Journal Center of Excellent : Health Assistive Technology
Volume 2, Number 2, Tahun 2024, pp. 81-85
ISSN (Online): 2987-2200 DOI: 10.36082/jchat.v2i2.1801
Open Access: https://ejournal.poltekkesjakarta1.ac.id/index.php/jchat

Ambulation Support for Reduction of Pain and Uterine Fundal Height in Post-Cesarean (Case Study)

Meitania Rusdiana[1*], Ulty Desmarnita[2]

[1,2] Department of Nursing, Polytechnic Health of Jakarta I, Indonesia

ARTICLE INFO

Article history:
Received: July 30, 2024
Revised: Sep 14, 2024
Accepted: Sep 17, 2024
Available online: Sep 23, 2024

Keywords:
Ambulation, pain, uterine fundal height, post caesar

ABSTRACT

Cesarean sections continues to increase globally and now accounts for more than 1 in 5 (21%) of all births. A common problem after a cesarean section is discomfort. One of the discomforts felt after surgery is pain. The pain experienced by post-cesarean mothers is related to two main factors: surgical wounds and uterine contractions. This study aims to describe the effect of implementing ambulation support on pain and the reduction of uterine fundal height post-cesarean. The writing method is a case study. Ambulation support intervention was carried out gradually over 48 hours. After the implementation, the NRS pain scale results decreased from 5 to 3. The WBPRS pain scale decreased from 6 to 3. The uterine fundal height decreased from 12.5 cm to 8 cm, decreasing more rapidly by 4.5 cm on the second day. The results show that ambulation support can help reduce pain and uterine fundal height more quickly. It is hoped that through patient education, accompaniment, and support during ambulation, and supervision during implementation, it can significantly facilitate the recovery of cesarean patients.

INTRODUCTION

According to Kementrian Kesehatan RI (2020) in 2019, there were 5,256,483 pregnant women and 5,017,552 mothers in labor/postpartum in Indonesia. According to research conducted by the World Health Organization, the use of cesarean sections continues to increase globally and now accounts for more than 1 in 5 (21%) of all births. This number is expected to continue to rise in the coming decade, with nearly one-third (29%) of all births likely to be performed via cesarean section by 2030.

A common problem after a cesarean section is discomfort. Discomfort that may be experienced by post-cesarean mothers includes pain, difficulty moving, fatigue, digestive disturbances, emotional changes, and the possibility of potential complications (Aspiani, 2017). The most common discomfort after surgery is pain. Pain is a sensory and emotional experience influenced by physiological, sensory, affective, cognitive, sociocultural, and behavioral factors.

The pain experienced by post-cesarean mothers is related to two main factors: the surgical wound and uterine contractions (Wilkinson, 2016). According to Demelash et al. (2022) approximately 85.5% of mothers experience moderate to severe pain after a cesarean section. Physiologically, after childbirth, the mother will undergo uterine involution, which is the return of the uterus to its pre-pregnancy size. During this process, 91.5% of mothers will experience contractions (Wahyuni & Nurlatifah, 2017).

Post-cesarean pain can be a disturbance that limits mobility, interferes with or impairs bonding attachment,, disrupts Activities of Daily Living (ADL), and prevents Early Initiation of Breastfeeding (EIB) from being optimally achieved (Siregar & Ermiati, 2023). A factor that can accelerate the reduction of pain from the surgical wound and uterine contractions is ambulation. Postpartum care is very conservative, and now patients are more encouraged to be active in ambulation (Hikhmat et al., 2021).

Ambulation is the process of moving or walking for the purpose of rehabilitation or recovery after surgery, illness, or injury (Rini & Kumala, 2017). Ambulation has benefits such as facilitating the discharge

*Corresponding author.
E-mail addresses: meitaniarusdiana@poltekkesjakarta1.ac.id

of lochia, reducing postpartum infection, accelerating uterine involution, improving gastrointestinal and urinary tract function, enhancing blood circulation, speeding up milk production, and aiding in the elimination of metabolic waste. Research performed by Yangchen et al. (2023) with scheduled ambulation showed remarkable improvements in maternal outcomes, such as a significant reduction in the average postoperative pain score (67%), faster uterine involution, smoother lochia discharge and elimination, and accelerated wound healing. Based on the above discussion, post-cesarean mothers require ambulation support interventions to reduce pain and accelerate the reduction of uterine fundal height.

METHOD

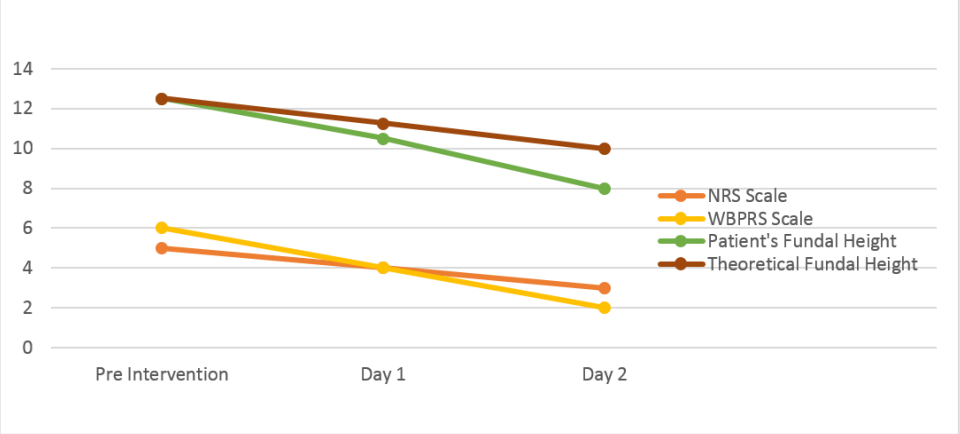
The methodology used is a case study. This research was conducted at RSUP Fatmawati in the Teratai Building, 2nd floor inpatient ward. Data collection was carried out over a period of 3 days, starting on June 3, 2024. The tools used to assess pain levels were the Numeric Rating Scale (NRS) and Wong-Baker Pain Rating Scale (WBPRS). A measuring tape was used to measure uterine fundal height. The procedure involved ambulation support implemented gradually over 48 hours post-cesarean

The author conducted vital sign checks, identified pain scales, and measured uterine fundal height before and after the intervention. Ambulation was carried out during the first 6-24 hours post-surgery. The patient was taught deep breathing relaxation techniques 3-5 times and effective coughing. Joint mobility exercises for the hands included starting with finger joints, rotating the wrists, clenching and releasing the palms, and then bringing the fingers together and spreading them apart. Joint mobility exercises for the feet included flexing the feet upward and downward, tilting the feet to the right and left, flexing the toes upward and downward, and spreading and then bringing the toes together. Once the patient felt capable, they were instructed to bend and straighten their knees alternately on the right and left legs. The patient was then trained to tilt their body to the left and right every 2 hours. If there were no complaints such as dizziness, nausea, or vomiting, the patient was trained to sit using the bed, raising the head of the bed to 15-90 degrees, and practicing sitting without support for 15 minutes or as long as the patient could manage.

Ambulation performed after 24-48 hours includes the patient practicing sitting on the edge of the bed, which can be done 2-3 times. After that, the patient can practice standing by the side of the bed and walking 3-4 steps while holding onto the bed. Once the patient is able to walk away from the bed, they can continue walking to the toilet, and the patient is then ready to engage in regular activities.

RESULT

The results of implementing the ambulation support intervention showed a faster reduction in pain and uterine fundal height each day. Evaluations were conducted every 24 hours. Below is the graph showing the results of the intervention.



Graph 1. Result of Ambulation Support to Pain and Fundal Height

Based on the graph showing the results of the ambulation support intervention on pain and uterine fundal height in post-cesarean mothers, the NRS pain scale decreased from 5 to 3. The WBPRS pain scale decreased from 6 to 3. The uterine fundal height reduced from 12.5 cm to 8 cm, decreasing more rapidly by 4.5 cm on the second day, which is 2 cm faster than the theoretical expectation.

DISCUSSION

Labor with caesarean section can be defined as the delivery of the fetus through an incision in the abdominal wall (laparotomy) and the uterine wall (hysterectomy) (Cunningham et al., 2013). This surgical procedure disrupts the continuity of tissue at the incision site, leading to the release of pain mediators such as bradykinin, histamine, and prostaglandins, which activate the pain centers. Post-caesarean pain can arise from two primary factors: the surgical wound and uterine involution. Pain resulting from uterine involution is due to the contraction of the uterine muscles after childbirth as the uterus returns to its pre-pregnancy size and shape. These contractions can cause postpartum discomfort (Kody, 2023).

The assessment results for Mrs. M, a 27-year-old admitted to the hospital on the first day post-caesarean, revealed that she complained of pain and occasionally felt a tightness in her abdomen. The pain was unpredictable, occurring suddenly, and worsened with movement. It was described as stabbing pain, localized to the right side of the surgical incision, with a pain scale rating of 5. The pain lasted about 10 minutes and came and went. This is consistent with the theory according to Deussen et al. (2020) which suggests that women may experience cramping pain and discomfort after childbirth as the uterus contracts and returns to its pre-pregnancy size, a process that typically lasts about two to three days after delivery.

The pain experienced by the patient may be caused by uterine contractions due to the involution process. According to research conducted by Wahyuni & Nurlatifah (2017) 91.5% of patients experienced normal contractions, while 8.5% did not have normal contractions. After the placenta is delivered, the uterus begins to contract actively. These contractions help reduce the size of the uterus and stop bleeding (Wahyuningsih, 2019). The problem identified in this case is pain. The pain experienced by post-caesarean mothers is related to two main factors: the surgical wound and uterine contractions (Wilkinson, 2016). Acute pain that arises after a caesarean section is due to the area of the wound from the incision. A caesarean section is a surgical procedure to deliver the fetus by opening the abdominal wall and the uterine wall.

One of some non-pharmacological intervention to reduce pain is ambulation. Ambulation is key to restoring physical condition to normal by accelerating the wound healing process, strengthening muscles to improve the ability to perform daily activities, and enhancing overall well-being (Novita & Saragih, 2020).

Ambulation starting 6 hours after a cesarean section can reduce the risk of complications. Engaging in ambulation for two days can significantly decrease pain at the incision site and improve bodily function for daily activities, thereby reducing morbidity rates and enhancing the quality of life for postpartum mothers (Nor Khimayasari et al., 2023). This is aligned with research showing that ambulation is highly effective in reducing postoperative pain, with results indicating a decrease in the pain scale from 7 to 4 in post-cesarean patients, with a P-value of 0.000 ($\alpha<0.05$). Ambulation can reduce pain by diverting the patient's focus from the painful surgical area (Nor Khimayasari et al., 2023). On the second day, patients can sit for 5 minutes, and then, progressively each day, they are advised to practice sitting for longer periods, learn to walk with assistance, and eventually walk independently from the third to the fifth day post-surgery (Roslianti et al., 2018).

The results of this study show that after implementing ambulation support, the pain experienced by patients, as measured by the NRS, decreased from a scale of 5 to 3. The WBPRS pain scale decreased from 6 to 3 on the second day. The combination of the NRS and the Wong-Baker Face Scale provides a more comprehensive assessment of the level and type of pain experienced by patients. The NRS offers a more structured numerical measurement, while the Wong-Baker Face Scale provides a more intuitive visual representation. Some healthcare facilities or medical practitioners choose to use more than one method to measure pain in order to provide additional information tailored to the individual patient's needs (Pratitdya et al., 2020). The use of the Wong-Baker Face Scale, which employs facial images to represent pain levels, can assist patients who may have difficulty articulating their pain verbally or numerically (Wong & Baker, 2024).

The evaluation results indicate that the objectives and outcome criteria in the planning have been achieved. The research by Aisyah, Cahyani et al. (2023) findings show that Ambulation can reduce the intensity of pain in post-cesarean patients. Ambulation plays a crucial role in alleviating pain by diverting the patient's focus from the pain or surgical site, reducing the activation of chemical mediators involved in inflammation that heightens the pain response, and minimizing the transmission of pain signals to the central nervous system.

The results of this study show that the uterine fundal height decreased from 12.5 cm to 8 cm, with a more rapid decrease of 4.5 cm on the second day, which is 2 cm faster than the theoretical expectation. After delivery, the uterine fundal height is approximately 13.55 cm above the symphysis pubis during the first 24 hours. Every 24 hours, the height decreases by about one finger breadth, which is approximately 1.25 cm, so by the end of the second week, the uterus should be positioned within the pelvis (Bialy et al., 2023; Paladine et al., 2019; Zahumensky et al., 2011).

Prihartini (2014) stated that the majority of postpartum women experience a decrease in uterine fundal height (TFU), with 90% showing a reduction of 2 to 3 fingerbreadths below the umbilicus. The Wilcoxon test results showed a significance level of $\alpha \leq 0.05$. The findings of this study, comparing pretest and posttest values, revealed a P-value of 0.000, which is less than $\alpha \leq 0.05$, indicating that ambulation has a significant effect on the reduction of TFU in postpartum women. This scientific work is also supported by research conducted by Kaur et al. (2017), which showed that the comparison of pre-intervention uterine involution in the experimental and control groups was not significantly different, with a t-value of 1.57. However, the post-intervention comparison of uterine involution between the experimental and control groups showed a significant difference, with a t-value of 6.06 at a p-value of <0.05. The researchers concluded that ambulation helps to accelerate uterine involution.

CONCLUSION

On the first day post-caesarean, the patient complained of pain and occasional tightness in the abdomen. Based on the data collected, the nursing diagnosis was acute pain related to the surgical procedure and uterine involution. The intervention provided for the diagnosis of acute pain included pain management and the implementation of evidence-based nursing practice, specifically ambulation support. After applying this intervention for two days, the reported pain decreased from a scale of 5 to 3, and the WBPRS scale showed a reduction to 2. The uterine fundal height decreased more rapidly following ambulation.

Ambulation support can help reduce pain and accelerate the reduction of uterine fundal height. It is hoped that through patient education, assistance, and support during ambulation, as well as monitoring during the intervention, significant facilitation of the post-caesarean recovery process can be achieved.

ACKNOWLEDGE

Thanks to RSUP Fatmawati for providing the practice site and to the patients who willingly participated as subjects in this case study.

CONFLICT OF INTEREST

The author declare that they have no conflict of interest

ETHNICAL CLEARANCE

The patient has given informed consent prior to the procedure

REFERENCES

Aspiani, R. yuli. (2017). *Buku Ajar Aauhan Keperawatan Maternitas*. Trans Info Media.

Bialy, A., Kondagari, L., & Wray, A. A. (2023). *Gynecologic Pelvic Examination*. pubmed. https://pubmed.ncbi.nlm.nih.gov/30480956/

Cunningham, F. G., Gant, N. F., & Leveno, K. J. (2013). *Obsetri williams* (23rd ed.). EGC.

Deussen, A. R., Ashwood, P., Martis, R., Stewart, F., & Grzeskowiak, L. E. (2020). Relief of pain due to uterine cramping/involution after birth. *Cochrane Database of Systematic Reviews*, *2020*(10). https://doi.org/10.1002/14651858.CD004908.pub3

Kaur, M. R., Sharma, K., & Joshi, M. U. (2017). A Quasi-Experimental Study to Assess the Effectiveness of Early Ambulation on Involution of Uterus among Postnatal Mothers Admitted At SGRD Hospital, Vallah, Sri Amritsar, Punjab. *International Journal of Health Sciences & Research*, *7*(10), 165. www.ijhsr.org

Kody, M. M. (2023). *Kecepatan Proses Involusi Uterus pada Ibu Post Partum Fisiologis* (L. O. Alifariki (ed.); 1st ed.). Media Pustaka Indo. https://www.google.co.id/books/edition/KECEPATAN_PROSES_INVOLUSI_UTERUS_PADA_IB/Zn3zEAAAQBAJ?hl=id&gbpv=1&dq=involusi+uterus+adalah&pg=PA12&printsec=frontcover

Novita, R. V. T., & Saragih, M. (2020). Perbedaan Intensitas Nyeri Sebelum dan Sesudah Ambulasi Dini pada Ibu Postpartum Post Seksiosesar. *Dinamika Kesehatan Jurnal Kebidanan Dan Keperawatan*, *10*(1), 318–327. https://doi.org/10.33859/dksm.v10i1.389

Paladine, H. L., Blenning, C. E., & Strangas, Y. (2019). Postpartum Care: An Approuch to the Fouth TRimestre. *American Family Physician*, *100*(8), 487–491.

Pratitdya, G., Rehatta, N. M., & Susila, D. (2020). Perbandingan Intensitasi Nyeri. *Jurnal Ilmiah Ilmu Kesehatan*, *8*(3), 447–463. https://jurnal.unitri.ac.id/index.php/care/article/view/1802/pdf

Prihartini, S. D. (2014). Pengaruh Mobilisasi Dini Terhadap Penurunan Tinggi Fundus Uteri Pada Ibu Nifas

Di Paviliun Melati RSUD Jombang. *Jurnal Edu Health*, *4*(2), 59–117. https://media.neliti.com/media/publications/244622-pengaruh-mobilisasi-dini-terhadap-penuru-db2fa113.pdf

Rini, S., & Kumala, F. (2017). *Panduan asuhan nifas dan evidence based pratice*. Deepublish Publisher. https://www.google.co.id/books/edition/Panduan_Asuhan_Nifas_dan_Evidence_Based/dbiEDwAAQBAJ?hl=id&gbpv=1&dq=ambulasi+dini+adalah&pg=PA114&printsec=frontcover

Roslianti, E., Srinayanti, Y., Kusumawaty, ; Jajuk, Setiyani, ; Erni, & Ciamis, S. M. (2018). The Description Of The Treatment Of Early Mobilitaton On The Mother Post Sectio Caesarea In Lotus II Blud Hospital Banjar Year 2018. *Jurnal Kesehatan, Stikes Muhammadiyah Ciamis*, *5*(1), 1–10.

Wahyuni, N., & Nurlatifah, L. (2017). Faktor –Faktor Yang Mempengaruhi Proses Involusi Uterus Pada Masa Nifas Diwilayah Kerja Puskesmas Mandala Kabupaten Lebak Propinsi Banten. *Jurnal Medikes (Media Informasi Kesehatan)*, *4*(2), 167–176. https://doi.org/10.36743/medikes.v4i2.83

Wahyuningsih, S. (2019). *Buku Ajar Asuhan Keperawatan Post Partum Dilengkapi denganPanduan Persiapan Praktikum Mahasiswa Keperawatan*. Deepublish Publisher. https://www.google.co.id/books/edition/Buku_Ajar_Asuhan_Keperawatan_Post_Partum/cBKfDwAAQBAJ?hl=id&gbpv=1&dq=asuhan+keperawatan+post+partum&printsec=frontcover

Wilkinson, J. m. (2016). *Diagnosis Keperawatan: Diagnosis Nanda, Intervensi NIC, Hasil NOC* (10th ed.). EGC.

Wong, D. L., & Baker, C. M. (2024). *Wong-Baker FACES Foundation*. https://www.wongbakerfaces.org/wp-content/uploads/2010/08/pain-in-children.pdf

Yangchen, T., Smitha, M. V., & Sethi, P. (2023). Effectiveness of Scheduled Early Ambulation on Maternal Outcomes in Post caesarean in Odisha, Eastern India. *Indian Journal of Continuing Nursing Education*, *24*(2), 184–189. https://doi.org/10.4103/ijcn.ijcn_106_23

Zahumensky, J., Sykorova, J., Sottner, O., Zmrhalova, B., Vojtech, J., Menzlova, E., Vasicka, I., Dvorska, M., Maxova, K., Vlacil, J., Hrubantova, H., & Halaska, M. (2011). Postpartum examination, breastfeeding, and contraception in the postpartum period in the Czech Republic. *Central European Journal of Medicine*, *6*(1), 76–82. https://doi.org/10.2478/s11536-010-0055-0