JURNAL KESEHATAN
JURNAL ILMU-ILMU KEPERAWATAN, KEBIDANAN, FARMASI & ANALIS KESEHATAN
DOI : https://doi.org/10.52221/jurkes
JURKES
ISSN : 2089-3906

Slow Deep Breathing Intervention to Reduce Pain Intensity in Mild Head Injury Patients

Dadi Hamdani[1*], Rena Prizka Melia[1], Henri Setiawan[1]
[1]STIKes Muhammadiyah Ciamis, Ciamis, Indonesia

Article Information

Revised: October, 2023
Available online: October, 2023

Keywords

mild head injury; acute pain; slow deep breathing

Correspondence

E-mail : dihamni92@gmail.com

ABSTRACT

Background: One of the most common factors that cause head injuries is traffic accidents. Minor head injury is a nervous system disorder caused by a violent blow or jolt to the head or body. As a result of this accident an individual can lose consciousness which is characterized by headaches and pain. Pain is a physiological problem. Interventions that can be used in overcoming pain are by providing slow deep breathing non pharmacological therapy.
Purpose: This study was to obtain an overview of slow deep breathing therapy in patients with mild head injuries and reduce pain intensity.
Methods: The writing used is descriptive method in the form of case studies through the nursing process approach which includes assessment, nursing diagnoses, planning, implementation and evaluation. The study was conducted at the BLUD RSU Banjar City on 27-31 May 2022. The participants in this study were the patient Mrs. S is 36 years old. Complains of pain in the back of the head. The process of assessing and establishing a diagnosis is focused on the main problem. Subjective and objective data become a reference for evaluation of nursing implementation on a regular basis.
Result: Based on the assessment of the pain scale, it was found that the original scale decreased from 4 (1-10) to 1 (1-10). Using the Numeric Rating Scale (NRS) measurning instrument.
Conclusion: The author found the effect after giving slow deep breathing intervention on reducing pain intensity in patients with mild head injury and getting effective results, as evidenced by a decrease in the intensity of the pain scale. From

the case study, slow deep breathing intervention can be an alternative intervention for mild head injury patients so that complications from the disease do not occur.

INTRODUCTION

A case of head injury or trauma to the head is a condition of injury to the head characterized by the presence or absence of structural damage to the brain (Afianti & Budiarti, 2020). Trauma that occurs is caused by a fall or pressure characterized by a glasgow coma scale (GCS) value of 13-15 (composmentis) but the patient complains of head pain (Fadly & Siwi, 2022). Patients who experience trauma to the head usually all commands can be followed on GCS assessment (Indrawati et al., 2021). Even some cases of head injury can be assessed with the patient fully conscious or a state where the patient does not experience a decrease in consciousness. This situation is often ignored and sometimes other supporting examinations are often missed or not even done (Manarisip et al., 2014). This can lead to various complications if not done immediately.

The World Health Organization (WHO) states that the number of people with mild to severe head injuries every year is around 1.2 million cases of death due to traffic accidents that occur (Pratiwi et al., 2015). In Indonesia, the incidence of head injury or trauma to the head reaches 7.5% of the population (Pratiwi et al., 2015). The Banjar City Hospital Public Service Agency recorded that the prevalence of mild head injury patients in 2021 was around 241 people, or 10.09%.

Head injury is a dynamic and heterogeneous process. One of the complications that can occur in head injury cases is the possibility of increasing itracranial pressure, which is pressure on the cerebral part with an increase in brain volume that exceeds the tolerance threshold in the brain (Nurbaya & Satria, 2015). This is caused by cerebral hemorrhage or cerebral edema. Headache that occurs is one of the symptoms that arise as a result of increased intracranial pressure (Pratiwi et al., 2015). Increased intracranial pressure is one of the indications or symptoms in cases of headache experienced (Setianingsih et al., 2020). Frequent cases of headache last an average of three days and are a symptom that is widely complained of, namely 78%(Afianti & Budiarti, 2020). Acute pain is pain that suddenly arises and quickly disappears, one of which is characterized by an increase in muscle tension, pain is felt for no more than six months.

The main principle in cases of head pain in post-traumatic patients is to maintain adequate tissue perfusion to the brain by maintaining cerebral perfusion pressure so that brain oxygenation will be fulfilled. To reduce the intensity of head pain, non-pharmacological treatment is carried out (Setianingsih et al., 2020). Non-pharmacological therapy is one of the exercises that can be used by training patients to do slow deep breathing exercises. Slow deep breathing is a relaxation exercise that can be easily done by consciously and regulating breathing slowly and deeply. Slow deep breathing can change the perception of pain felt by the patient, besides that the benefits can be felt directly and have an effect on changes in blood pressure, pulse frequency and decreased oxygen consumption in the body and reduce muscle tension (Muhtarom Khadafid, 2021).

Handling in cases of head injury can be done by protecting the brain with the aim of facilitating blood flow so that there is no lack of oxygen. (Siahaya et al., 2020) By practicing slow deep breathing techniques can provide benefits such as relaxing

muscles, improving blood circulation, especially blood circulation to the brain so that hypoxia does not occur (Afianti & Budiarti, 2020)

METHOD

This research uses a case study design with an implementation approach that focuses on nursing interventions. The research was conducted at BLUD RSU Kota Banjar on May 27-31, 2022. The participants in this study were clients NY. S aged 36 years, female, complaining of pain. The intervention provided is slow deep breathing therapy given 2 times in 15 minutes (morning and evening) for two consecutive days. The process of assessing and determining diagnoses is focused on the main problem. Objective and subjective data become a reference for evaluating nursing implementation periodically. Data analysis is carried out by exploring objective data and subjective data before and after the intervention is given.

RESULTS AND DISCUSSION

At the time of the author's assessment, on May 27, 2022 in the emergency room of Banjar City Hospital, the patient complained of pain in the head and radiating to the back shortly after an accident. Previously the client had no comorbidities and the family had no history of previous illnesses. The patient was assisted by the family to the hospital with Mr. I as her husband in charge.

At the time of physical examination, there was no abnormality in Mrs. S, only pain in the head radiating to the back due to the impact during the accident. Pain scale 4 (1-10), GCS 15 (E4, V4, M6) fully conscious, SPO2 98%, at the time of assessment of vital signs there were results of BP 130/80 mmHg, pulse frequency 106 times per minute, breathing 19 times per minute, temperature 36ºC. The patient did not experience weakness in the muscles, appetite was good, the patient seemed to grimace and complained of headache. The patient's activity pattern is disturbed when sick because of the infusion, the sleep pattern is disturbed because the patient complains that it is difficult to rest. The therapy given to the patient was ceftriaxone 1x2, vitamik k 1x1, kalnex 3x1, and 1500 drops of RL IV fluid. A complete blood laboratory examination was performed with normal results. In the assessment, Mrs. S's patient and family were very cooperative so that the author could easily obtain data and the patient did not have a severe head injury.

From the results of the assessment, it was found that the nursing problem that arose was acute pain associated with Chysical injury agents with diagnosis number D.0077 on page 172 (PPNI, 2016). This is in accordance with what the author found during observation to the patient who said the head pain radiated to the back, pain like stabbing, the patient seemed to grimace because of pain, pain scale 4.

Nursing interventions and activities must be established in preventing, reducing and eliminating nursing problems of patients with acute pain associated with physical injury agents, namely as follows:

Table 1. Nursing interventions and outcomes

SLKI	SIKI
After 2x24 hours of nursing action, it is expected that the patient's pain scale can decrease with the outcome criteria: 1. Complaints of head pain are reduced 2. The patient does not grimace in pain 3. Pulse frequency is within normal limits	1. Assess the intensity, quality, frequency, duration, location of pain 2. Identify the pain scale range 3. Identify the pain response 4. Monitor vital signs 5. Identify the effect of pain on quality of life 6. Practice slow deep breathing therapy techniques or deep breath relaxation 6. 7. Control the environment that aggravates pain (e.g. room temperature, lighting, noise) 8. Encourage the patient to rest comfortably

In Implementation there are procedures carried out for patients with acute pain associated with physical injury agents, the implementation carried out is to assess the location of pain, identify the pain scale, position the patient accordingly to facilitate comfort, monitor vital signs, identify factors that alleviate and aggravate after that the focus intervention is the application of slow deep breathing techniques.
S: Pain is reduced and feels comfortable when doing slow deep breathing techniques.
O: BP: 120/80 mmHg, HR 84 beats per minute, RR 21 beats per minute, temperature 36.9ºC, pain scale 1 (1-10), the patient looks calm.
A: Problem solved.
P: Often do slow deep breathing technique when pain
I: Slow deep breathing relaxation
E: Patient understands how to manage pain
R: Intervention is stopped.

The results of the assessment of the patient Mrs. S at BLUD RSU Banjar City the author tried to apply all nursing processes comprehensively. In accordance with the theory, the implementation of nursing care in Mrs. S is carried out with a series of stages starting from the assessment process, determining nursing diagnoses, intervening, implementing, evaluating and documenting them. Assessment is the initial stage for collecting patient data, namely the approach to the patient and family, in which the purpose and purpose are conveyed so that the required data results are obtained (Basri et al., 2020).

When the author conducted an assessment on May 27, 2022, data was obtained through the patient Mrs.S suffering from a mild head injury due to an impact on the head that occurred during a traffic accident. During the assessment, the results of the physical examination were obtained, there were no abnormalities in Mrs. S, only complaining of pain in the head radiating to the back due to the impact. Pain scale 4 (0-10) The patient's general condition is fully conscious with GCS 15 (E4, V4, M6), SPO2 98%. This is in line with research (Purpasari, 2019). Signs and symptoms that appear in head injury patients include head pain, and vomiting, GCS 13-15, no neurological abnormalities

were found, the pupil response progressively decreased, the head pain felt arose immediately or gradually.

At the time of the TTV assessment there were results of BP 130/80 mmHg, pulse 106 times per minute, breathing 19 times per minute, temperature 36ºC. The patient did not experience weakness in the muscles, appetite was good, the patient seemed to grimace and complained of headache. In theory, pain is a condition of discomfort caused by a certain stimulus. Increased pulse frequency affects the patient's pain due to abnormal conditions experienced due to head injury. However, the opposite is true, the more pain a person feels, the potential for increased pulse frequency. Pain can affect the activation of the sensory nervous system and is a physiological response in the body. Increased pulse frequency is stimulation of nociceptors that increase peripheral resistance due to stimulation in the vascular system, so that it will have an effect on changes in pulse frequency (Handayani et al., 2014).

Then the author examines the patient's psychosocial status and shows anxiety by saying patience and tawakakal towards his illness. Spiritual data did not show serious problems, the patient was Muslim, and believed that the disease would heal. The patient's activity pattern is disrupted when sick because of the infusion, the sleep pattern is disturbed because the patient complains that it is difficult to rest. The therapy given to the patient was ceftriaxone 1x2, vitamik k 1x1, kalnex 3x1, and 1500 drops of RL IV fluid. A complete blood laboratory examination was performed with normal results. In the assessment, Mrs. S's patient and family were very cooperative so that the author could easily obtain the data needed and it was hoped that the patient would not have a severe head injury.

From the assessment results, there is a nursing diagnosis, namely acute pain associated with physical injury agents with number D.0077 on page 172 (PPNI, 2016). This is in accordance with the patient's data who said the head pain radiated to the back, the pain was like being stabbed, the patient seemed to grimace because of the pain, pain scale 4.

The interventions provided are in accordance with the problems experienced by the patient, namely, assess the intensity, quality, frequency, duration, location of pain, identify the range of pain scales, identify pain responses, monitor vital signs, identify the effect of pain in quality of life, provide slow deep breathing therapy techniques or deep breath relaxation, provide a comfortable environment, encourage patients to rest.

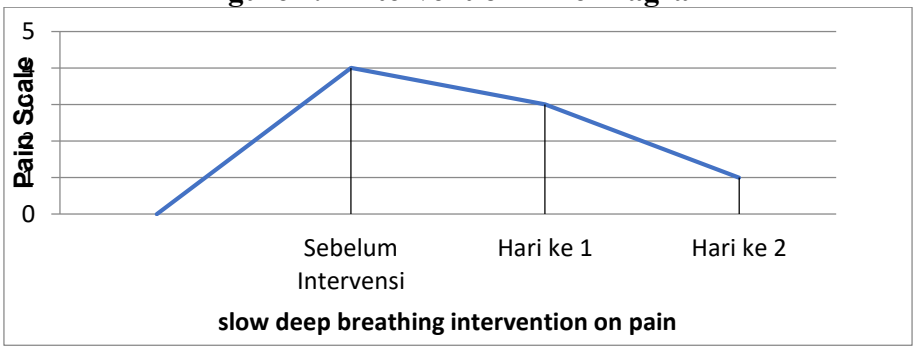
The implementation or implementation carried out on Mrs. S's patient is to assess the factors regarding the pain felt by the patient in accordance with the prepared intervention. And provide focused implementation, namely the provision of non-pharmacological techniques of slow deep breathing therapy. Explain and perform pain relief strategies by performing slow deep breathing techniques, namely slow and slow abdominal breathing. This relaxation is carried out in steps: adjust the patient's position to a lying or sitting position, then recommend inhaling deeply through the nose for 3 seconds, hold your breath for 3 seconds, pucker your lips, exhale through your mouth slowly for 6 seconds, then repeat for 15 minutes, do it in the morning and evening with relaxation. According to (Anggariesta, 2021) states that there is a difference before and after the slow deep breathing technique is given to reduce the level of pain in cases of pain in patients with mild head injuries.

Evalution is the final stage of nursing care. The author evaluates for two

days, namely on May 27 to 28, 2022. In the diagnosis of acute pain, after observation and given the same intervention for 2 days, the patient's evaluation was obtained on the first day there was a pulse frequency of 106 times per minute, the pain scale became 3 originally 4 (1-10), the pulse frequency decreased to 88 times per minute. and on the second day the patient's pain intensity became 1 (1-10) in the mild category, pulse frequency 84 times per minute, the patient looked calm, did not grimace, the problem was resolved, and the intervention was stopped

.

Figure 4.1 Intervention Line Diagram



CONCLUSIONS AND RECOMMENDATIONS

The intervention provided, namely slow deep breathing, is thought to be effective for reducing the pain intensity scale in cases of head pain for mild head injury patients as evidenced by the subjective patient's recognition that the pain scale decreased from 4 to 1 using the Numeric Rating Scale. In addition, the authors did not find significant gaps between theory and facts that hindered the results of the study, so that the research conducted did not conflict with previously existing research.

The authors would like to thank the Head of the Emergency Room BLUD Banjar City Hospital for facilitating the implementation of mild head injury patients. And also the author would like to thank the client Mrs. S and the family who have been willing to be involved as participants.

BIBLIOGRAPHY

Afianti, Y., & Budiarti, Y. (2020). Efek terapi kombinasi slow deep breathing (sdb) dan massage terhadap intensitas nyeri kepala akut pada cedera kepala ringan. *Journal Nursing Army*, *1*(2), 25–36.

Anggariesta, Z. G. (2021). *Efektivitas Metode Slow Deep Breathing Dan Guid Ed I Mag Ery Ter Ha Dapp En U Ru Na N Intensitas Nyeri Pada Pasien Cedera Kepala Ringan*. UNIVERSITAS dr. SOEBANDI.

Basri, B., Utami, T., & Mulyadi, E. (2020). *Konsep dasar dokumentasi keperawatan*. Media Sains Indonesia.

Fadly, A. R., & Siwi, A. S. (2022). Asuhan Keperawatan Penurunan Kapasitas Adaptif Intracranial Pada Tn. N Dengan Post Operasi Cranyotomi Atas Indikasi Epidural Hematom Di Ruang Intensif Care Unite (Icu) Rsud Kardinah Kota Tegal. *Pena Medika Jurnal Kesehatan*, *12*(1), 183–197.

Handayani, R., Fajarsari, D., Asih, D. R. T., & Rohmah, D. N. (2014). Pengaruh terapi murottal Al-Qur'an untuk penurunan nyeri persalinan dan kecemasan pada ibu bersalin kala I

Fase Aktif. *Jurnal Ilmiah Kebidanan*, *5*(2), 1–15.

Indrawati, N., Kupa, C. N., Putri, E. M., Lesimanuaya, L. L., Alviolita, V. E., & Septiani, V. (2021). Komparasi Glasgow Coma Scale (GCS) Dan Full Outline Of Unresponsiveness (FOUR) Untuk Menilai Mortalitas Pada Pasien Cedera Kepala Di Area Perawatan Kritis: Literatur Review. *Journal of Health (JoH)*, *8*(1), 19–27.

Manarisip, M. E. I., Oley, M. C., & Limpeleh, H. (2014). Gambaran Ct Scan Kepala Pada Penderita Cedera Kepala Ringan Di Blu Rsup Prof. Dr. Rd Kandou Manado Periode 2012 â€“2013. *E-CliniC*, *2*(2).

Muhtarom Khadafid, D. (2021). *Asuhan Keperawatan Pada Pasien Cidera Kepala Ringan (Ckr) Dengan Pemenuhan Kebutuhan Aman Dan Nyaman*. Jniversita Kusuma Husada.

Nurbaya, N., & Satria, A. P. (2015). *Analisis Praktik Klinik Keperawatan pada Pasien Post Tracheostomy atas Indikasi Indikasi Cidera Kepala Berat dan Intracerebral Hemoragik Terhadap Pemberian Chest Fisioterapi untuk Kebersihan Jalan Napas dalam Meningkatkan Pengeluaran Sputum di Ruang Intensive Care Unit RSUD Abdul Wahab Sjahranie Samarinda Tahun 2015*.

PPNI. (2016). Standar diagnosis keperawatan Indonesia. *Jakarta: PPNI*.

Pratiwi, S. H., Ropi, H., & Sitorus, R. (2015). Perbedaan Efek Kompres Selimut Basah dan Cold-pack terhadap Suhu Tubuh Pasien Cedera Kepala di Neurosurgical Critical Care Unit. *Jurnal Keperawatan Padjadjaran*, *3*(3).

Purpasari, A. D. (2019). *Studi Kasus Penilaian Glasgow Coma Scale (GCS) Pasien Post Operasi Kraniotomi Cedera Kepala Sedang Di Ruang Observasi Intensif RSUD Dr. Soetomo Surabaya*. Universitas Muhammadiyah Surabaya.

Setianingsih, E., Agina, P., & Nuurdoni, R. (2020). Penerapan Slow Deep Breathing Terhadap Nyeri Ckr Di Igd Rumah Sakit Pku Muhammadiyah Gombong. *Jurnal Vokasi Keperawatan (JVK)*, *3*(1), 36–49.

Siahaya, N., Huwae, L. B. S., Angkejaya, O. W., Bension, J. B., & Tuamelly, J. (2020). Prevalensi kasus cedera kepala berdasarkan klasifikasi derajat keparahannya pada pasien rawat inap di rsud dr. m. haulussy ambon pada tahun 2018. *Molucca Medica*, 14–22.