International Journal of Research and Review
Vol.7; Issue: 11; November 2020
Website: www.ijrrjournal.com
Research Paper *E-ISSN: 2349-9788; P-ISSN: 2454-2237*

The Effect of Breast Care on Prolactin Levels in Postpartum Primipara Mothers

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ABSTRACT

Exclusive breast milk is breastfeeding for infants from 0-6 months in order to meet the nutritional needs for growth and development. Breastfeeding has unmatched advantages for infants, mothers, families and communities. It is strongly recommended to exclusively breastfeed for 6 months. The production and excretion of breast milk is influenced by the prolactin hormone and the oxytocin hormone. Prolactin affects the amount of milk produced. Breast care is highly important; one of which is maintaining breast hygiene, especially the hygiene of the nipples to avoid infection and to soften it, so that the infant can be breastfed properly, and stimulates the glands.

This is an experimental research with post-test only control group design in Andalas Community Health Center, Padang. The sample in this study consisted of 15 treatment groups and 15 control groups that met the inclusion criteria taken by simple random sampling technique. Breast care was carried out on the third trimester of pregnant women starting from the age of 34 weeks carried out three times a week. Prolactin level was measured by ELISA and breast milk volume was measured by measuring tubes. The normality test used the Shapiro Wilk test. Statistical test used independent t test.

The results of this study indicated that the mean of prolactin level in the breast care group (425.00 ± 41.08) was greater than the control group (372.34 ± 43.59). The results of statistical tests revealed that there was a significant effect of breast care on prolactin level (p = 0.002). Besides, the volume of breast milk in the breast care group was (32.67 ± 4.60) greater than the control group (26.60 ± 4.29). The results of statistical tests showed that there was a significant effect of breast care on breast milk volume (p = 0.001).

Prolactin level and milk volume in postpartum primipara mothers on day 3 who did breast care were more in production than mothers who did not do breast care and the difference was significant.

Keywords: Breast care, Prolactin level, Breast milk volume

INTRODUCTION

The number of deaths related to malnutrition is estimated at 2.7 million children each year or 45% of all deaths. Feeding infants and young children is a key area for improving child survival and promoting healthy growth and development. The first 2 years of a child's life are extremely important, because optimal nutrition during this period decreases morbidity and mortality, reduces chronic disease and promotes overall good development. Optimal breastfeeding is highly important so it can save the lives of more than 820,000 children under the age of 5 each year (WHO 2018).

Breastfeeding is the usual way of providing the nutrition that the baby needs for healthy growth and development. Almost all mothers can breastfeed provided they have accurate information and support from their family, the health care system, and society at large. Colostrum is yellowish, sticky breast milk produced in late pregnancy. WHO recommends colostrum as

the perfect food for newborns and breastfeeding should be started within the first hour after delivery. Exclusive breastfeeding is recommended until the age of six months, then it is given continually with complementary foods according to age up to two years of age or more (WHO 2019).

Based on data collected by the International Baby Food Action Network (IBFAN) 2012, Indonesia is in the third lowest position out of 51 countries in the world that have participated in the assessment of the status of policies and programs for infant and child feeding (WHO 2012). This shows that breastfeeding as the baby's first food is still lacking. In fact, the decline in child nutrition that causes children to be malnourished to bad and grow short (stunting) can be prevented as early as possible by exclusive breastfeeding and the right complementary foods.

The benefits for optimally breastfed babies will increase IQ, protection against gastrointestinal tract infections which is observed not only in developing countries but also in industrialized countries. Early breastfeeding within 1 hour of birth can reduce newborn mortality, the risk of diarrhea and infection can increase in babies who receive incomplete breastfeeding or are not breastfed at all (WHO 2018).

One of the reasons for the low coverage of exclusive breastfeeding for babies under six months is due to delayed milk production in postpartum mothers in the first days after delivery, so that some babies receive formula milk at birth (Ministry of Health of the Republic of Indonesia, 2018). According to (West Sumatra Health Office, 2018) low breastfeeding coverage is caused by working mothers, lack of motivation and knowledge of mothers and lack of family support.

Based on these data, it is necessary to make efforts to accelerate milk production for postpartum mothers. There are two things that affect milk production, namely production and ejection. Breast milk production is influenced by the prolactin hormone, while breast milk ejection is influenced by the oxytocin hormone (Mardiyaningsih 2010).

Prolactin and oxytocin are hormones that play an important role in the lactation process. Prolactin is the main hormone in breast milk production. In addition, prolactin also affects the ovaries. When the baby is breastfed, oxytocin is also released in response to nipple stimulation. Oxytocin has an effect on milk ejection. Oxytocin also affects the ovaries and copus luteum (Lawrence and Lawrence 2014, Gimpl, Fahrenholz, and Gene 2018).

Breast care during pregnancy is an important part that must be considered in preparation for later breastfeeding. Breasts need to be prepared from the time of pregnancy so that when the baby is born it can function properly when needed (Nita Haeriaty, 2010).

Breast care is an activity that is carried out consciously and regularly to maintain breast health. Breast care is tremendously important for pregnant and postpartum women because it is a treatment procedure performed by patients and assisted by others (Rosanah 2015). The goal of breast care is to improve blood circulation and prevent blockage of the milk ducts, so that the milk ejection can run smoothly (Maritalia, 2012).

Physiologically, breast care during pregnancy stimulating the breasts will affect the pituitary to release more estrogen and progesterone and oxytocin by stimulating the milk glands through massage (Ambarwati in Nilamsari, 2014).

Based on this background, the authors are interested in conducting research on "the effect of breast care on prolactin levels in postpartum primipara mothers".

LITERATURE REVIEW

Definition of Pregnancy

Pregnancy is a series of events that only occur when the ovum is fertilized and the ovum finally develops until it becomes

aterm fetus. In the ovary, the ovum is in the primary oocyte stage, just before being released from the ovarian follicle, the nucleus divide by means of meiosis and from the nucleus of the oocyte the first polar body is released. The primary oocyte then becomes the secondary oocyte. In this process, each of the 23 pairs of chromosomes will lose one pair which is then joined to form a polar body which is then released. This leaves 23 unpaired chromosomes in the secondary oocyte. It is at this time that the ovum is still in the secondary oocyte stage being evolved into the abdominal cavity. Then, immediately, the ovum enters the fimbria end of one of the fallopian tubes (Guyton and Hall, 2012).

Pregnancy is defined from conception to delivery of the fetus, the normal length of pregnancy is 280 days (40 weeks or 9 months 7 days) counting from the first day of the last menstrual period. Pregnancy is divided into 3 trimesters, where the first trimester starts from conception until 3 months (0-12 weeks), the second trimester from the fourth month to 6 months (13-28 weeks) the third trimester from the seventh month to 9 months (29-42 weeks) (Rukiyah, 2013).

Definition of *Postpartum (Childbirth)*

Postpartum (childbirth) is an important thing to pay attention to in order to reduce the Infant Mortality Rate (IMR) and Maternal Mortality Rate (MMR) in Indonesia. According to the results of Indonesian Nursing Diagnosis Standards in 2007, the under-five mortality rate decreased from 97 in 1991 to 44 per 1,000 live births in 2007 and 29 per 1,000 live births in 2010. Meanwhile, to meet the Sustainable Development Goals (SDGs) target, this figure must be lowered to 24 per 1,000 live births in 2015. Maternal Mortality Rate (MMR) decreased from 307 per 100,000 live births in 2002 to 228 per 100,000 live births in 2007 and 380 per 100,000 live births in 2010 (Mitrami et al, 2017).

Postpartum is the period or time since the baby is born and the placenta comes out of the uterus, until the following six weeks, accompanied by the recovery of the organs associated with the uterus, which undergo changes such as injuries and others related to childbirth (Verby et al. 2017).

Childbirth is a significant life event. Many women are extremely happy with the birth of their child, which is probably the greatest happiness of their life (Takegata et al, 2017).

The postpartum period is a period of recovery because it is the main supporting factor for the production of breast milk so that if the nutrition is not fulfilled, it will hamper the production of breast milk and can affect the composition and nutritional intake of the newborn. Breastfeeding mothers have a lot of needs for the nutritional intake contained in every food they consume by paying attention on the needs needed by their bodies (Arfiah, 2018).

Breast Anatomy and Physiology

Breasts (mammae) are glands located under the skin, above the chest muscles that produce milk to nourish the baby. The breast is a modified sebaceous gland in the superficial tissue of the anterior chest wall, which consists of a variable mixture of glands producing milk, fat and supporting connective tissue (Cooper ligaments). Breasts are also considered sex organs because they are sexually sensitive and inspire sexual desire. Breasts (mammary glands) are dynamic exocrine organs that can undergo repeated cycles of growth, functional differentiation, and regression, which are closely related to the reproductive process (Lawrence, et al., 2011).

The function of the breast is to produce milk for baby nutrition. Humans have a pair of breast glands weighing approximately 200 grams, 600 grams during pregnancy, and 800 grams when breastfeeding.

In the breast, there are three main parts, namely, the corpus, areola and papilla:

1. The corpus is an enlarged part which consists of lobes which are several lobules that gather into 15-20 lobes in each breast. Lobules are a collection of alveoli ranging from 10 to 100 alveoli. Alveolus is the smallest unit that produces breast milk consisting of acinar cells, fat tissue, plasma cells, smooth muscle cells which when contracted can pump milk out, and blood vessels. The ducts are small ducts that supply milk from the lobules. The lactiferous duct is a duct joint that forms a larger duct.
2. The areola is the blackish part located in the middle around the teat or papilla. It has a dark color caused by thinning and accumulation of pigment in the skin. Discoloration will depend on skin complexion and the presence of pregnancy. Women with olive skin will have a reddish orange color, if their skin is black, the color will be darker. In the areola, there is a lactiferous sinus which is a channel under the areola which is large and widens, eventually concentrating into the nipple and empties out.
3. The papilla or nipple is a part that protrudes at the top of the breast. There are small holes where the lactiferous ducts open, the endings of nerve fibers, blood vessels, lymph vessels and smooth muscle fibers will cause the lactiferous ducts to solidify and erect nipple, while the longitudinal muscle fibers will pull back the nipple. (Susanto, AV 2018).

Definition of Breast Milk

Breast milk is the best food for babies in early life. The World Health Organization (WHO) in 2012 recommends that babies be breastfed for at least 6 months and solid foods should be breastfed after the baby is 6 months old and breastfeeding is continued until the child is two years old. Exclusive breastfeeding coverage in the United States in 2012 was only 32.1% in the first 6 months of birth (Heymann & Earle, 2013; WHO & UNICEF, 2012).

Breastfeeding and breast milk are normative standards for infant feeding and nutrition. Given the short-term and long-term documented medical and neurodevelopmental benefits of breast milk, infant nutrition should be considered a public health issue and not just a lifestyle choice. The American Academy of Pediatrics reiterates its recommendation regarding exclusive breastfeeding for about 6 months (Eidelman and Schanler, 2012).

Exclusive breastfeeding is breastfeeding for babies from 0-6 months in order to meet the nutritional needs needed for growth and development. It has unmatched advantages for babies, mothers, families and communities. It is strongly recommended to exclusively breastfeed for 6 months (Zhang et al, 2016)

It can be concluded that exclusive breastfeeding is pure breastfeeding without complementary foods (prelactal) for 0-6 months in infants. Exclusive breastfeeding for 6 months can reduce infant morbidity and mortality, optimize infant growth, increase children's intelligence, and help extend pregnancy spacing for mothers.

Prolactin Hormone

Definition of Prolactin Hormone

Prolactin hormone is a hormone released by the anterior pituitary gland (adinohipofise). Prolactin is found in nursing mothers, because during breastfeeding, there is stimulation of the mammary glands to produce milk, so when needed, it is ready to function (Sherwood, 2011).

The concentration of the prolactin hormone in the mother's blood increases steadily from the fifth week of pregnancy until the birth of the baby, increasing to 10 to 20 times normal levels when not pregnant. As soon as the baby is born, the sudden loss of both estrogen and progesterone secretion from the placenta allows the lactogenic effects of prolactin from the mother's pituitary gland to play a role in the natural production of breast milk, and after one to 7 days later, the breasts

begin to secrete very large amounts of milk as a substitute colostrum (Guyton and Hall, 2011).

Function of Prolactin Hormone

Although estrogen and progesterone are important for the physical development of the breasts during pregnancy, their special effect is to prevent the actual secretion of milk. On the other hand, this prolactin hormone has the opposite effect on the secretion of milk, that is, it increases it. This hormone is secreted by the mother's anterior pituitary and its concentration in the mother's blood continues to increase from the fifth week of pregnancy to the birth of the baby, which at this time increases 10 to 20 times the normal level when not pregnant. Prolactin concentrations are tremendously high at the end of pregnancy (Guyton, 2014).

In addition, the placenta secretes large amounts of human chorionic somatomamotropin, which may have lactogenic properties, thereby supporting prolactin from the maternal pituitary during pregnancy. However, because of the suppressive effects of estrogen and progesterone, only a few millilitres are secreted each day until the baby is born. The fluid that is secreted during the last few days before and the first few days after birth is called colostrum. Colostrum basically contains the same amount of protein and lactose as milk, but contains almost no fat, and the maximum rate of formation is about 1/100 of the speed at which the next milk is formed (Guyton, 2014).

Prolactin Levels in Breastfeeding Mothers

The circulating prolactin level varies on a daily basis. Prolactin levels are high about 1 hour after sleeping and the lowest level is around noon. The peak of prolactin levels is 45 minutes after breastfeeding, during which the breasts will prepare for the next milk production. The prolactin levels continued to decline, where the highest prolactin levels occurred in the early postpartum period with baseline prolactin levels 119+19.1 ng/ml and the peak prolactin levels of 286 + 22.6 ng/ml during the stimulation response of the baby's suction. If breast milk accumulates in the breast, there will be a decrease in prolactin levels. This shows that because of the change in the shape of the lactocyte when the alveoli are filled with milk, so that the prolactin receptor needs to be suppressed. As with oxytocin, prolactin is not produced due to the sound, sight, or smell of a baby, but only by breastfeeding (Lawrence, 2011).

Breast Care

Definition of Breast Care

Breast care during pregnancy is one of the important parts that must be considered as preparation for breastfeeding and the breasts need to be prepared from the time of pregnancy so that if the baby is born it can function properly when needed (Alhadar, F, 2017)

During the nine months of pregnancy, the breast tissue grows and prepares its function to provide nourishment for the newborn. After delivery, when the hormones produced by the placenta are no longer there to inhibit it, the pituitary gland secretes prolactin, until the third day after delivery; it is evident that the effect of prolactin on the breast is proven. Breast blood vessels become swollen filled with blood causing warmth, swelling and pain (Nita Haeriaty, 2010).

The cells that produce milk begin to function and the milk begins to reach the nipple through the milk ducts, producing colostrum which precedes it, then lactation begins. Breast care is definitely important for postpartum mothers. The breasts should be thoroughly cleaned daily with massage during the bath and starting on the day, both after delivery and when regular breastfeeding is about to begin. This will lift dry colostrum or leftover milk and help prevent the accumulation and entry of bacteria both to the nipple and mouth of the baby (Nita Haeriaty, 2010).

One of the needs of pregnant women in the third trimester, namely breast care is

very important to do to welcome the birth of a baby. In wearing a bra, avoid wearing a bra with a tight size and use a bra that supports the breasts (Ministry of Health of the Republic of Indonesia, 2012).

Breast care should be carried out during pregnancy, namely the gestational age after eight months (trimester III) and not after delivery. Pregnant women will not experience difficulties in breastfeeding if from the beginning of pregnancy they know how to properly and correctly breast care (Mertisa, 2015).

Purposes and Benefits of Breast Care

Breast care has the following purposes, namely maintaining breast cleanliness, especially the cleanliness of the nipples; avoiding infection; strengthening breast implants; improving the shape of the nipples so that milk production is smooth; knowing early on nipple disorders and making efforts to overcome them; and preventing breast milk dams (Maryunani, 2015).

Besides, breast care during pregnancy has several benefits, including maintaining breast cleanliness, especially the cleanliness of the nipples; flexing and strengthening the nipples so that it makes it easier for the baby to breastfeed; stimulating the milk glands so that milk production is large and smooth; can detect breast abnormalities early and making efforts to overcome it; and preparing mothers mentally (psychologically) for breastfeeding (Alhadar, 2017).

Relation between Breast Care and Prolactin Levels

Breast care during pregnancy is an important part that must be considered as preparation for breastfeeding. Breasts need to be prepared from the time of pregnancy so that when the baby is born it can function properly when needed. Breast care is also extremely helpful in the success of early breastfeeding, which affects exclusive breastfeeding (Syull et al, 2016).

Physiologically, breast care by stimulating the breasts will affect the hypophysis to release more of the hormones progesterone and estrogen and the hormone oxytocin by stimulating the milk glands through massage. This is related to the movement in breast care which is useful for smoothing the reflex for breastfeeding. Besides, it is also an effective way to increase breast milk volume and prevent damages in the breast (Fatmawati et al., 2019).

During pregnancy, the prolactin hormone from the placenta increases but the milk usually does not come out because it is still inhibited by high estrogen levels. On the second or third postpartum day, estrogen and progesterone levels drop dramatically, so that the influence of prolactin is more dominant and it is at this time that milk secretion begins. Early breastfeeding activity occurs nipple stimulation; prolactin is formed by the pituitary, so that milk secretion gets smoother. Two reflexes in the mother that are highly important in the process of lactation, the prolactin reflex and the flow reflex arise from stimulation of the nipple by the baby's suction (Fatmawati et al., 2019).

After delivery, oxytocin also tightens the smooth muscles around the alveoli to express milk into the milk ducts. The release of breast milk occurs because the smooth muscle cells around the breast glands shrink so that the milk is squeezed out, the milk can come out of the breast due to the shrinking muscles that can be stimulated by a hormone called the hormone oxytocin (Rahayuningsih et al., 2016).

According to the Ministry of Health of the Republic of Indonesia & JICA (2015), the role of midwives specifically related to exclusive breastfeeding begins at ANC, such as providing counselling or explanations about the preparation for exclusive breastfeeding, counselling on how to carry out breast care during pregnancy and counselling about the benefits of exclusive breastfeeding.

Exclusive breastfeeding has a great contribution to the development and endurance of children. Children who are given exclusive breastfeeding will grow and develop optimally and will not get sick easily. This is in accordance with several studies and global facts. The global study "The Lancet Breastfeeding Series", 2016 has proven 1) Exclusive breastfeeding reduces the mortality rate due to infection by 88% in infants aged less than 3 months, 2) A total of 31.36% (82%) of 37.94% sick children, because they do not receive exclusive breastfeeding. Investments in prevention of LBW, stunting and increasing BMI and exclusive breastfeeding contribute to lowering the risk of obesity and chronic disease. Not breastfeeding is associated with an estimated $302 billion in economic losses each year or 0-49% of Gross National Income (Lancet, 2016).

MATERIALS & METHODS

This research is an experimental study using a Post-test only Control Group design. The sample in this study is part of the population that meets the inclusion and exclusion criteria. The inclusion criteria include willing to be a respondent and participate in the study, are Postpartum Primipara mothers, are first day postpartum mothers with normal delivery, having good psychological condition, postpartum mothers who are treated with their babies, having normal birth weight> 2500 grams, and are a term. Besides, the exclusion criteria cover postpartum mothers who take drugs to increase milk production, postpartum mothers whose babies die, postpartum mothers who experience psychological disorders, and postpartum mothers who experience bleeding. The sampling technique in this study was done by simple random sampling. That is, each subject is numbered and some of them who met the criteria were selected to be the research sample.

The tools used in this research was divided into two namely tools for obtaining breast care data and prolactin level data. The tools for breast care consist of two small or medium cups, one large towel, and two washcloths. Besides, the prolactin level in this research used postpartum mothers' blood. The tools for obtaining prolactin level data consist of 3 cc syringe, Vaccutainer, 1.5 ml microtube tube, Tourniquet, Centrifuge, Cooler box for carrying blood.

The data that have been obtained is recorded in the research form. Then, data processing was carried out through the editing, coding, data-entry, cleaning, and tabulating processes. Furthermore, data processing was carried out using the Statistical Program for Social Science (SPSS) application. Editing was carried out when data collection was done by double checking the contents of each questionnaire question to ensure that the respondent's answers were complete and that all question items were filled in with answers. The clarity and consistency of answers was also corrected by seeing whether respondents only filled in answers on one scale only. If there is a respondent's answer that is not appropriate, then at that time, it is also corrected and asks the respondent to complete the answer. Researchers provided a code for each respondent to facilitate data processing and data analysis. Activities carried out after the data were edited and were coded, especially to differentiate between the intervention group and the non-intervention group. All the variables were coded. After all data was coded and entered into a computer program, the data were then processed by using statistical software so that the data can be analyzed. Researchers carried out cleaning activities of all data in order to be free from errors before data analysis was carried out, both errors in coding and in reading the code. Errors may also occur when the researcher entered the data into the computer. After the data were obtained, rechecking was done to make sure whether there are wrong data or not

Statistical Analysis

All data obtained were processed by using the Statistical Program for Social

Science (SPSS). Data analysis used in this research includes: 1) Numerical data obtained from the results of the study were carried out by the data normality test using the Shapiro Wilk Test (sample <50) to determine the normality of the data distribution. The data distribution is normal (normally distributed) if a p value >0.05; and 2) A bivariate test was performed to determine the effect of breast care on prolactin levels in postpartum primipara mothers by using the parametric statistical test (p <0.05). The data normality test was used to determine whether the data distribution of each variable in this study had a normal distribution or not by using the Shapiro Wilk test (sample <50). The data distribution is regarded to be normal if the p value is> 0.05, if the data distribution is not normal, then the data is transformed, then continued with the independent t-test if the data distribution is normal. If the distribution is not normal, then it uses a non-parametric statistical test, namely Mann Whitney.

RESULT

Research Data

This study was conducted at the working area of Andalas Public Health Center and at the Biomedical Laboratory of Medical Faculty of Andalas University. This study aimed to examine the effect of breast care on prolactin levels on postpartum primipara mothers which consisted of 30 mothers and the sampling was done by using simple random sampling. The sampling fulfilling inclusion and exclusion criteria was divided into two groups namely control and treatment group. Treatment group was given breast care in pregnancy at trimester three, while control group was not given breast care.

Univariate Analysis

Research Respondents Characteristics

Respondents of this study were taken based on patients who came to the Andalas Public Health Center in Padang.

Based on Table 1, it shows that there was (29.20 ± 5.809) on the age of the respondents in the treatment group who performed breast care, while in the control group, there was 23.87 ± 3,248 on the age of respondents. At the level of education, the treatment group that performed breast care was 0% junior high school, 60% senior high school and 40% tertiary education. Meanwhile, in the control group, there was 20% Senior High School, 53.3% Senior High School, and 26.7% Tertiary Education. Respondents who work in the treatment group who do breast care was of 66.7% and respondents who do not work were of 33.3%. While, in the control group, respondents who work was of 53.3% and who do not work was of 46.7%.

Table 1: Research Respondents Characteristics

Variables	Group	
	Treatment	Control
Age a. Mean ± SD	29.20±5.809	23.87±3.248
Education Junior High School Senior High School Tertiary Education	0 (0%) 9 (60%) 6 (40 %)	3 (20%) 8 (53.3%) 4 (26.7%)
Occupation a. Working b. Not Working	10 (66.7%) 5 (33.3%)	8 (53.3%) 7 (46.7%)

Normality Test

Data analysis was started with a normality test first to see whether the data is normally distributed or not. The normality test in this study is the Shapiro Wilk test because the sample size is <50 samples. The results obtained are data on prolactin levels that are normally distributed because p> 0.05.

Afterwards, it was continued with an independent t test to see the effect of breast care on prolactin levels in postpartum primipara mothers on day 3.

The Effect of Breast Care on Prolactin Levels on Day 3 of *Postpartum Primipara Mothers*

Table 2 shows that the mean prolactin levels in the treatment group (425.00 ± 41.08) were greater than the control group (372.34 ± 43.59). The results of statistical tests showed that there was a significant effect of breast care on prolactin levels (p = 0.002).

Table 2: The Effect of Breast Care on Prolactin Levels on Day 3 of Postpartum Primipara Mothers

	n	Prolactin Levels (ng/L)	P
		Mean ± SD	
Treatment	15	425,00 ± 41,08	0,002
Control	15	372,34 ± 43,59	

DISCUSSION

Research Respondents Characteristics

Mothers' Age

Based on table 1, it is found that the average age of mothers in the study area is 29 years in the treatment group and 23 years in the control group. Viewed from the results of the maternal age survey in the field, it can be concluded that the mother's age determines maternal health and is related to the conditions of pregnancy, childbirth and delivery as well as how to care for and breastfeed the baby. Ages of 20-35 years is the ideal age to produce optimal breast milk and physical and spiritual maturity in the mother has been formed, breastfeeding is influenced by the age of breastfeeding, ages of 20-30 years, including the age group that has physical and emotional maturity. Therefore, at this age, it is easier to accept and filter information obtained or given. In the ages of over 35 years, reproductive organ is weak and not optimal in exclusive breastfeeding (Mubarak, 2011).

According to the assumptions of the researchers and findings in the field, the age of the respondents can influence the process for breastfeeding preparation, in this case the implementation of breast care during pregnancy to support more milk volume and to provide exclusive breastfeeding. The average age of respondents who do breast care is in the productive age category, namely 20 - 35 years, allowing them to be able to get information and be able to remember it again, having good reproductive organs, are safe for pregnancy and childbirth, and the emotional, mental, and psychological conditions are ready to become a mother. When connected with the implementation of breast care during pregnancy, respondents can do it regularly and independently.

The research has been conducted by Ernawati on the motivation of postpartum mothers in breast care in Magelang Regency. The study showed that most postpartum mothers were aged 20-35 years (88.7%). The researcher explained that the age factor greatly affects a person's motivation, including motivation in carrying out breast care (Ernawati, 2017). According to Hidayati (2012), those who are less than 20 years old are still considered immature physically, mentally and psychologically in the face of pregnancy, childbirth and breastfeeding, while those who are more than 35 years old are also considered dangerous because both the reproductive and physical organs of the mother have decreased significantly. Thus, a mother's ability to breastfeed and care for her breasts is no longer optimal due to decreased function of reproductive organs such as breasts.

Education

Based on table 1, it is found that the most found in mothers' education in the working area of Andalas Community Health Center is in the treatment group at high school level with a percentage of education (60%) and in the control group with a percentage of education (53.3%). Senior high school education level can be assumed to receive important information including breast care health information during pregnancy. Respondents can receive information from various parties who are considered influential in terms of health such as health workers. Health workers provide health education to the respondent when the mother makes a check-up visit such as Antenatal care. This information can be accepted by respondents so that it can affect the level of knowledge about breast care.

Mothers with low education result in a lack of knowledge in dealing with existing problems, especially in terms of exclusive breastfeeding. They are also more focused on social and cultural factors in the environment where they live. Meanwhile,

mothers who have higher education will have extensive knowledge and the ability to understand and apply any information received either orally or in writing (Adam, 2016). This research is in line with research conducted by Suci et al (2020). The results of the analysis of chi Square p value = 0.003. The results of the analysis in this study, p value (0.003), there is a significant relation between the education level of postpartum mothers and breast care behaviour. The research conducted by Vikabie (2017) showed the influence of education with breast care with the most education at high school level with a percentage (46.7%) at the high school level mothers are considered able to absorb the information provided so they can perform breast care.

According to the researchers' assumptions, it is found that the majority of postpartum mothers have high school education whose thinking stage is still at the knowing and understanding stage. At this stage, the mother's thinking condition is still easily influenced by other people, such as her family and close friends. Moreover, there are sources of information that can be obtained from printed, electronic, and health media sources that influence the mindset of mothers or mothers' perceptions of breast care which results in misunderstanding of breast care. Knowledge is the mother's basic attitude or action, so that if the mother has good knowledge, it will be shown through the behavior, namely carrying out breast care. For this reason, it is important to change one's concept of thinking so that good and correct information can be processed by the mother, so that she is not afraid first about the myths that exist in society.

Occupation

Based on table 1, it is found that generally mothers have occupation with percentage in the treatment group of (66.7%) and in the control group of (53.3%). Basically, working is a necessity. By working, families can meet the needs, basic physiological needs, living, clothing or so forth. In addition, it also can fulfill social needs, namely needs that arise in a person's relation or interaction, including gaining knowledge from various media (Puspa, 2009). Working mothers earn income that is used as capital to buy such as books about the benefits of breast massage which in turn can increase knowledge, but for housewives, it will have difficulty buying such as health books as a result of mothers not earning income. Therefore, working mothers can further increase her knowledge including knowledge about the benefits of breast massage during pregnancy.

A mother who is not working has a great opportunity to breastfeed her baby exclusively. This is because most of the time is spent taking care of the household and children, so generally a mother who does not work tends to be more intensive in breastfeeding her baby. Based on the data obtained, most of the respondents are housewives, and having more time to provide breastfeeding for the babies and doing breast care at home (Prasetyono. 2009). Meanwhile, women who do not work have sufficient knowledge because women who do not work have more free time to seek information at home about breast care so that their knowledge is likely to increase (Ministry of Health of the Republic of Indonesia, 2013).

According to the researchers' assumptions and observations in the field on mothers who are actively working, breast care efforts often experience obstacles due to the short time needed to perform breast care, focused on work demands and additional daily work at home. Juliastuti (2011) stated that mothers who do not work can be regarded to be mothers who only carry out their duties as housewives and spend a lot of time at home without being tied to work outside the home, so that they have many opportunities to obtain information on optimal breastfeeding without being limited by time and activity.

The Effect of Prolactin Levels on Day Three in Postpartum Mothers based on Breast Care

Based on table 2, it shows that the mean prolactin levels in the treatment group (425.00 ± 41.08) were greater than the control group (372.34 ± 43.59). The results of statistical tests showed that there was a significant effect of breast care on prolactin levels (p = 0.002). Lactation (breastfeeding) is the whole process of breastfeeding, starting from breast milk produced to the baby's process of sucking and swallowing breast milk (Kristiyanasari, 2011).

One of the factors that influence the production of breast milk includes breast care. Breast care is an activity that is carried out consciously and regularly to maintain breast health. Breast care is highly important for mothers because it is a care procedure performed by patients or assisted by other people, usually starting from the first or second day after giving birth (Rosanah, 2015). The purpose of breast care is to improve blood circulation and prevent blockage of the milk ducts, so that milk is excreted smoothly. Breast milk production and milk production are influenced by two hormones, namely prolactin and oxytocin. Prolactin affects the amount of milk production, while oxytocin affects the process of expressing breast milk (Maritalia, 2012).

Although, theoretically, in the first week after delivery, prolactin levels in breastfeeding women decrease by about 50% (about 100 ng/ml), breastfeeding gives rise to an increase in prolactin, which is important in starting milk production, basal levels are around 40-50 ng/ml and there is large (about 10-20 times) increased after breastfeeding until 2-3 months after delivery, but the prolactin hormone increased by 31.333% after 7 days of intervention. Nursing or massage of the breasts for mothers after childbirth is an attempt to stimulate the hormone prolactin (Amin, 2011).

This breast care is useful to influence the pituitary to release the prolactin and oxytocin hormones. The prolactin hormone affects the amount of breast milk production and the hormone influences the ejection of breast milk. The food consumed by breastfeeding mothers greatly affects the production of breast milk. If the food that the mother eats is sufficient nutrition and a regular diet, the milk production will run smoothly. In the factor of child suction or the frequency of breastfeeding, the baby is breastfed at least 8 times per day, because the more often the baby feeds on the mother's breast, the smoother the production breast milk will be (Weny, 2015).

The number of prolactin levels obtained in this study varied because prolactin levels were influenced by nutritional factors consumed by the mothers, rest patterns, psychological factors and baby weight. In addition, in this study, there was no in-depth analysis of this. Breast care does not require large costs in its implementation, so it can be done by mothers who have a low economy (Parker, 2012).

These results are in line with Akib Asridawati's research, (2017) showing that of the 30 respondents who performed breast care, it could be concluded that there was a significant difference in prolactin hormone levels who performed breast care. The value of p = 0.028, while in the group that was not given massage, there was no significant difference in the increase in prolactin levels (p> 0.05). The results of this study are in line with the research of Pamuji et al. (2011) stating that there was a significant difference in the mean prolactin hormone levels in the group given the combined intervention of woolwich massage and endorphin.

There are differences in the prolactin hormone before and after breast care. The result of statistical test gives p = 0.000, it means that there is a significant difference between prolactin hormone before and after breast care. In the lactogenesis phase, when the breasts are stimulated, the prolactin level in the blood will increase and will increase again in a 45 minute period, and will return

to the original level before the stimulation three hours later. The prolactin hormone released can stimulate the cells in the alveoli to produce breast milk, the prolactin hormone will also be released in breast milk. The level of prolactin in milk will be higher if there is more milk production, that is, at 2 am to 6 am, however, the prolactin level will decrease if the breasts feel full. However, at the time of the research done, blood sampling for prolactin examination was carried out at 10:00 a.m. and when the mother's breasts were empty after breastfeeding

CONCLUSION

Based on the research that has been conducted, it can be concluded that there is a significant effect of breast care on the prolactin levels of postpartum primipara mothers on day 3.

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How to cite this article: Lestari S, Yusri Dianne Jurnalis, Sp.A(K), Fadil Oenzil, SpGK. The effect of breast care on prolactin levels in postpartum primipara mothers. International Journal of Research and Review. 2020; 7(11): 354-366.

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