THE ANALYSIS OF THE NUMBER OF LACTOBACILLUS BIFIDUS ON INFANTS INITIATED EARLY BREASTFEEDING AND FEEDED WITH BREAST MILK

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ABSTRAK ANALISIS JUMLAH LACTOBACILLUS BIFIDUS PADA BAYI YANG INISIASI MENYUSU DINI DAN ASI

Latar Belakang Menurut *World Heath Organization* (WHO) pada tahun 2016, tingkat cakupan menyusui secara eksklusif di dunia adalah sekitar 38 % diatas normal. Hasil survey Riskesdes tahun 2018, di Indonesia cakupan IMD sebesar 58,2 %, mengalami peningkatan dari data Riskesdes di tahun 2013 dengan tambahan 34,5 % (Fauziandari 2019). Daerah yang paling banyak pelaksanaan IMD secara dini adalah Sulawesi Barat (88,49%), dan daerah yang paling banyak mengalami penurunan adalah Maluku (23,18%).

Tujuan mengidentifikasi pengaruh pemberian IMD dan pemberian ASI selama satu minggu terhadap jumlah Lactobacillus bifidus pada bayi.

Metode Quasy Eksperimen pada bulan Maret sampai dengan bulan Juni 2021 yang dilaksanakan puskesmas wilayah Kota Makassar (Puskesmas Antang Perumnas, Puskesmas Kassi- Kassi, Puskesmas Bara Barayya dan di Puskesmas Jumpandang Baru).Sampel yang diperoleh sebanyak 32 sampel, dibagi ke dalam dua kelompok, yaitu kelompok 1 untuk bayi IMD dan diber ASI selama satu minggu dan kelompok 2 untuk bayi IMD dan pemberian ASI nya tidak berhasil dalam satu minggu untuk menganalisis jumiah Lactobacilfus bifidus pada feses bayi digunakan analisis statistk menggunakan uji Mann Whtney.

Hasil penelitian nilai rata-rata jumah *Lactobacilius Bifidus* bayi yang diberi ASI selama satu mnggu sebesar tx 10 dan pada bayi yng tidak mendapatkan ASI penuh selama satu minggu sebesar x O karena hasil uj Mann Whitney mendapatkan nijar p-0039 (p-VALUE <0,05)

Kesimpulan terdapat pengaruh IMD dan pemberian ASi terhadap jumlan Lacfobaclirs bificus pada bayı

Saran dapat dilakukan penilaian jumlah *lactobacallus bifidus* berdasarkan status gizi ibu, dan penelitian selanjutnya terkait analisis jumlah *Lactobacillus Bifidus* bisa dilakukan pada balita.

Kata Kunci : ASI,Inisiasi Menyusu Dini, *Lctobacillus Bifidus*

ABSTRACT

Background from the World Heath Organization (WHO) in 2016, the level of exclusive breastfeeding coverage in the world is around 38% above normal. The results of the Riskesdes survey in 2018, in Indonesia the EIB coverage was 58.2%, an increase from the Riskesdes data in 2013 with an additional 34.5% (Fauziandari 2019). The area with the most early Early Initiation of Breastfeeding (EIB) implementation was West Sulawesi (88.49%), and the area that experienced the most decline was Maluku (23.18%).

Purpose to know the effect of giving EIB and breastfeeding for one week on the number of Lactobacillus bifidus in infants.

Methods used the Quasy Experiment method from March to June 2021 which was carried out by the Makassar City Health Center (Puskesmas Antang Perumnas, Puskesmas Kassi-Kassi, uskesmas Bara Barayya and at Puskesmas Jumpandang Baru). The samples obtained were 32 samples, divided into two groups, namely group 1 for EIB infants and breastfed for one week and group 2 for EIB infants and their breastfeeding was not successful in one week to analyze the amount of Lactobacilfus bifidus in the baby's feces using statistical analysis using the Mann Whitney test.

Results of the study the average value of the Lactobacilius Bifidus number of infants who were breastfed for one week was tx 10 and in infants who did not get full breast milk for one week was x O because the results of the Mann Whitney test got a value of p-0039 (p-VALUE < 0.05)

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Conclusion is that there is an effect of EIB and breastfeeding on the number of Lacfobaclirs bificus in infants.

Suggestions can be done to assess the amount of Lactobacillus bifidus based on the nutritional status of the mother, and further research related to the analysis of the amount of Lactobacillus Bifidus can be carried out on toddlers.

Keywords: Breast Feeding, Early Initiation of Breastfeeding, Lctobacillus Bifidus

INTRODUCTION

Responding to information from the World Heath Organization (WHO) in 2016, the level of exclusive breastfeeding coverage in the world is around 38% above normal. The results of the Riskesdes survey in 2018, stated that the scope of EIB in Indonesia was 58.2%, this figure increased from data from Riskesdes in 2013 with an additional 34.5% (Fauziandari 2019). The area with the most EIB implementation in newborns was West Sulawesi (88.49%), and the area that experienced the most decline was Maluku (23.18%). There are three regions in Indonesia that have not yet reached the target of the 2018 strategic plan, namely Maluku, Central Sulawesi, and North Sulawesi (Kemenkes RI, 2019). Meanwhile, South Sulawesi is below the national standard. Of the 35 regions reviewed, South Sulawesi ranks 8th with the least EIB coverage and decreased in 2018 (Ministry of Health, 2018 in Idris and Gobel 2019).

Breast milk is the best nutrient for life and growth, therefore it is very important to give breast milk to babies (Ernawati, n.d.). Early breastfeeding is a strategy to reduce newborn mortality. Optimal breastfeeding for newborns will be the best nutrition and become the basis for children to produce healthy growth and development (Ahmed et al., 2019), (Syahniar & Suri, 2020). The World Alliance for Breastfeeding Action (WABA) estimates that one million babies can be assisted each year to be breastfed within one hour of their birth (Ginting et al., 2019). EIB is the process immediately after the baby is born looking for the mother's nipple. At the time of EIB, the baby starts breastfeeding (Fitriana, 2017). Skin contact results in skin colonization when the bacteria on the mother's skin are licked by the baby which functions as an immune system to protect the baby from the outside environment (Mawaddah, 2018). When the baby has found his mother's breast one hour after birth, this is the initial process of the breastfeeding relationship between the baby and mother, which continues in the next life. Several previous studies from 63 developing countries found early breastfeeding to prevent infection and prevent newborn deaths from sepsis, pneumonia, diarrhea and hypothermia, and could further facilitate breastfeeding. (Sharma & Byrne, 2016).

Giving EIB can provide immunoglobulins and colostrum which contain bioactive molecules needed by newborns for body resistance, growth and development (John et al., 2019). If the EIB is not carried out, there will be no inner contact between the mother and the baby, the baby's immune system will be reduced, the baby's nerves will not develop and the baby's motor skills will not be trained during breastfeeding (Nanny, Vivian, 2010 in (Nasution, 2017)).

Bifidobacterium and Lactobacillus are beneficial bacteria for humans, while Clostridium bacteria are pathogenic microbes (Hontong et al., 2015). Bifidobacterium sp is very important for health, including reducing the amount of cholesterol in serum and as an anti-carcinogen, lowering lactose levels, increasing immunity and preventing unnecessary enzymes (Mulyani et al, 2008 in (K. Huda et al., 2019)). Breastfed infants were predominantly bifidobacteria and lactobacillus with the highest bifidobacteria species B. longum, B. bifidum and B. breve, these three species were considered capable of reproducing in HMO. Meanwhile, the microbiota of infants fed formula milk is much more complex (bifidobacteria, bacteroides, enterococci, enterobacteria, clostridia and streptococci) (Logor et al., 2021). An important element in breast milk is the probiotic microflora, including bacteria from the genus Lactobacillus sppP (Łubiech). & Twarużek, 2020). Several studies have concluded that breast milk and feces of newborns contain certain types of organisms such as Bifidobacterium, Lactobacillus, Enterococcus, and Staphylococcus. It appears that the microbiota of breastfed newborns has another strain that can survive into adulthood. Among the microorganisms present in breast milk, several species of Lactobacillus salivarius, Lactobacillus fermentum, Lactobacillus gasseri, Bifidobacterium breve, Bifidobacterium adolescentis, and Bifidobacterium longum subsp infantis appear to have the potential to improve maternal and newborn well-being, including avoiding or treating lactational mastitis, increasing colonization of normal intestinal bacteria in infants born at term, as well as treating diarrhea in patients with Irritable Bowel Syndrome. (Syahniar & Suri, 2020). Colonization of microbiota in the

gastrointestinal tract of newborns is very important for child development because it affects the development of the gastrointestinal tract, digestive system and brain tract (Hegar, 2017).

In general, the purpose of this study was to identify the effect of early initiation of breastfeeding (EIB) and breastfeeding on the number of Lactobacillus Bifidus in infants. Specifically, the purpose of this study was to analyze the number of Lactobacillus Bifidus infants who had an EIB and were breastfed for one week, and infants whose EIB was not successful in breastfeeding within 1 week. And to determine the effect of EIB and breastfeeding for one week on the number of Lactobacillus Bifidus in infants.

RESEARCH METHODOLOGY

This research is an experimental study using a Quasy experimental design, with a quantitative approach. The population in this study was 62, and the sample in this study was 32. In this design, there was one group used for the study, namely the newborn group, then divided into two groups. group 1 babies were monitored for EIB administration and continued with breastfeeding alone for 1 week, and in group 2 after delivery, babies were still monitored for EIB and continued breastfeeding for 1 week but the breastfeeding process was not successful (there are other complementary foods).). Then from these two groups, the number of Lactobacillus Bifidus will be checked through the baby's feces.

This research was conducted after requesting ethical feasibility and was approved by ethics (exempted) from the biomedical research ethics commission, Hasanuddin University Makassar Medical Faculty with letter number 117/UN4.6.4.5.31/PP36/2021.

The data collection instruments were questionnaires for screening prospective respondents, consent sheets or informed consent, respondent characteristics data sheets, and respondent questionnaire sheets. The tools used in this study were a scale to measure the weight of a newborn, a meter to measure the length of a baby's body at birth. The research was carried out from March 22 to June 22 2021 at Antang Perumnas Public Health Center, Kassi-Kassi Health Center, Bara Barayya Health Center and Jumpandang Baru Health Center, and testing the amount of Lactobacallus Bifidus was carried out at the Hasanuddin University Lab (HUMRC Microbiology Laboratory) using Quantitative Real Time PCR, using a sample of 32 infants.

RESEARCH RESULT

This study was to assess the effect of the amount of Lactobacallus Bifidus on infants who had EIB and were breastfed for 7 days. The following data were obtained from the research:

Table 1
Characteristics of Respondents (Women)

Characteristics of Respondents	Women	
	Frequency	%
Age		
<20 Yr	3	9.4
20 – 35 Years	29	90.6
Education		
No School	0	0
Elementary-School	25	78.1
D III – S1	7	21.9
Profession		
IRT/Not Working	27	84.4
Private Employee	4	12.5
PNS	1	3.1
Income		
Rp 0	27	84.4
Rp2 million	2	6.3
IDR 2 million	3	9.4

Based on table 1, it is known that the average age of the mother is 90.6% in the age group of 20-35 years, for the mother's education the average level of education is SD - SMA with a percentage of 78.1%, for the work of the mother the average job is in the IRT group with a percentage by 84.4%, while for the income of the mother the largest percentage of income in the income group of Rp 0 is 84.4%.

Table 2
Infant Characteristics

Infant Characteristics	Infant	
	N	%
Gender		
Male	18	56.3
Female	14	43.8
Birth Weight		
Normal	27	84.4
LBW	5	15.6
Birth Body Length		
Normal	15	46.9
Short	17	53.1
EIB		
Yes	32	100.0
No	0	0
7 Day Breastfeeding		
Yes	16	50.0
No	16	50.0

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Based on the table above, it is known that based on gender there are 18 male and 14 female infants, with normal weight 27 infants and 5 infants experiencing LBW, while for Birth Body Length (PBL) 15 infants with normal body length and 17 short baby.

Based on the table below, it can be seen that the average value of the number of lactobacillus bifidus in infants who are breastfed for 7 days is 1 X 108 and in infants who do not get full breastfeeding for 7 days is 9 X 106 with a P-value of 0.039 which means the P-Value < 0.05 which means Ho is rejected and Ha is accepted which means that there is an effect of Early Breastfeeding Initiation (EIB) and breastfeeding on the number of lactobacillus bifidus in infants.

DISCUSSION

This study discusses the analysis of the number of Lactobacillus Bifidus infants who are EIB and who are breastfed, to see whether there is an effect of EIB treatment with breastfeeding for 1 week on the number of Lactobacillus Bifidus. From the results of the Man-Whitnay test, it was found that the average value of the number of Lacto Bacillus Bifidus in infants who were breastfed for 7 days was greater (1 X 108) compared to the average number of Lactobacillus Bifidus infants who were breastfed and did not receive full milk for 1 week. So that there is an effect of lactobacillus bifidus levels in breastfed infants who are EIB. Where the number of lactobacallus bifidus in babies who are breastfed for 7 days is much more than babies who are not fully breastfed for 7 days, this is due to the content and composition of breast milk which contains protective substances, one of which is contained in these substances, namely Lactobacillus Bifidus.

Table 3
Differences in the number of Lactobacillus Bifidus in the feces of infants who were fully breastfed for 7 days and not fully breastfed for 7 days

	N	Min-max	Mean ± SD	P-value
With breast milk	22	2259.00 – 108727132	165599484.00 ± 35793845.812	0.039
Without breast milk	10	722.00 – 108727132	9159374.812 ± 26818246.66	

In line with research conducted by (Kurniatin, 2020), the conclusion of his research is that the number of LAB colonies on breast skin swabs, colostrum and feces of newborns with EIB is higher than those who fail to have an EIB. Intestinal microbiota of breastfed infants function as probiotics in the growth and development of the immune system, with Bifidobacterium species of Bifidobacterium Longum species and Raoutella genus of Raoutella Ornithinolytica, Raoutella Particola, and Raoutella Sp. Meanwhile, for newborns who are breastfed plus formula milk, it contains more types of Escheridia, Cronobacter, Shigella and Bacterium (Mudyawati Kamaruddin, 2020).

In previous research, microbes that appear on corrosive lactate are Pediococcus acidilactic and Lactobacillus plantarum, Lactobacillus acidophilus. The division shows that lactate corrosive substances from breast milk have a major band with atomic weights of 55 kDA and 43 kDA and have a minor group shifted with the smallest atomic weight of 8 kDA. Strategy: limiting lactate corrosive microbes from mother's milk include: repair, culture, filtration, biochemical tests. Accumulation of lactate corrosive microbes with MSR Broth media and dripped at 37°C for 24 hours. In line with the research, the most common bacterial phyla in breast milk are Proteobacteria and Firmicutes, while at the species level they are Staphylococcus, Pseudomonas, Streptococcus and Lactobacillus. Among the various microbiota found in breast milk, Lactobacillus and Bifidobacterium can be probiotics (Syahniar & Suri, 2020)

From a previous study, 20% of the five breast milk tested on breastfeeding mothers at the age of 12 to 60 days postpartum were probiotic microbes Lactobacillus gasseri with morphological characteristics: gram positive, catalase negative, non-motile, anaerobic, spherical colony shape with curved surface, color white colonies were smooth, slightly creamy, the surface of the colonies was slightly hard, colonies developed in the middle of agar medium (anaerobic), bacilli-shaped cells with a cell size of 2.0 m. This study uses the blue methylene strategy. There was a decrease in the bacteriological quality of breast milk stored for 2, 4,6, 8 hours at 4oC and 24 hours at 0oC. The number of colonies increased after a capacity of 2, 4,6, 8 hours at 4oC and 24 hours at 0oC (Hanidah et al., 2019; M. Huda & Ilyas, 2016)

The conclusion of the study stated that the mother's social components, namely education and work, had no effect on the success of breastfeeding in the early two months of breastfeeding with a sig value > 0.05. the implementation of EIB has a sig

value of 0.610 > 0.05 which indicates that the implementation of EIB has no effect on the success of breastfeeding for the first two months. Methods: Analytical study with a review cohort plan. The population is divided into two, the exposed population follows the class of pregnant women when they are pregnant with their last child and the non-exposed population does not take the class of pregnant women. The number of samples is 32. Examination of the data ith chi square test (Fauziandari, 2019).

The results of this study are that the average value of lactobacillus bifidus levels in infants who are breastfed for 7 days is 1 X 108 and in infants who do not get full breastfeeding for 7 days is 1 X 106 with a P-value of 0.039 which means the P-Value <0.05, which means Ho is rejected and Ha is accepted, which means that there is an effect on the levels of lactobacillus bifidus in EIB-fed infants (Kapourchali & Cresci, 2020; Kim & Yi, 2020). Where the number of Lactobacallus Bifidus in infants who are breastfed for 7 days is much higher than infants who do not receive breast milk within 7 days, this is due to the content and composition of breast milk which contains protective substances, one of which is contained in these substances, namely Lactobacillus Bifidus (D.A. Liona Dewi, Bambang Wirjatmadi, 2019; Dewi et al., 2013; Kunz & Egge, 2017; Wildayani et al., 2018), in this study mothers who have normal zinc levels also have the potential to give birth to LBW babies, this is because The factors causing the occurrence of LBW are not only zinc levels, but there are several other factors that are factors.

predispositions include maternal age, parity, HB levels and others (Karima & Achadi, 2012). In line with Astri Seto's research, the results showed that the average number of lactobacillus colonies in the feces of infants who were breastfed was 3,478 ± .27516 CFU/ml, which was higher than that of infants who received formula milk, which was 1,842 ± .83420 CFU/ml with a p-value of value 0.000 (p-value < 0.05) which means that breast milk can increase the number of lactobacillus in infants (Seto, 2020)

CONCLUSION

There is an effect of EIB and breastfeeding on the number of Lacfobaclirs bificus in infants

SUGGESTION

Furthermore, an assessment of the amount of Lactobacillus bifidus can be carried out based on the nutritional status of the mother, and further research related to the analysis of the number of Lactobacillus Bifidus can be carried out on toddlers.

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