



Original Article

The Effect of a Cold Compress on Pain During the First Stage of Childbirth at BPM

Nur Hidayatin, Anita Dwi A, Erika Prawitasari

Faculty of Nursing, Universitas Airlangga, Surabaya, East Java, Indonesia

ABSTRACT

Introduction: Childbirth is a physiological process that happens as part of a woman's development into becoming a mother. The process can be traumatic for some women because of the pain that they experience. Cold compress therapy is one of the non-pharmacological approaches to reducing pain. The objective of this study is to determine the effect of a cold compress on pain in the first stage of childbirth.

Methods: This was an experimental study with a one group pretest-posttest design. The population of this research consisted of women who had given birth, totaling 15 respondents. The samples were chosen using Accidental Sampling. The data was taken through observations and it was analyzed using the Wilcoxon Signed Rank test with a significance level of 0,05.

Results: There were changes in pain level with a significance value of $\rho = 0,008$ with a testing rule $\rho < 0,05$. This shows that the cold pack affected the level of pain during the first stage of childbirth.

Conclusion: A cold compress is effective at reducing the pain felt during childbirth. The items used to make a cold compress are easy to find and a woman can make it herself. A cold compress can be given without causing harmful effects for either the babies or the mothers who are giving birth.

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CONTACT

Nur Hidayatin

✉ nur.hidayatin-2019@fkip.unair.ac.id

📍 Faculty of Nursing, Universitas Airlangga, Surabaya, East Java, Indonesia

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INTRODUCTION

Childbirth is the process of the thinning and opening of the cervix followed by the descent of the fetus into the birth canal. This is followed by the birth of the fetus (Deye, N., Vincent, F., Michel, P., Ehrmann, S., Da Silva, D., Piagnerelli, M., ... Laterre, P.-F. (2016). The first stage of labor pain is often experienced by mothers who are about to give birth (Srivastava, Avan, Rajbangshi, & Bhattacharyya, 2015). This pain originates from the lower abdomen as a result of the cervix opening and thinning. The pain spreads to the lower back and down to the thighs. Here it is caused by the fetal head pressure on the mother's spine (Spector et al., 2013). As the volume and frequency of the uterine contractions increases, the pain will feel stronger. Pain during childbirth is considered to be the single strongest physiological pain, so there is the opinion that it does not need to be reduced in intensity. This is paired with the belief that it can be relieved using non-pharmacological

therapy (Mesenburg et al., 2018). One form of non-pharmacological therapy is cold compress therapy. This is because cold compresses can have an analgesic effect. This can provide relaxation to tense muscles and joint stiffness (Perez-Brena, Updegraff, Umaña-Taylor, Jahromi, & Guimond, 2015).

According to the WHO, one report estimates that there are 210 million deliveries annually. Out of this number, 20 million women experience pain as a result of childbirth. About 8 million experienced life-threatening complications and more than 500,000 die (Van der Gucht & Lewis, 2015). A total of 240,000 from this amount make up almost 50% from South and Southeast Asian countries, including Indonesia. Previous childbirth experiences can also affect a mother's response to pain (Vowles, McCracken, Sowden, & Ashworth, 2014). Primigravida mothers do not have the experience of childbirth compared to multigravida mothers. Mothers who are giving birth for the first time will feel stressed or afraid in the face of childbirth (Deye, N., Vincent, F., Michel, P.,

Ehrmann, S., Da Silva, D., Piagnerelli, M., ... Laterre, P.-F. (2016). Stress or fear physiologically can cause the uterine contractions felt to be increasingly painful (Deye, N., Vincent, F., Michel, P., Ehrmann, S., Da Silva, D., Piagnerelli, M., ... Laterre, P.-F. (2016).

Mothers in the condition of giving birth are experiencing stress. The body stimulates the body to release stress hormones, namely catecholamine and adrenalin (Deye, N., Vincent, F., Michel, P., Ehrmann, S., Da Silva, D., Piagnerelli, M., ... Laterre, P.-F. (2016). Catecholamine can be released in high concentrations during labor if the mother cannot eliminate her fear before giving birth (Deye, N., Vincent, F., Michel, P., Ehrmann, S., Da Silva, D., Piagnerelli, M., ... Laterre, P.-F. (2016). As a result, the uterus becomes increasingly tense so the blood flow and oxygen sent to the uterine muscle decreases. This is because the arteries shrink and constrict. The result is an inevitable pain (Deye, N., Vincent, F., Michel, P., Ehrmann, S., Da Silva, D., Piagnerelli, M., ... Laterre, P.-F. (2016). Multigravida mothers who have already given birth will be able to respond to the pain better. For the mothers who give birth in a relaxed state, all layers of muscle in the uterus will work together in harmony so then the labor will progress smoothly, easily and comfortably.

MATERIALS AND METHODS

The research was experimental with a one group pre-test post-test design. The study was conducted at BPM. The study population consisted of all mothers in the first stage of birth in BPM, totaling 15 respondents. The sample selection used was an accidental sampling technique. The research data was taken using an observation sheet. After tabulation, the data was analyzed using the Wilcoxon Sign Rank test at a significance level of 0.05. This study was carried out beginning with the measurement of the pain scale when the mother's uterus had begun contracting. A cold compress was given after measuring the pain scale. It was placed on the back of the waist at the top of the coccyx when the uterine contractions were apparent for 15 minutes. After the compress was applied, then we measured the pain scale again.

RESULTS

The results obtained showed that before getting cold compress therapy, the respondents experiencing mild pain totaling 0 (0) respondents. After getting therapy, this was felt by 4 respondents (27%). Moderate pain before the cold compress was felt by 6 respondents (40%) and after, it was felt by 4 respondents (27%). Severe pain before the cold compress was felt by 8 respondents (53%) and after, it was felt by 7 respondents (46%). The pain was very severe before the cold compress for 1 respondent (7%) and after being given the cold compress therapy, severe pain was felt by 0 respondents (0%). There was a change in the pain scale with a significant value of $p = 0.008$ with a testing principle $p < 0.05$. This shows that the cold compresses affect first stage delivery pain at BPM. It can be seen that almost all of the respondents

before undergoing cold compress therapy experienced severe pain. After the cold compress therapy was conducted, all respondents experienced a decrease in pain even if the decrease was not significant. This is because the pain is very subjective. After all, how the pain is felt varies in each individual in terms of scale in addition to the level, the mechanism of pain and their pain adaptations. From this, it can be seen that cold compresses greatly affect the decrease in labor pain in the first stage.

DISCUSSION

The first stage of labor is the result of the contraction of the uterine myometrium and the vasoconstriction of the blood vessels around the internal genitalia. This is in addition to the parasympathetic involvement of the efferent nerve fibers around the internal genitalia (Mesenburg et al., 2018). Because of these two nerve responses, rhythmic and intermittent uterine contractions occur. Before a cold compress, the nerves that are around the uterus and cervix will experience tension. This can cause severe pain in the first stage of birth. After the cold compress, the nerves around the uterus and cervix begin to relax so then the labor pain at the first stage reduces (Perez-Brena et al., 2015). The effect of cold compresses on pain according to the gate control theory says that skin stimulation activates the greater and faster transmission of the sensory A-beta nerve fiber signals (Van der Gucht & Lewis, 2015).

This process decreases the pain transmission through the small diameter C and A-beta fibers. The syntax gate ends the pain implant transmission (Deye, N., Vincent, F., Michel, P., Ehrmann, S., Da Silva, D., Piagnerelli, M., ... Laterre, P.-F. (2016). Cold compresses will have an analgesic effect by slowing down the speed of the nerve delivery so then the pain signal reaches the brain less often and more slowly. Other mechanisms that might work are the cold perception becoming dominant, thus reducing the pain perception. Cold compress therapy is useful as vasoconstriction reduces the blood flow to the injured body area, preventing the formation of edema and reducing inflammation. Local anesthesia can be used to reduce the local pain. Cellular metabolism decreases to reduce the oxygen demand of the tissue. Increased blood viscosity increases blood coagulation at the site of the injury. Decreased muscle tension is useful for pain relief.

CONCLUSION

Childbirth is a series of processes that ends with the release of the child from the womb of the mother. This process begins with labor contractions, marked by the opening of the cervix. It ends with the birth of the placenta. The labor process is identical to the pain that will be experienced. Physiologically, pain occurs when the muscles of the uterus contract to open the cervix and push the baby's head towards the pelvis. To reduce the pain in the first stage of labor, non-

pharmacological methods can be applied including a cold compress.

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