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The Effect of Oxytocin Massage in the Active Phase of 1 Period On the Length of Labor

Yulia Ernida[1], Dewi Maritalia[1], Siti Rahmah[1], Nuraina[1]

[1]Universitas Almuslim, Aceh, Indonesia

Correspondence author: Yulia Ernida
Email: yuliaernida749@gmail.com
address : jln. Almuslim, Matangglumpangdua, Peusangan, Bireuen, Aceh Hp 082277908260

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ABSTRACT

Introduction: Prolonged labor is one of the causes of maternal and fetal death, in the mother there will be infection, dehydration, exhaustion and postpartum hemorrhage, while in the fetus there will be infection, injury and asphyxia. His is one of the causes of prolonged labor, in the labor process inadequate his will trigger prolonged labor. Oxytocin massage during labor will produce good uterine contractions so that it can speed up the labor process.
Objective: The aim of this study was to describe the effect of oxytocin massage during the active phase of the first stage of labor on the length of labor.
Method: This study is an experimental study with a case control. The population is all inpartu mothers who gave birth at the Independent Midwife Practice Place (TPMB) located in Bireuen Regency. The sampling technique used purposive sampling with inclusion criteria: being in the active phase of stage I, accompanied by a husband or family during the labor process, willing to do oxytocin massage for at least 15 minutes in the active phase of stage I. The number of samples was 30 which were divided into 2 groups, namely: 15 respondents were given treatment in the form of oxytocin massage in the active phase of stage 1 by their husband or family for 15 minutes in the mother's left side sleeping position (experimental group), and 15 respondents as control cases (case control).
Result: The results of the Independent Sample T-Test Sig. (2-tailed) statistical test were 0.000 which is <0.05 so it can be concluded that there is an effect of oxytocin massage in the active phase of the first stage on the length of labor.
Conclusion: It is hoped that related parties such as health workers and families can increase the provision of oxytocin massage to mothers in labor so that it can speed up the labor process.

Keywords: *oxytocin massage, first stage, active phase, duration of labor*

Introduction

Based on data from the Indonesian Ministry of Health (2021), maternal morbidity and mortality rates are still health problems in Indonesia. In 2021, the Maternal Mortality Rate (MMR) was 189/100,000 live births and the Infant Mortality Rate (IMR) was 16.85/1000 live births. This figure is still far from the SDGs target of less than 70/100,000 live births and the infant mortality rate of 12/1000 live births. One of the factors causing maternal death is prolonged labor or prolonged labor. The labor process begins with regular uterine contractions that become stronger and more frequent (Walyani, 2021). Moral and material support is greatly needed by mothers, given by their families, especially their husbands, for the welfare of the mother and her fetus (Maryani, 2018).

According to Rukiyah et, al (2018) the psychological condition of pregnant women approaching the time of delivery will become unstable. Efforts to overcome emotional disturbances and stressful experiences are carried out by caring for the mother during the labor process, one of which is by doing oxytocin massage. Oxytocin massage performed by the husband or family will increase the oxytocin hormone which has the effect of uterine contractions so that the labor process is faster and the mother avoids prolonged labor. Every mother in labor really wants a normal labor process and less pain. However, during the labor process, pain becomes something very frightening (Chatuparn Duangkum et al. 2024). Labor pain is a response to nerve stimulation that occurs due to uterine contractions and tissue damage, the intensity of pain will increase with the strength of the contractions. Pain will increase when the cervix is fully dilated due to the pressure of the baby on the pelvic structure which is followed by stretching and tearing of the birth canal (Budiarti, KD. 2021).

Pain that is not managed properly will cause anxiety during the labor process, so that the production of adrenaline hormone will increase and will cause vasoconstriction which will result in decreased blood flow from the mother to the fetus. The further impact of this is that the fetus will experience hypoxia and the mother will experience a long labor (Kuswadi, 2021). According to Lien-Jen Hwu et al. 2023, reducing pain during labor can be done through non-pharmacological methods, one of which is oxytocin massage. The mother's knowledge about oxytocin massage can help the mother feel calm and comfortable. Oxytocin massage performed on mothers in labor has a very big influence on the labor process. Massage provides comfort and relaxation to the mother so that it can increase the oxytocin hormone which can meet uterine contractions according to the needs during labor.

Prolonged labor is one of the causes of maternal and fetal death, in the mother there will be infection, dehydration, exhaustion and postpartum hemorrhage, while in the fetus there will be infection, injury and asphyxia (Varney, 2017). His (uterine muscle contractions) is one of the causes of prolonged labor, in the labor process inadequate his will trigger prolonged labor. When there are no inadequate contractions during labor, labor will not progress (Nisa, 2016). Oxytocin massage in the first stage of labor is thought to produce adequate contractions so as to speed up the labor process. The hormone oxytocin has an important role including increasing the strength and frequency of uterine contractions, accelerating cervical opening, reducing pain, and increasing comfort and relaxation (Ernida, et al. 2024).

Seeing the many benefits of oxytocin massage in the labor process, researchers are interested in studying the effect of oxytocin massage in the first active phase on the duration of labor. Prolonged labor or labor that does not progress is a case that is often encountered and is risky for the mother and baby. To reduce the occurrence of prolonged labor, midwives often give oxytocin to mothers who have entered the first stage of labor with the aim of speeding up the labor process. Oxytocin itself is a hormone produced by the mother's body during labor.

The novelty in this study is increasing the production of internal oxytocin from the mother's body through oxytocin massage performed by the husband or family who accompanies the mother during the labor process. This is in accordance with the policy that has been implemented, namely that the mother who gives birth must be accompanied by her husband and family. Through this study, it is hoped that the family or husband who accompanies the mother during the active labor process will help speed up the labor process by performing oxytocin massage on the mother during the first active phase, so that the midwife or birth attendant no longer needs to provide external oxytocin to the mother.

Objective

The aim of this study was to describe the effect of oxytocin massage during the active phase of the first stage of labor on the length of labor.

Method

This study is a case control study. The population is all inpartu mothers who gave birth at the Independent Midwife Practice Place (TPMB) located in Bireuen Regency in September-November 2024. The sampling technique used purposive sampling with inclusion criteria: being in the active phase of stage I, accompanied by a husband or family during the labor process, willing to do oxytocin massage for at least 15 minutes in the active phase of stage I, indications of spontaneous labor, gestational age at delivery 37-40 weeks, TTV and DJJ within normal limits, no history of CS, single pregnancy and normal fetal position. The number of samples was 30 respondents divided into 2 groups, namely: 15 respondents were given treatment in the form of oxytocin massage in the active phase of stage I by their husbands or family for at least 15 minutes in the mother's left side sleeping position (experimental group), and 15 respondents as control cases (control group). The duration of the massage and the mother's reaction were recorded on the observation sheet. When entering the second stage of labor, the length of the second stage was also recorded on the observation sheet. The duration of the first active phase and the duration of the second phase were then accumulated and concluded as the duration of labor to be compared with the duration of the first and second phases in the control case. In addition to the observation sheet, respondents were also given a questionnaire to determine their response during the oxytocin massage and also for biodata. After collecting the data, respondents were then processed and tested using SPSS with independent samples-T tests. In addition to using sampling techniques, researchers also identified TPMBs that would be used as land or places to conduct experiments so that the number of 30 respondents could be achieved within 3 months. TPMB criteria: the number of deliveries per month is more than 20, willing to sign the consent form and actively participate during the study.

Results

The results of the study are presented in a table to describe the variables studied to make them easier to understand. The results are as follows.

Table 1. Respondent Characteristics

Variables	N	%
Mother's age		
< 35 year	26	86
> 35 year	4	14
Total	30	100
Paritas		
Primipara	4	14
Multipara	26	86
Total	30	100
Education		
Low	7	23
Intermediate	18	60
Tall	5	17
Total	30	100
Work		
Work	7	23
Doesn't work	23	77
Total	30	100

Table 2 Average length of labor in the intervention and control groups

Group	Duration of Labor		N	Mean	Standar Deviasi	Min	Max
	Primi < 12 O'clock	Multi < 6 O'clock					
Intervention	3	12	15	20,6800	2,51255	4,24	6,02
Control	1	14	15	25,1940	2,89251	6,37	8,11

Table 3 Effect of Oxytocin Massage in the Active Phase of First Stage of Labor on the Length of Labor

Kelompok	N	Independen Sample T-Test		t	Sig.(2-tailed)
		Mean	Mean Difference		
Intervention	15	20,6800	-4,514	-4,563	0,000
Control	15	125,1940			

Discussion

Based on table 1, it shows that 26 respondents were aged <35 years (86%), the majority were multiparous mothers (26 respondents) (86%), the majority had secondary education (high school) (18 respondents) (60%) and the majority were unemployed (23 respondents) (77%).

Age is one of the most important factors during the labor process. At the time of labor, the age that is categorized as safe is between 20-35 years, where the reproductive organs and physical condition are mature enough. The mother's age is less than 20 years, the function of the reproductive organs is not yet mature, so that it can allow complications to occur during the labor process. The mother's age over 35 years also has a risk, the older the mother's age at labor, the more it will show a decline in endometrial function so that it can affect the adequacy of fetal nutrition (Putri, 2012 in Ardhiyanti et al., 2016).

In general, primiparas experience longer labor than multiparas. This is because the muscle tissue and ligaments in the birth canal of primiparas have never stretched before, so the process of opening and removing the baby takes longer. In contrast, with multiparas, the labor process tends to be faster because the muscle tissue and ligaments have already stretched before.

Education is a very fundamental process in human life. Education as an effort to grow and develop innate potentials, both physical and spiritual, in accordance with the values that exist in society. Education can influence a person's attitude, including lifestyle. The higher a person's level of education, the easier it is to obtain information. The mother's job can be one of the factors that has the potential to influence the labor process, although its influence is not always direct and individual. Maintaining health, managing stress, and getting good support, women can minimize the risk of complications and go through pregnancy until a healthy delivery process (Notoatmodjo, 2019).

Based on table 2, it can be seen that the assessment of the duration of labor in the multipara intervention group <6 hours was 12 respondents with an average value of 20.6800 and a standard deviation of 2.51255 with a minimum time assessment of 4.24 and a maximum

of 6.02. In the control group, the assessment of the duration of labor <6 hours was 14 respondents with an average value of 25.1940 and a standard deviation of 2.89251 with a minimum time assessment of 6.37 and a maximum of 8.11..

The data above shows that the duration of labor of mothers who received oxytocin massage (intervention) was faster than the group that did not receive oxytocin massage (control). This is in accordance with Kalsum et al. (2021) that oxytocin massage performed during the first active phase affects the duration of labor. The results of the data analysis on the effect of oxytocin massage on the duration of labor showed that the average hours were faster in the experimental group than in the non-experimental group. In the experimental group, the minimum duration of labor was 2.5 hours and the maximum was 4 hours with an average of 2.65 hours. In the non-experimental group, the minimum duration of labor was 4 hours and the maximum was 6 hours..

Based on Table 3, the results of the Independent sample T-Test Sig. (2-tailed) statistical test are 0.000 which is <0.05. So it can be concluded that there is a difference between the intervention group and the control group in the length of labor. So it can be concluded that there is an effect of oxytocin massage in the active phase of the first stage on the length of labor.

This is in line with the research of Jamir et all (2021) the experimental group with long oxytocin massage treatment in the first active phase for a minimum of 1.5 hours and a maximum of 4 hours with an average of 2.65 hours. In the control group without long treatment in the first active phase for a minimum of 4 hours and a maximum of 6 hours with an average of 3.75 hours. According to research by Donaldson (2018) it is said that oxytocin massage can increase oxytocin levels because during massage the parasympathetic nerve activity increases to convey to the back of the brain to release oxytocin.

The oxytocin massage method during the labor process will help increase the release of the hormone oxytocin which facilitates labor, controls persistent pain, controls feelings of stress and relieves pain in mothers in labor. A calm condition can create a balance of hormones in the body.

According to Aryani's research in 2015, it was stated that massage given frequently when the mother is facing labor can suppress the production of pain mediators, when the pain decreases the mother can be calm and can adapt to her labor situation so that labor goes well, namely the pathograph is within normal limits.

The effect of massage is also discussed by Young et al who stated that massage will increase the level of oxytocin hormone. Oxytocin massage is an act of massaging the spinal muscles from cervical 7 to scapula which will accelerate the work of the parasympathetic nerves to convey commands to the back of the brain so that oxytocin is released (Young et al., 2011) (Lee et al., 2011) Morhenn et al (2012) research explains the relationship between spinal muscle massage with increased oxytocin levels and decreased levels of adrenocorticotropin hormone (ACTH), nitric oxide (NO) and beta-endorphin (BE). Comparison of the effects of massage in the intervention group and the control group has a significant difference (Morhenn V et al., 2012).

Conclusion

Based on the research that has been done, oxytocin massage in the first active phase has an effect on the length of labor. To related parties, health workers or families to be able to provide oxytocin massage to mothers giving birth in the first active phase, so that it can shorten the labor process. In the next research, it is hoped that they can examine the variables that have an effect on the length of the labor process.

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