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EFFECT OF COMBINATION OF OXYTOCIN MASSAGE AND HYPNOBREASTFEEDING ON UTERINE INVOLUTION AND PROLACTIN LEVELS IN POSTPARTUM MOTHERS

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ABSTRACT

Background: The absence of contractions after childbirth can lead to a slow-running uterine involution process. Thus, the effort to maintain and accelerate the process is needed. Oxytocin massage and hypnobreastfeeding are considered as an alternative treatment, but the effect of the combination of the two treatments have not yet been examined.

Objective: To examine the effect of combination of oxytocin massage and hypnobreastfeeding on uterine involution and prolactin levels in postpartum.

Methods: A quasi-experimental study with pretest posttest control group design. a total of 40 respondents were recruited using simple random sampling, with 20 respondents assigned in a treatment group and a control group. Metline and ELISA methods were used to measure uterine involution prolactin levels. Paired t-test and independent t-test were used to analyze the data.

Results: There was a significant decrease of uterine involution in the experiment group and control group after intervention with p-value 0.000 (<0.05), and it can be seen that the uterine involution in the experiment group (6.05) was faster than uterine involution in the control group (7.00). Findings also showed that the prolactin level in the experiment group (273.53) was higher than the prolactin level in the control group (209.37).

Conclusion: There was statistically significant effect of the combination of oxytocin massage and hypnobreastfeeding on the uterine involution and prolactin level in postpartum mothers. It is expected that the combination of oxytocin massage and hypnobreastfeeding can be used as a consideration and a reference in providing postpartum midwifery care.

Keywords: uterine involution, oxytocin massage, prolactin levels, hypnobreastfeeding

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INTRODUCTION

The maternal mortality rate (MMR) is the number of deaths from any cause during the pregnancy cycles per 100,000 live births.[1] Some suspected causes of the higher mortality rates include low socioeconomic status, limited or no insurance coverage, bias among health care providers, and quality of care.[1] Lack of care during pregnancy is a major factor contributing to poor outcome.[1] Thus, the improvement of quality care is needed as an indicator of successful health sector development.

The number of maternal deaths in Semarang Indonesia was increased from 109.2 in 2013 to 122.25 per 100,000 live births in 2014.[2] The second highest cause of maternal death after eclampsia (48.48%) was hemorrhage (24.24%) with the most deaths during the puerperium (54.55%) and during delivery (27.2%).[2]

In an effort to accelerate the reduction of MMR in Indonesia, various activities have been done, especially by preventing the occurrence of bleeding during the puerperium period by administering oxytocin injections since the second and the third stage of labor; and by doing oxytocin massage, which oxytocin plays a role in the contraction and retraction of uterine muscle that will suppress the blood vessels and reduce the blood supply to the uterus.[3] The oxytocin reflex plays a major role in the process of uterine involution. Involution of uterine or uterine shrinkage is a process by which the uterus returns to pre-pregnancy conditions weighing about 60 grams. This process begins due to contraction of the smooth muscles of the uterus.[3,4]

Oxytocin can be obtained by various ways either through oral, intranasal, intra-muscular, or by massage that stimulates the release of the hormone oxytocin.[5] Another factor that affects the process of uterine involution besides oxytocin is lactation in which psychic stimulation is the reflex from the mother's eye to the brain, resulting in oxytocin being produced, so that breast milk can be excreted, and the uterus becomes harder to contract. Oxytocin also helps to reduce the place of placental implantation and reduce bleeding. A previous study indicated that the mothers who received oxytocin massage experienced the normal uterine involution.[5,6]

Besides improving uterine involution, breast milk is also a single food for babies in the first 6 months of age. In this regard, mothers should prepare themselves both body and mind to be able to breastfeed her baby comfortably. Physical preparation including balanced nutritious food intake and breastfeeding management are needed. However, many of mothers have difficulty in breastfeeding their babies although they have good breastfeeding management, particularly they think the milk production is insufficient, inconfidence, fear, and other factors related to their mind.[6] Thus, paying attention to the mind management is also necessary.

Hypnobreastfeeding is one of the techniques that can be used to deal with breastfeeding problem.[7] This technique is to include positive affirmation sentences that help the process of breastfeeding when the mother is in a state of very relaxed or very concentrated on a thing (state of hypnosis). The works of hypno-breastfeeding is to eliminate anxiety and fear so that the mother can focus their mind to positive things, and improve their confidence.[8] It is also supported by previous study stated that postpartum mothers have an effective exclusive breastfeeding after hypnobreastfeeding.[9]

Therefore, despite all the benefits of the oxytocin massage and hypno-breastfeeding explained in the literature, this study aimed to combine the two techniques and see their effect on the

uterine involution and prolactin level in postpartum mothers.

METHODS

Design

This research employed a quasi-experimental study with pretest posttest control group design.

Setting

The study was conducted in the General Hospital of Semarang on November-December 2016.

Population and Sample

In this study, a total of 40 respondents were recruited using simple random sampling, with 20 respondents assigned in the treatment and control group. Randomization was used to assign each respondent by using envelopes containing writing of the group name. Each respondent needed to take one envelope. The inclusion criteria of the sample were: 1) normal postpartum women, 2) did not consume herbs and breastfeeding supplements, 3) mother and infant were in healthy condition, 4) spontaneous labor with the third stage of labor, and 5) willing to be respondent.

Intervention

The researchers and enumerators (midwives) were the ones who provided the intervention from the first day to the sixth day of postpartum. The oxytocin massage is a massage along the vertebrae to the bone of the costae 5-6. It is an attempt to stimulate the hormone prolactin and oxytocin after delivery. What the respondent did was sitting, leaning forward, folding her hands on the table in front of her, and putting her head on her arm. Breast hanging off, no clothes, and towel spread over the lap of the patient. Researcher rubbed both sides of the spine, using a fist in both hands and thumb facing up or front. The researcher pressed strongly, forming a small circular motion with both thumbs, then the researcher rubbing down both sides of the spine, at the same time, from the neck to the shoulder blade. While doing massage, the researchers also gave hypnobreastfeeding verbally by giving motivation, for instance, *"I am calmer and more relaxed, milk production is smooth and many, my baby is always healthy, and I am a great mother"*. This combination performed for 30 minutes and done 2 times a day, morning and afternoon session.

During the intervention, there were no obstacles felt by the researchers nor the respondents because the intervention did not endanger the health condition of the respondents or the researchers themselves. The control group in this study received postpartum exercise from day 1 to day 6 postpartum, which was done twice a day in the morning and afternoon.

Instruments

Instrument used to measure uterine involution was using metline in the first and sixth day of postpartum. Laboratory test (ELISA) was performed for the examination of prolactin hormone on the first and the third day of postpartum at GAKI Labs of Semarang. blood sampling was conducted by the researchers and the results of measurements were documented on the observation sheet by laboratory personnel.

Data Collection

Prior to the intervention, the first training was done to the enumerators about the oxytocin massage and hypnobreastfeeding for the intervention group, and the puerperal exercise for the control group to equate perceptions about the implementation and measurement procedures in the study. After the training, there was an evaluation of how to implement the oxytocin massage and hypnobreastfeeding to the enumerators to

ensure that the perception between the researcher and the enumerator was the same. To measure the fundal height, metline was used with the same type of materials and brands of metallic ribbon brand of Shanghai production, China. Researchers and enumerators equate perceptions of how fundal heights were measured and evaluated.

Data Analysis

Paired t-test and independent t-test were used to analyze the data in this study because the data were normally distributed.

Ethical consideration

This study has been approved by the Health Research Ethics Committee (K.EP.K) of Health Polytechnic of Ministry of Health (Poltekkes) of Semarang with No. 170 / KEPK / Poltekkes-SMG / EC / 2016. The permission of the study has also obtained from the Head Director of the General Hospital of Semarang and the Institution of National Unity, Politics and Public Protection of Semarang (Kesbanglinmas), Indonesia.

RESULTS

The majority of the respondents as shown in the Table 1 in the experiment and control group was 25 – 28 years old, multipara, and not working. The analysis showed that p-value of age (0.141), parity (0.318), and working status (0.582), which were more than 0.05, indicated that there was no difference of the characteristics of the respondents between the experiment group and the control group.

Table 1 Frequency distribution of the characteristics of the respondents based on age, parity, and working status

Variable	Group				p-value
	Experiment		Control		
Age (year)	**n**	**Mean (SD)**	**n**	**Mean(SD)**	
	20	25.80(4.819)	20	28.50(6.428)	0.141*
Parity	**n**	**%**	**n**	**%**	
Primipara	8	40	6	30	0.318*
Multipara	12	60	14	70	
Working Status	**n**	**%**	**n**	**%**	
Working	4	20	6	30	0.582*
Not working	16	80	14	70	

**(>0.05): no difference*

Table 2 Effect of the combination of oxytocin massage and hypnobreastfeeding on the uterine involution in the postpartum mothers

Variable	Group				p-value (Independent t-test)
	Experiment		Control		
	n	**Mean (SD)**	**n**	**Mean (SD)**	
Before	20	10.45(0.510)	20	10.35(0.489)	0.531
After	20	6.05(0.510)	20	7.00(0.858)	0.000*
Difference before-after		4.35(0.745)		3.30(0.733)	0.005*
Mean difference of uterine involution before and after intervention (Paired t-test)					
p-value	0.000*		0.000*		

**<0.05- Significant level*

Table 2 shows that there was no significant difference of uterine involution before intervention in the experiment group (10.45) and control group (10.35) with p-value 0.531 (>0.05). However, there was a decrease of uterine involution

in both groups after intervention with p-value 0.000 (<0.05), and it can be seen that the uterine involution in the experiment group (6.05) was faster than uterine involution in the control group (7.00). Paired t-test also shows the p-value 0.000 (<0.05), which indicated that there was statistically significant effect of the combination of oxytocin massage and hypnobreastfeeding on the uterine involution in postpartum mothers.

Table 3 Effect of the combination of oxytocin massage and hypnobreastfeeding on prolactin level in the postpartum mothers

Variable	Group				p-value (Independent *t-test)*
	Experiment		Control		
	n	Mean (SD)	n	Mean (SD)	
Before	20	165.64(45.30)	20	187.12(67.98)	0.247
After	20	273.53(108.11)	20	209.37(58.19)	0.025*
Difference before-after		105.5180(95.89)		22.2610(79.51)	0.005*
Mean difference of prolactin level before and after intervention (Paired t-test)					
p-value	0.000*		0.022*		

Table 3 shows that there was no significant difference of prolactin level before intervention in the experiment group (165.64) and control group (187.12) with p-value 0.247 (>0.05). However, there was an increase of prolactin level in both groups after intervention with p-value 0.025 (<0.05), and it can be seen that the prolactin level in the experiment group (273.53) was higher than the prolactin level in the control group (209.37). Paired t-test also shows the p-value 0.000 (<0.05), which indicated that there was statistically significant effect of the combination of oxytocin massage and hypnobreastfeeding on the prolactin level in postpartum mothers.

DISCUSSION

Results of this study revealed that there was statistically significant effect of the combination of oxytocin massage and hypnobreastfeeding on the uterine involution in postpartum mothers. These results indicated that uterine involution in the combination group of oxytocin and hypnobreastfeeding massage is more rapidly decreased compared with the control group who received postpartum exercise. However, these results proved the definition of oxytocin massage, which is the spinal massage on the nerve 5th-6th to the scapula that will accelerate the work of the parasympathetic nerve that stimulates the posterior pituitary to release oxytocin.[5] The oxytocin hormone can trigger smooth muscle contraction of the uterus, resulting in uterine involution, whereas a sign if there is oxytocin reflex is pain due to uterine contractions.[10]

Physiologically, the effects of the combination of oxytocin massage and hypnobreastfeeding are stimulating uterine smooth muscle contractions in the process of both labor and after delivery so as to speed up uterine involution.[3] This study is also supported by the theory that oxytocin is a hormone that can multiply the intracellular entry of calcium ions.[3] The release of the hormone oxytocin will strengthen the actin and myosin bonds so that the uterine contractions get stronger and the uterine involution process improves.[6]

Oxytocin was produced from posterior hyposes of the paraventric nucleus and supra-optic nuclei.[11] This nerve runs into the neuro hypophyses through the pituitary stalk, wherein the end of the stalk is a sphere containing

many secretarial granules and located on the posterior pituitary surface, and when there is stimulation it will secrete oxytocin. While oxytocin makes contractions when the uterus has oxytocin receptors. The hormone oxytocin that was released from the pituitary gland strengthens and regulates uterine contractions, compresses the blood vessels and assists the hemostasis process. Contraction and retraction of the uterine muscle will reduce the blood supply to the uterus. This process will help reduce placental implantation scars and reduce bleeding.[11]

Additionally, the result of this study was also in line with the previous study stated that the administration of oxytocin massage has an effect on uterine involution on post-partum mother with p-value = 0.01 (<0.05).[12,13]

Normally, fundal height decreases 1 cm below the umbilicus each day of postpartum, and gradually return to its normal position and smaller size. This was what happened in the control group with the normal way of uterine involution. For the control group, the postpartum exercise is actually useful with the form of movements to tighten the abdominal muscles that have become loose after pregnancy. The starting time for postnatal exercise depends on the mother's condition. If the mother is in a normal state, after a few hours may begin with mild movements, such as taking a deep breath through the abdomen, sleeping on your back then tilted right, left tilt and so on. Exercise helps improving blood circulation, posture, muscle tone, pelvis, and stretching of abdominal muscles, and strengthening pelvic muscles.[14]

On the other hand, findings of this study also revealed that there was statistically significant effect of the combination of oxytocin massage and hypnobreastfeeding on the prolactin level in postpartum mothers. The prolactin level in the experiment group was higher that the level of prolactin in the control group. It is however influenced by psychological factors.[15] In this regard, the oxytocin massage and hypnobreastfeeding stimulate the parasympathetic nerves to produce a relaxed feeling of the posterior pituitary and produce endorphins from the anterior pituitary.[8] So that will make the mothers feel more relaxed, happy, and more confident. The more often the mother gives breast milk, the more the milk production will increase, and physiologically the prolactin will increase.[15]

In addition, study indicated that the breastfeeding women who follow hypno-breastfeeding techniques always get positive suggestions that come to their mind.[16] Thoughts and human behavior are 88% dominated by the subconscious mind, and 12% is in the conscious mind. When a person is in a hypnotic state, stimulation of the reticulation activation system occurs in the brain, causing an autonomic nerve response, which is the frequency of the breath and the controlled feeling of stress, so that the patient will feel more confident and able to perform the new task, especially for primigravida mother to have breastfeeding process. Confidence is what will facilitate the process of breastfeeding and increase the prolactin.[16] The results of this study were in line with previous studies indicated that there was a significant effect of oxytocin massage on prolactin hormone. [17]

Limitation of the study

The generalization of the results of this study might be considered as limitation because it was only conducted at the General Hospital of Semarang, and did not represent all postpartum mothers in Indonesia. Besides, the measurement of the uterine involution using metline might be bias.

CONCLUSION

In conclusion, there was statistically significant effect of the combination of oxytocin massage and hypnobreastfeeding on the uterine involution and prolactin level in postpartum mothers in the General Hospital of Semarang. It is expected that the combination of oxytocin massage and hypnobreastfeeding can be used as consideration and references in providing postpartum midwifery care, especially in accelerating the uterine involution and giving relaxation to the mothers in order to be motivated and confidence during breastfeeding process. Further research is needed for generalization, it may need to use ultrasound for the accuracy of the measurement of uterine involution.

Declaration of Conflicting Interest

None declared.

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Authorship Contribution

Authors equally contributed in this study.

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