treatment include complaints of pain that is no longer present, the child appears calm, not fussy, and can do activities well. Child's body posture is more relaxed and nonverbal expressions of pain such as groaning, frowning, and wiping the area of pain are reduced. The pain scale decreases from scale 6 to scale 1 (FLACC scale) and scale 3 when wound dressing is replaced. In addition, patient also expressed their desire to use cold compresses when they felt pain because they felt more comfortable.

**Conclusion**

The process of postoperative nursing care is carried out comprehensively starting from the assessment process to evaluation. Treatment in the postoperative phase centers on monitoring the signs and symptoms of postoperative complications. One of the nursing problems that often arises in this phase is the problem of acute pain which must be treated quickly and accurately to prevent the emergence of the risk of postoperative complications.

Based on the results of nursing studies conducted, there are several nursing problems that arise in “L” Child including acute pain problems, lack of nutritional
imbalance from the body's needs, risk of damage to skin integrity, and risk of infection.

One independent nursing intervention in nonpharmacologic pain management is a cutaneous stimulation technique with cold application. The results of these interventions during the five days of treatment in “L” Child concluded that the use of cold application cutaneous stimulation techniques can reduce pain in patient with postoperative digestive surgery cases with indicators of success in achieving the desired outcome criteria.

References