



The Effect of H-Hope Plus Kinesthetic with Acupressure ST 36 and SP 6 on Weight Gain among Infants with Low Birth Weight

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Abstract. During this time, the handling of LBW infants in the form of incubator care requires a high cost, while the Kangaroo Mother Care (KMC) has not been able to reach the standard of increase. H-HOPE plus kinesthetic can help parents to care for their baby at home after returning from hospital care. ST36 and SP6 acupressure an essential role in stimulating the production of hormones that affect the absorption of nutrients so that optimal infant growth can be achieved. The study aimed to increase LBW infants' weight using the H-HOPE plus kinesthetic with ST36 and SP6 acupuncture. A randomized control trial (RCT) was applied in this study. We involved 30 LBW infants and divided them into two groups, including the experimental and control groups. The intervention group received the H-HOPE plus Kinesthetic method with acupressure ST36 SP6 for 14 days in 2x/15 minutes/day and KMC 1 hour/day and 15 infants, whereas the control group received the KMC for 14 days in 1 hour/day. The results showed that patients in the experimental group showed increasing the bodyweight within 14 days; approximately 629.33 grams showed $p=0.001$, meaning that the increase reached the standard of average increase (420 grams). The H-HOPE plus Kinesthetic method with acupressure ST 36 and SP 6 effectively increased LBW infants' weight.

Keyword: H-HOPE plus Kinesthetic, acupressure, weight, LBW infants



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INTRODUCTION

Low birth weight babies (LBW) are infants who birth with fewer months. Therefore, for more adaptation in life like a normal baby, the environment and needs should provide in the same conditions (1). The percentage of LBW infants in Central Java in 2017 was 4.4%, which is the same as the achievement in 2016. The rate of LBW infants tended to increase from 3.75% in 2013 to 4.4% for 2015 (2).

Effective intervention to manage LBW infants can be used by using an incubator method. However, caring for babies with an incubator is relatively costly. It was also considered to inhibit the mother baby's early contact and breastfeeding and the impact of mothers' skill to care for LBW infants (3). Therefore, to increase the welfare of infants and maintain the inner bond between mother and baby using skin-to-skin contact called the Kangaroo Mother Care (KMC), innovation is needed. Previous studies confirmed that FMD carried out for three weeks significantly increased the weight of LBW infants 500 grams. However, these results still less than the standard of 15g/kg/day (4,5).

H-HOPE intervention becomes an alternative to provide stimulation to LBW infants who have returned from hospital treatment (6). H-HOPE comprised of auditory, tactile, visual, and vestibular (horizontal rocking) stimulation, which has proved to increase baby's weight was faster than the group control. Infants with H-HOPE intervention had an average body weight of 46.30 grams more massive than the control group (6).

The research conducted by Field that tactile stimulation can increase weight by as much as 20% in infants undergoing massage compared to those not treated. The underlying mechanism is the increased activity of the vagus nerve and the stimulation of the hormones IGF-1, gastrin, and insulin, which affect the weight gain of the baby (7).

Stimulating points with pressure (acupressure) are intended to help normalize dysfunction. In LBW infants, physical development can be influenced by weakened organ function, especially in the gastrointestinal system, to improve proper service. A study conducted by Yang was to observe the effects of acupuncture interventions ST36 and SP6 on gastrointestinal motility and growth factor levels (IGF-1) in the gastric gastroparesis diabetic antrum. The results of these interventions were that blood glucose, and IGF-1 from the stomach antrum were significantly reduced while gastric emptying increased significantly ($p=0.01$) (8). Therefore, gastric discharge can increase the volume of the stomach and stomach motility that will facilitate the absorption of nutrients for the better (9).

Based on the description, the research problem can be formulated, is the efforts of the H-HOPE plus kinesthetic method with ST36 and SP 6 acupressure can increase weight in low birth weight babies?

OBJECTIVE

The study aimed to examine the H-HOPE plus kinesthetic method with ST36 and SP6 acupressure on increasing the weight of LBW infants.

METHOD

The randomized control trial (RCT) design with pre-test and post-test design was applied in this study. The sample in this study was LBW infants after treatment at the hospital. Thirty samples were randomly allocated in the experimental group ($n=15$) and control group ($n=15$). The intervention group received the H-HOPE plus Kinesthetic method with acupressure ST36 SP6 for 14 days. This intervention was provided two times per]15 minutes/day and KMC 1 hour/day. Whereas the control group only received the KMC for 14 days in 1 hour/day.

This study used two parts of research instruments as follows: 1) Observation sheet consisted of demographic data including initial name, patients' age, weight, frequency of breastfeeding, and mother's education level, observation sheet of infant's weight, 2) Digital baby scales to measure the weight of babies. The instrument was a standard tool for measuring the weight of the baby.

This research was registered at the Health Research Ethics Commission Faculty of Dr. Moewardi/Faculty of Medicine, Sebelas Maret University Surakarta, with Number: 521/IV/HREC/2019

The data were analyzed by using descriptive analysis and independent t-test. The descriptive analysis described the characteristic of variables, including age, birth weight, frequency of breastfeeding, and mother's education level. The T-test used to measure the mean difference of weight before and after receiving the program in the experiment and control group.

RESULTS

Characteristic of respondents

Table 1 described demographic data among the intervention group and the control group. The results showed that most of the babies' age was 4-21 days. An average weight among patients in the experimental and control groups was approximately 2090 grams of 2093.33 grams.

The majority of babies in the experimental group got breastfeeding 8-12 times per day, with a percentage of 86.7%, while in the control group was 93.3%. Regarding mothers' educational level, both the intervention group (46.7%) and the control group (53.3%) graduated from the high school level. The statistics showed that there was a significantly different data demographic between the intervention group and the control group.

Table 1. Characteristic of respondents

Characteristics Respondents	Experiment		Control		P-value
	n	%	n	%	
Age (day)					0.781
1-7 days	5	33.3	5	33.3	
8-14 days	6	40.0	6	40.0	
15-21 days	4	26.7	4	26.7	
Birth Weight (gram)					0.851
1000-1500 gram	0	0	0	0	
1501-2500 gram	15	100	15	100	
Frequency of Breastfeeding					0.237
8-12 times	13	86.7	14	93.3	
< 8-12 times	2	13.3	1	6.7	
Mother's Education Level					0.583
Primary school	1	6.7	1	6.7	
Secondary school	6	40.0	6	40.0	
Tertiary	7	46.7	8	53.3	
University level	1	6.7	-	-	

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Table 2 showed the effect of the intervention on weight gain among babies with low birth weight. The results showed that the mean differences among the experimental group after receiving the response (mean=2890.33±165.58) were higher than before receiving the program (mean=2261. ±166.93). In contrast, the control group showed that after receiving the intervention (mean=2584±144) was higher than before receiving the application (2278±127.6) with p-value=0.000.

Table 2. The effect of health coaching based on Health Belief Model on preventing infection transmission pulmonary tuberculosis patients

Variables	N	Experiment		Control		P
		Mean±SD	Min-Max	Mean±SD	Min-Max	
Pre-test of weight	15	2261.±166.93	1865-2455	2278±127.6	2020-2440	0.000
Post-test of weight	15	2890.33±165.58	2480-3080	2584±144	2300-2760	

DISCUSSION

The intervention group received the H-HOPE plus Kinesthetic method with ST36 and SP6 acupressure) for 14 days. The findings showed that after receiving the intervention, the weight of babies increased than before receiving the intervention about 420 grams within 14 days. The increasing weight for babies due to several reasons as follows:

Application of the H-HOPE method with ST 36 SP 6 acupressure points may stimulate the production of hormones for the absorption process of nutrients. The difference between these two points is ST 36, which regulates the stomach and stimulates gastric motility and SP 6, which governs the liver to stimulate growth hormone (GH). It can help IGF-1 secretion so that it can stimulate the production of the hormone insulin and then influence the absorption of nutrients to affect infant weight (6,10-14).

A study conducted by Ayuningrum using the H-HOPE method plus Kinesthetic with Virgin Coconut Oil (VCO) among premature infants for 14 days showed an average weight gain of 612.27 grams or 43.73 grams/day (15). Another study showed the positive effect of ST36 and SP6 acupuncture interventions on gastrointestinal motility and growth factor levels (IGF-1) among gastric gastroparesis diabetic antrum. The results of these interventions were blood glucose, and IGF-1 from the stomach antrum significantly reduced while the rate of gastric emptying increased significantly (p=0.01) (8).

Zhao's subsequent research showed that ST 36 acupressure points could increase the gastric emptying rate by 37% in burn patients. Point ST 36 has therapeutic potential for the treatment of patients with impaired gastric motility. Thus emptying the stomach can increase the stomach's volume, and gastric motility occurs, which will facilitate the absorption of

nutrients for the better (16,22). Another study also showed a combination of acupressure and meridian massage on weight gain among premature infants. The findings showed that after receiving the intervention, the experimental group's body weight was 30.6 grams/day and the control group was 26.4 grams/day, respectively (17)

CONCLUSION

In conclusion, H-HOPE plus Kinesthetic method with acupressure ST36 and SP6 is more useful to increase the weight of LBW infants and faster in achieving normal weight. Increasing weight among LBW infants increased 420 grams for 14 days. The research phase carried out by researchers have limitations in controlling the nutritional intake of respondent mothers, but researchers have urged mothers to eat without restrictions. Further study needs to conduct an H-HOPE method for increasing gross and fine motor therapy as an indicator of infant development.

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