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Application of Deep Breathing Relaxation Therapy to Reduce Post-Operative Pain Levels of Percutaneous Nephrolithotomy (PCNL) in Patients with Kidney Stones in the Eri Soedewo Pavilion Room, Fifth Floor, Gatot Soebroto Army Hospital

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Abstract

Kidney stones (nephrolithiasis) are the formation of hard material in the kidneys such as stones derived from minerals and salts. Small kidney stones can move to the ureter, bladder and urethra. This causes irritation. PNCL (Percutaneous Nephro Litholapaxy) surgery is one of the endourology procedures to remove stones in the kidney tract by inserting an endoscope into the chelicera through an incision in the skin. The stones are then removed or broken into small fragments and cause wounds that cause pain. Pain is an unpleasant sensory and emotional experience accompanied by potential and actual tissue damage. One of the non-pharmacological therapeutic actions in overcoming pain is by applying deep breathing relaxation techniques. Deep breathing relaxation techniques are carried out by nurses teaching clients how to take deep breaths, slow breaths (holding inspiration to the maximum) and how to exhale slowly. From this case study, it is expected to describe nursing care for post-operative PNCL patients in the application of deep breathing relaxation techniques for post-operative PNCL pain in the Eri Soedewo Pavilion Room, V floor, Gatot Soebroto Army Hospital. The case study method used in compiling this final assignment is a descriptive case study using one patient for research. Based on the case study obtained, there was a decrease in the pain scale from a pain scale of 5 to a scale of 2 after the application of deep breathing relaxation techniques. So it can be concluded that deep breathing relaxation techniques can have an effect on reducing pain in post-operative kidney stone patients.

Keywords: Kidney Stones; Pain; Deep Breath Relaxation; Percutaneous Neprhro Litholapaxy

Introduction

Nephrolithiasis is a urological disorder caused by the deposition of substances containing crystal components and organic matrix in urine or waste products from body secretions in excessive amounts. Crystals that were originally only microscopic in the loop of Henle, distal tubule or collecting duct, become larger and easily visualized using imaging.

Nephrolithiasis can be classified based on calcium content, density, and stone-forming composition which can cause a burning sensation in the waist or lower abdomen. (Purba et al., 2021) Kidney stones (culkulas) are stones found in the urinary tract anywhere. Stones that are composed of calcium crystals. Calcium and oxalic acid are chemicals that can be hard and shaped like kidney stones. Over time, these materials will become hard and shaped like stones.

Causes of kidney stones include genetics, consumption of foods high in oxalate, high in protein, high in calcium, not drinking enough water and often holding urine. Kidney stone deposits can be caused by dietary factors and urine cannot come out, because urine not coming out for too long will put pressure on the kidneys. In this condition, the kidneys have to work hard and are at risk of damage.

Stones in one kidney will not cause kidney failure, but stones in both kidneys will cause kidney failure. Kidney stones can be divided into four, namely calcium stones, uric acid, struvite and cystine. Small kidney stones can move to the ureter, bladder and urethra. This causes irritation to the urinary tract (Ferro et al., 2020)

According to WHO worldwide, an average of 1-2% of the population suffers from kidney stones out of 100 sufferers of this disease is the most common disease in the field of urology. In the United States, the most common disease is urinary system disease, especially kidney stones with a percentage of 30% of the total 100,000 kidney stone sufferers. In western countries, more than 90% of urinary tract stones are treated minimally invasively or endourologically, and the rest are treated medically or operatively. According to the Indonesian Ministry of Health (2018), the incidence of kidney stones throughout Indonesia is 1,499,400 people. Meanwhile, those who experience kidney stones in Indonesia are men and women aged 30-60 years. In women who experience kidney stones, 10% while in men 15%. From the prevalence in Indonesia, most of those who experience kidney stones are men.

One of the causes is an increase in testosterone hormone levels and a decrease in estrogen hormone levels in men, resulting in stone formation. Based on the results of data obtained from the patient register book in the treatment room on the V floor of the Eri Soedewo Pavilion (surgical unit) of the Gatot Soebroto Army Hospital for the last 3 months from January to April 2021, there were 18 patients. The high number of kidney stone cases in Indonesia requires preventive measures for this problem.

Symptoms that often appear in kidney stone sufferers are pain in the waist from the bottom to the front. In overcoming pain and removing existing stones, namely by means of PCNL (Percutaneous Nephrolithotomy) surgery. PCNL is one of the endourology procedures to remove stones in the kidney tract by inserting an endoscope into the chelicerae through an incision in the skin. The stones are then removed or broken into small fragments first and cause wounds that cause pain (Nomor et al., 2023)

According to The International Association For The Study Of Pain, pain is an unpleasant sensory and emotional experience accompanied by potential and actual tissue damage. Pain that arises due to surgery if not treated can cause harmful effects that interfere with the healing process and will affect the patient's growth and development process (Brunner, 2010)

One of the non-pharmacological therapeutic actions in dealing with pain to reduce the pain scale in patients with Post PCNL Surgery is by applying deep breathing relaxation techniques. Deep breathing relaxation techniques are carried out by nurses teaching clients how to take deep breaths, slow breaths (holding inspiration to the maximum) and how to exhale slowly. In addition to reducing pain intensity, deep breathing relaxation techniques can also increase lung ventilation and increase blood oxygenation.

The application of non-

pharmacological therapy with deep breathing relaxation techniques can be practiced on patients who experience pain during Post PCNL Surgery by positioning the patient as comfortably as possible according to their wishes by lying down. Then ask the patient to close their eyes to focus. After that, inhale through the nose (inspiration) for 4 seconds, hold the breath for 2 seconds, then exhale (exhale) with the mouth purged for 8 seconds, deep breathing relaxation is done with a frequency of 8 times for 3 days as a support for pharmacological therapy in the form of giving analgesics with ketorolac injection 30mg / ml given every 8 hours.

Based on interviews conducted by the author with 3 of 5 room nurses said that patients who experience Post-Operative PCNL pain are only given pharmacological therapy in the form of giving analgesics with ketorolac injection 30mg / ml and for the application of deep breathing relaxation techniques have never been done in the Eri Sudewo pavilion, 5th floor, Gatot Soebroto Army Hospital based on the author's interview with the client said that during the pain the client was only given painkillers by the hospital.

Method

The case study design used in writing and compiling scientific papers is a form of descriptive case study. A descriptive case study was conducted with the aim of describing the application of deep breathing relaxation therapy to post-operative pain PNCL in patient Mr. A with kidney stones in the Eri Soedewo Pavilion room, 5th floor, RSPAD Gatot Soebroto using the nursing process method, namely assessment, nursing diagnosis, planning, implementation and evaluation of nursing by focusing on one important problem in the selected case. Namely the application of deep breathing relaxation therapy to reduce postoperative wound pain with a diagnosis of kidney stones.

Results and Discussion

Data Analysis

The results of the data analysis assessment obtained are subjective data and objective data.

a. `Subjective data, P: the client said pain in the right side of the waist post-operative wound. Q: the client said the pain was like being stabbed. R: the client said pain in the right side of the waist. S: the client said the pain scale was 5 moderate. T: the client said pain when moving.

b. `Objective data obtained, namely TTV results: BP: 162/86 mmhg, N: 76x / minute, S: 37oC. RR: 20x / minute, Spo2: 99%, the client looked grimacing, the client looked restless, the client seemed to have difficulty sleeping, composmentis consciousness, a catheter was attached. Laboratory results urea 13 mg / dL, and creatine 0.81 mg / dL. The problem obtained was acute pain and the cause was a physical injury agent (surgical procedure).

Nursing Diagnosis and Intervention

The diagnosis of the problem is acute pain related to physical injury agents (surgical procedures). Based on the results of the case study and two journals that have been done previously (related journals) it was concluded, in the journal Imelda Diana Marsilia & Nina Tresnayanti (2020) there was a difference that did not match the case study of when the application of deep breathing therapy was carried out, how many times per day the application of deep breathing and deep breathing therapy to reduce pain all succeeded in reducing pain.

Nursing Implementation and Evaluation

In the writing journal, there was a

gap between the case studies that had been carried out. In the journal Imelda Diana Marsilia & Nina Tresnanyanti (2020), after evaluating the implementation of deep breathing to reduce pain, it was found that the results of the journal did not include the implementation of deep breathing before administering the drug or after administering the drug, the application of deep breathing was carried out for 30 minutes, the respondent inhaled from the nose for 3-5 seconds, then exhaled for 3-5 seconds, then exhaled for 3-5 seconds, then the patient breathed normally for 1-2 minutes, then took a deep breath by deflated scan the abdominal cavity then remove it from the mouth within 3-5 seconds with a combination of standing for 10 minutes, sitting for 10 minutes, and lying in bed for 10 minutes.

Based on the results of deep breathing therapy, there was a decrease in the pain scale, from a moderate pain scale of 64.3% to mild 67.9%, while severe pain 35.7% to mild 32.1%. And in the Multazam multazam journal, after an evaluation of the implementation of the Deep Breathing Action on reducing pain, the journal did not include the implementation of Deep Breathing before or after giving medication. The application of Deep Breathing is done 3 times a day for 5-10 minutes.

The results of the Deep Breathing Action for moderate pain as many as 40 patients decreased to 14 patients. While in the results of the case study that has been conducted by the author on the evaluation after Deep Breathing was carried out on the pain reduction results of Deep Breathing. Deep Breathing is carried out with a frequency of 1 time a day. and the results of the Deep Breathing Action on the pain scale decreased from a scale of 5 (moderate) to 2 (mild). After nursing actions are carried out, the last step is an evaluation of the nursing diagnosis found by conducting both formative and summative evaluations.

Conclusion

The application of Deep Breathing Relaxation Therapy to reduce post-operative PCNL wound pain in patient Mr. A with kidney stones is effective. The client and family are very cooperative in implementing this, the independence of the patient and family is obtained to carry out deep breathing relaxation techniques. In the implementation and evaluation of nursing that has been carried out, it is then given to the client and family. When pain appears, the client can repeat the therapy independently. So the nursing problem with the diagnosis of acute pain related to physical injury agents (surgical procedures) has been resolved.

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