

RED GINGER EFFECTION TO LABOR PAIN'S OF LITERATURE REVIEW

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Abstract

Women who give birth expect labor to take place without pain. Various ways are done so that mothers give birth not always feel pain and feel comfortable. To reduce pain during childbirth, pharmacological and non-pharmacological methods can be used. Kordi et al. (2017) stated that consuming red ginger before delivery can help dilate the cervix, but reduce pain during the opening at the time of delivery and reduce bleeding after delivery. To determine the effectiveness of red ginger on labor pain intensity based on: Literature Review. The type of research used is a literature study. The criteria for the study materials used in this study included the same keywords as the research topic, namely effectiveness, red ginger, pain, labor, effectiveness, red ginger, pain, labour. The article is a full paper published in the last 5 years between 2016 and 2020. Red ginger proved to be effective in reducing the intensity of labor pain. The portion given is 25 grams of small red ginger brewed with 150 ml of warm water. The frequency of administration is at least 3 times when starting the opening or the mother experiences labor characteristics. Complementary medicine by utilizing natural ingredients, taking from nature such as herbs has proven to be effective as an alternative during labor. The use of herbs such as red ginger drink has proven to be effective in reducing labor pain.

Keywords: effectiveness, red ginger, pain, labor

Introduction

Childbirth is a physiological process experienced by women. In this process, a series of major changes occur in the mother to be able to give birth to her fetus through the birth canal. The purpose of the management of the labor process is to encourage safe births for mothers and babies so that the role of health workers is needed to anticipate and handle complications that may occur in mothers and babies, because maternal and infant deaths often occur, especially during the delivery process (Koblinsky et al, 2016).

Maternal and child health is a target in the health development goals, namely by reducing the maternal mortality rate (MMR) and infant mortality rate (IMR). MMR in Indonesia according to the results of the 2020 Population Survey reached 305/100,000 live births. The IMR according to the 2017 IDHS reached 24/1,000 live births (Kemenkes RI, 2021).

In 2019 the IMR in South Kalimantan reached 3.4/1000 live births, and for MMR in South Kalimantan it reached 76.03/100,000 live births. In Banjarmasin the IMR reached 2.96/1,000 live

births, the AKI reached 63.6/100,000 live births. This figure is still far from the SDGs and RPJMN 2020-2024 targets for AKI of 232/100,000 live births in 2024 and the IMR target of 16.8/1,000 live births and 12.3/1,000 live births SDGs 2030 (Kemenkes RI, 2021).

Labor is the process by which the baby, placenta, and amniotic membranes are expelled from the mother's uterus in labor. Normal delivery occurs at term gestational age / after 37 weeks of gestation or more without complications. At the end of pregnancy, the mother and fetus prepare for childbirth. The fetus grows and develops in the process of preparation for life outside the womb. Mothers undergo various physiological changes during pregnancy in preparation for the birth process and to act as mothers. Labor and birth are the end of pregnancy and the starting point of life outside the womb for the newborn. Labor begins when the uterus contracts and causes changes in the cervix that opens and thins and ends with the birth of the baby and the complete placenta. The experience of childbirth can be experienced by the mother for the first time (primi), or second or more (multi) (Fauziah, 2018).

Anxiety and worries of mothers in the face of childbirth have resulted in some mothers choosing to give birth abdominally. The demand for sectio caesarea in a number of developing countries is increasing rapidly every year. According to the NCBI (2020) in Southeast Asia, the number of sectio caesarea is 9550 cases per 100,000 cases. The incidence of sectio caesarea in Indonesia according to national survey data in 2020 is 921,000 out of 4,039,000 deliveries or about 22.8% of all deliveries. The sectio caesarea rate at Ulin Hospital Banjarmasin in 2020 was 27.76% and 13.88% of them were sectio caesarea without medical indications, namely at the request of the maternity mother herself. Data from Ulin Hospital Banjarmasin from January 1 to May 31, 2021, it was found that the number of deliveries by cesarean section was 388 people while spontaneous parturition was 720 people. From these data, it can be concluded that the number of deliveries by cesarean section is still high where the number is around 50% of the number of spontaneous deliveries (Prov. Kal-Sel 2021 Health Service).

Women who give birth expect labor to take place without pain. Various ways are done so that mothers give birth not always feel pain and feel comfortable. Currently, up to 50% of deliveries in all hospitals in Indonesia choose to have a cesarean section, the high cesarean section is due to primigravida mothers who want to give birth preferring a cesarean section because they are not strong and do not want to experience labor pain during the first stage according to the study. 2010)

Based on Lase's research (2020), which was conducted at Bunda Thamrin General Hospital Medan, 22 mothers with the majority of respondents were in the age range of 25-30 years, primigravida

mothers stated that they chose caesarean section because the prospective mother was not ready to give birth normally, was not strong and did not want to feel severe pain in childbirth in the first stage as much as 59.1%. As many as 90% of deliveries are accompanied by severe pain and 7-14% are not accompanied by pain, in the first stage contractions occur which can suppress nerve endings, causing painful stimulation and impacting the emergence of fear.

To reduce pain during childbirth, pharmacological and non-pharmacological methods can be used. Currently, various non-pharmacological methods have been developed, because they have few side effects and are inexpensive. The non-pharmacological methods that have been studied are hot and cold compresses, transcutaneous electrical nerve stimulation, distraction, relaxation, aromatherapy, guided imagination, hypnosis, acupuncture and massage (Murray and Huelsmann, 2019).

A collection of non-pharmacological research that has been applied aims to increase motivation, enthusiasm, and endurance in the face of childbirth. Currently, many medicinal plants are used to relieve pain. Some of them are red ginger which contains carbohydrates with a high percentage (total sugar, 44-88%), protein (2.3-5.6%), fat (0.2-0.5%), minerals, vitamins, and high dietary fiber (6.4-11.5%). Red ginger, red ginger and raspberry leaves have high nutritional value because they contain fructose and glucose, both of which are high in calories, and are easy and fast to digest (Baliga et al., 2019).

Fructose and glucose are the brain's main nutrients and may trigger increased levels of endorphins, due to their delicious and sweet taste. The amino acids contained in red ginger are quite useful in supporting the formation of beta-endorphins. Beta-endorphins are pain-relieving substances naturally produced in the body, which trigger a calming and uplifting response in the body, have a positive effect on emotions, can induce relaxation and normalize bodily functions. As a result of the release of beta-endorphins, blood pressure decreases and improves blood circulation (Sharma and Verma, 2018).

Beta-endorphins have 18-30 times higher analgesic potency than morphine. This analgesic system suppresses pain by inhibiting the release of substance P from the ends of afferent pain fibers. The release of beta-endorphins in the body can be triggered through three activities. First, through foods that contain complete amino acids, low in fat, high in antioxidants. Second, exercise to strengthen muscles and burn fat. Third, meditation, practice positive thinking, calm and a comfortable environment. Endorphins are considered the best painkillers, because they are produced by the human body itself (Sharma and Verma, 2018).

Beta-endorphins are endogenous opioids, composed of 31 essential amino acids and nonessential amino acids. Essential amino acids in the human body cannot be synthesized and must be obtained from food. Other foods that can increase endorphins levels are foods that are liked, delicious, and sweet (Sharma and Verma, 2018).

According to research conducted by Rouben et al. (2019) it is known that pain perception in adults and neonates has the same pathway, so the same non-pharmacological analgesia can be used. Non-pharmacological analgesia, such as glucose/sucrose, can be used for minor invasive procedures in neonates so that analgesics can be avoided. The mechanism by which glucose/sucrose acts as an analgesic may be through increased levels of endorphins.

Yamamoto et al. (2020) measured the levels of endorphins in cerebrospinal fluid (CSF) and plasma after drinking distilled water and water containing 0.5 M sucrose or 0.005 M saccharin, NaCl, quinine in rats. The results showed that there was a significant increase in endorphins levels in rats who ingested water containing 0.5 M sucrose or 0.005 M saccharin. The increase in beta-endorphins is thought to be due to the preabsorption mechanism of sweet taste.

Kordi et al. (2017) stated that consuming red ginger before delivery can help dilate the cervix, but reduce pain during the opening at the time of delivery and reduce bleeding after delivery. On the other hand, every delivery always requires high energy. The involvement of ginger, it is true that its benefits are additional energy. Red ginger is very useful for pregnant women to prevent anemia, reduce nausea, control blood pressure, regulate blood glucose levels, increase endurance. Red ginger meat can also improve fetal health, and increase milk supply (Aisyah et al., 2018).

Based on the background of the problem, the authors are interested in raising the title of "The Effectiveness of Red Ginger on the Intensity of Labor Pain Based on: Literature Review".

This study aims to determine the effectiveness of red ginger on labor pain intensity based on: Literature Review based on the right number of servings in consuming ginger during labor, the right frequency of consuming ginger during labor and the effectiveness of red ginger on labor pain intensity.

Materials and Methods

The research method used in this research is Literature Review. The literature sources used in this study were traced using Google Scholar and Google Scholar with the condition that the journal/article

was published at least 5 years ago and carried out from the beginning of November 2020-January 2021.

Results and Discussion

1. The right number of servings in consuming red ginger during labor

The importance of the right portion and dose in providing complementary care, especially in the form of consumption to a mother during labor, determines the effectiveness of the work of red ginger in reducing labor pain.

Ita Rahmawati's research (2018), states that the sample in this study were all mothers in the first stage of labor as many as 90 people who were taken by quota sampling, divided into 3 groups, namely 30 maternity mothers who drank 50 grams of small red ginger brewed with 150 ml of warm water, 30 maternity mothers who drank 25 grams of small red ginger brewed with 150 ml of warm water, and 30 maternity mothers who drank 150 ml of warm water without ginger. With an average intensity of severe pain. So that after being treated with 50 grams of small red ginger there was a decrease in the intensity of mild pain. The group was given 25 grams of small red ginger. From the use of small red ginger with a composition of 50 grams and 25 grams there is a decrease in pain intensity so that it can be said that ginger is effective as a pain reliever. This is because ginger or rhizomes in ginger contain several active substances, including essential oils consisting of zingiberin, kamfena, zingiberol, and many others.

Of the 10 journals obtained that meet the Literature Review criteria, there is only one journal that describes the right portion of consuming red ginger during childbirth. The weakness of the journal can be concluded that there is a difference in the exact dose/proper portion for one consumption of the red ginger boiled water. In addition, definite research regarding the exact amount of the right portion in consuming red ginger during childbirth has never been carried out so that people consume red ginger using an approximate portion or based on experience and hereditary heritage by the community itself. In addition, until now, it has not been reported either directly or through further research regarding the negative effects that arise when consuming red ginger during childbirth is not in the right proportion.

Red ginger which is a rhizome with many benefits. The various benefits of ginger that have been known so far include as a remedy for indigestion, analgesic, antipyretic, anti-inflammatory,

antiemetic, antirheumatic, increasing body resistance, treating diarrhea, and also has antioxidant properties whose activity is higher than vitamin E.

The anti-inflammatory effect of ginger is due to its active components, namely gingerol, gingerdione, and zingeron which inhibit prostaglandins by inhibiting the cyclooxygenase enzyme. In addition, ginger is also able to inhibit the lipoxygenase enzyme. This will result in a decrease in leukotrienes and prostaglandins which are inflammatory mediators. The effect is the same as the anti-inflammatory effect of mefenamic acid and ibuprofen, which are NSAIDs. Ginger itself has been listed on the Generally Recognized Safe (GRAS) document at the American Food and Drug Administration (FDA). So far, there have been no reports of side effects and interactions with drugs in Germany's Commission E Monograph.

2. The right frequency in consuming red ginger during labor

The right frequency in consuming red ginger also greatly affects the effectiveness of the red ginger in reducing the scale of pain during labor.

According to Febry Mutiariami Dahlan (2020) by giving the first stage of red ginger drink which is drunk outside of contractions so that the mother can drink it little by little, this has been shown to have decreased by 2.00 this is in line with Ita Rahmawati's research, the average decrease in pain intensity before being treated is 7.00 , and after being treated with 5.00 so that there is an effect of giving ginger with a decrease in pain intensity. The frequency of administration is at least 3 times when starting the opening or the mother experiences labor characteristics such as discharge of water or mucus mixed with blood and pain radiating from the abdomen to the waist

Of the 10 journals obtained that meet the Literature Review criteria, there are only two journals that describe the right portion of consuming red ginger during childbirth. The weakness of the journal can be concluded that there is a difference in the right frequency for one consumption of red ginger boiled water. In addition, definite research regarding the correct frequency of consuming red ginger during childbirth has never been carried out so that people consume red ginger using an approximate frequency or based on experience and hereditary heritage by the community itself. In addition, until now, it has not been reported either directly or through further research regarding the negative effects that arise when consuming red ginger during childbirth is not in accordance with the right frequency.

Ginger has an anti-inflammatory effect because the active ingredients are gingerol, gingeredion and curcumin which inhibit prostaglandins by inhibiting cyclooxygenase. In addition, ginger can also inhibit lipoxygenase. This will cause a decrease in leukotrienes and prostaglandins as inflammatory mediators. The effect is the same as the nonsteroidal anti-inflammatory drugs mefenamic acid and ibuprofen. Researchers believe that using this warm red ginger drink is an alternative method that is easily available in the researchers' residence and easy to make. In this way, it can reduce the incidence of complications that lead to childbirth, which can score maternal mortality. Therefore, the authors suggest that practitioners continue to contribute to helping and reducing maternal morbidity and providing comfort during childbirth.

3. The effectiveness of red ginger on labor pain intensity

Red ginger (*Zingiber officinale* Roscoe. Sunti Valetton) belongs to the ginger-ginger family, the rhizome is red, harvested after ripening, and contains more essential oils than elephant ginger and young ginger. Its essential oil consists of curcumin, dragon fruit, camfen, limonene, borneol, cineole, citral and curcumin. According to experience, ginger is often used as a cold medicine, indigestion medicine, analgesic, antipyretic and anti-inflammatory. Ginger also contains non-volatile phenolic active ingredients, including gingerols, gingerols and ginger oil which have antioxidant activity and can relieve pain (Almasyhuri, Wardatun & Nuraeni, 2020).

The same thing was also stated by Ozgoli, Goli, & Moattar (2019) that red ginger is a ginger variant that is very suitable for herbs with higher volatile oil and oleoresin content than other ginger variants, therefore red ginger can usually be used for traditional medicine. and the most given is in the form of ginger drink. Red ginger or the Latin name (*Zingiber officinale* var. *rubrum*) has a red rhizome and is smaller, red ginger has a fairly high essential oil content (Ramadhan, 2018).

This theory is supported by research by Melsa Sagita Imaniar (2017) which states that drinking red ginger has an effect on changes in the scale of labor pain in the active phase of the first stage in primiparas in the work area of the Bungursari Health Center, Tasikmalaya City 2017. Ana Mariza (2019) shows the results that red ginger is useful in reduce pain. Febry Mutiariami Dahlan (2020) stated that giving warm red ginger drinks had an effect on labor pain in the first stage at the Jayapura City Hospital in 2020. Ita Rahmawati (2016) stated that giving warm ginger drinks had an effect on pain intensity in the first stage of labor at RSIA Kumalasiwi Regency Japan. Nia (2020), stated that red ginger can provide integrated obstetric care for pregnant

women who experience low back pain by giving ginger wedang, maternity, postpartum, and newborns at the Nagreg Public Health Center in 2019-2020.

Based on the results of research on the effectiveness of red ginger on labor pain intensity, from 10 journals, it was found that 5 national journals were identical with keywords. The results of the 5 national journals can be concluded that red ginger is effective in reducing the intensity of labor pain. The decrease in pain intensity has not been shown to interfere with the opening process, it can even speed up the delivery process so that the mother does not feel pain for too long in the first stage.

This is because the chemical component gingerol in red ginger can block prostaglandins, thereby reducing pain during childbirth. As previously explained, ginger has the same effect as ibuprofen in reducing pain. In general, ibuprofen is known to be absorbed very quickly and effectively after oral administration. Peak plasma concentrations are very brief, between 15 minutes and 1 hour. The effect of ibuprofen is the same as that of red ginger, namely by inhibiting the synthesis of prostaglandins and is easily absorbed by the digestive system (Ozgoli, Goli and Moattar 2019).

The results of this national study are also supported by international research such as the statement of Caroline Fortescue (2020) which states that red ginger can be an analgesic in maternal pain. Marzyeh Azizi (2020) stated that the consumption of red ginger boiled water was able to reduce low back pain during labor and the aroma of red ginger was able to provide relaxation to maternity mothers. Shanthi Ramasubramaniam (2016) stated that the consumption of warm red ginger water was able to reduce pain during the birth process.

Of the 10 journals, there are two other supporting journals regarding complementary midwifery care regarding labor pain, namely Ida Widiawati (2020), where from the results of the study it was found that severe pain was most experienced by primiparas, which was 63% higher than multiparas (37%). The results of the chi square analysis showed no significant relationship between parity and pain in the first stage of labor, p value = 0.4 (> 0.05). Widiawati's research explained that the number of children/number of frequency of delivery can affect the level of pain of a mother in labor. research by Linda Juwita (2019), states that in addition to giving red ginger, massage with strong strokes, rubbing or stroking (twisting and releasing) soothes and relaxes during labor. Massage stimulates the body to release endorphins which can also create a feeling of comfort and well-being.

The weakness of the research journal that has examined the effectiveness of red ginger on labor pain intensity is that this study was not followed up by thoroughly reviewing the other effects of consuming red ginger during childbirth. random samples with a sample of only 5-10 mothers giving birth, while research using a sample of at least 30 people or more only uses questionnaires and it is not certain whether the answers from these respondents are in accordance with what they experience and feel. This is because research using questionnaires is prone to bias/gaps between facts and theory because respondents' answers are not based on what they experience, so it is still not known with certainty whether the effectiveness of red ginger in reducing the intensity of labor pain in all pregnant women will be the same.

Complementary medicine by utilizing natural ingredients, taking from nature such as herbs has proven to be effective as an alternative during labor. The use of herbs such as red ginger drink has proven to be effective in reducing labor pain.

Conclusion

The right portion and dose in providing complementary care, especially in the form of consumption to a mother during labor, is 25 grams of small red ginger brewed with 150 ml of warm water. The frequency of administration is at least 3 times when starting the opening or the mother experiences labor characteristics such as discharge of water or mucus mixed with blood and pain radiating from the abdomen to the waist. Red ginger is effective in reducing the intensity of labor pain.

Acknowledgements

An intensive analysis of the chemical components of red ginger is needed to determine its role in the intensity of labor pain. It is hoped that the results of this study can be used as initial data for researching herbal plants, especially red ginger in reducing the intensity of labor pain further. In addition, other researchers can conduct research on other factors that influence red ginger to be effective in reducing the intensity of labor pain.

Declaration of Interest Statement

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