Contents lists available at IOCS

Science Midwifery

journal homepage: www.midwifery.iocspublisher.org

Effectiveness of combination of ginger and B6 with acupressure point PC6 and ST36 in reduce emesis

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ARTICLE INFO

Article history:

Received Mart 24, 2023
Revised Apr 15, 2023
Accepted Apr 24, 2023

Keywords:

B6 (Pyrindoxine)
Emesis
Giving Ginger
PC6 Therapy
pregnant women
ST36 point.

ABSTRACT

Based on a preliminary study at Anita Iriani's PMB, which was conducted in June 2022, out of 43 first trimester pregnant women, a percentage of 32 people with nausea and vomiting and 11 pregnant women without nausea and vomiting were obtained. In the first trimester, the incidence of nausea and vomiting in pregnant women is higher than in pregnant women without nausea and vomiting. This type of research is Quasy Experimental with pre-test and post-test with control group design. This study will compare the 2 groups given the pre-test and post-test with the aim of knowing the condition of the group before and after being given the intervention on the effect of the combination of ginger and B6 (Pyrindoxine) with PC6 and ST36 acupressure points in reducing emesis in first trimester pregnant women in PMB Anita Iriani, Bekasi Regency.

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INTRODUCTION

One of the early signs of pregnancy in a woman is nausea and vomiting or also known as emesis gravidarum. This symptom is common in the first trimester of pregnancy. Emesisgravidarum can cause symptoms of dizziness, swelling and weakness in the body, along with the release of stomach contents through the mouth with a frequency of less than 5 times a day during the first trimester of pregnancy. Emesis gravidarum if not treated immediately can turn into hyperemesis gravidarum. Hyperemesis gravidarum is one of the causes of weight loss for pregnant women as much as 50%. Apart from having an impact on weight loss for pregnant women, hyperemesis gravidarum can affect daily activities and disrupt the function of vital organs in the body (Anisa et al., 2017)

Hyperemesisgravidarum often occurs in young pregnancies, occurring in the first 16 weeks by 50-70%. Approximately 66% of pregnant women experience nausea and 44% experience vomiting in the first trimester. The number of occurrences of hyperemesis gravidarum is 4:1000 pregnancies, with symptoms of more frequent vomiting, weight loss, dehydration, acidosis caused by starvation which is characterized by ketonuria, alkalosis caused by decreased gastric HCL and hypoglycemia (Ibrahim et al., 2021). The World Health Organization (WHO) stated that the number of cases of hyperemesis gravidarum in 2013 was 12.5% in all pregnancies worldwide. Meanwhile, research on

visiting pregnant women in Indonesia found that pregnant women with hyperemesis gravidarum accounted for 14.8% of all pregnancies(WHO, 2015)

In mothers, the exact cause of hyperemesis gravidarum is unknown.several factors that cause nausea and vomiting during pregnancy include an increase in human chronic gonadotropin (HCG) during pregnancy, the hormones estrogen and progesterone, a history of hyperemesis gravidarum in previous pregnancies, nutrition. conditions, changes in glycogen metabolism in the liver, relative relaxation of the muscle tissue of the digestive tract, enlargement and stretching of the smooth muscles of the uterus, eating habits of pregnant women before and in the first weeks of pregnancy, insomnia and rest, physical fatigue and stress, which can increase nausea and vomiting, In addition, maternal age, parity, type of work, level of education, cystic and multiple pregnancies, organic factors such as allergies, vilicoria that enter the bloodstream, changes in metabolism due to pregnancy and weakening of the mother's immunity, psychological factors such as stress, family support, deficiencies. pregnancy preparation(Anwar et al., 2016).

Hyperemesisgravidarum needs immediate treatment because it can affect the social function of pregnant women. Nausea and vomiting can be treated with pharmacological methods by administering drugs that can minimize nausea and vomiting. In the previous treatment, pharmacological methods were still used, namely drugs such as antiemetics or B6 (pyridoxine). However, this drug has several side effects such as diarrhea, drowsiness, and headaches. Not all pregnant women have access to medicines, some pregnant women do not want to take these medicines. Compared to these methods, non-pharmacological methods can be performed with many advantages such as lower costs, simple techniques, effectiveness and few side effects(Nugraha et al., 2022;Oktaviana et al., 2020).

In reality in the field, giving ginger has not been widely used in order to minimize nausea and vomiting, with the addition of ginger extract can increase self-confidence and the ability to control nausea and vomiting, can control nausea and vomiting, can increase the efficiency of measuring nausea. In general, the general public reduces nausea and vomiting by taking anti-nausea drugs. Ginger is an herbal plant with many advantages compared to other herbal plants, especially for pregnant women with symptoms of nausea and vomiting. The first advantage of ginger is that it contains essential oils which are refreshing and prevent the gag reflex, while gingerols can improve blood circulation and nerve function. As a result, tension can melt away, the head becomes refreshed, and nausea and vomiting can be suppressed. Ginger has a fragrance caused by essential oils(Rahayu & Sugita, 2018).

RESEARCH METHOD

The population of this study were 32 pregnant women in the first trimester of pregnancy who experienced hyperemesis gravidarum at BPM Anita Iriani, Bekasi Regency. This type of research uses Quasy Experimental with pre-test and post-test with control group design, namely the research design by providing treatment using two different sample groups with one assessment after being given an intervention. In this study, a comparison was made to the two experimental groups which were tested, namely the pretest with the aim of knowing the condition of the group before being given the intervention. After being given treatment or intervention, the two experimental groups were then tested in the form of a post-test, with the aim of knowing the condition of the two groups after being given the treatment of giving a combination of Ginger and B6 (Pyrindoxine) with acupressure points PC6 and ST 36 in reducing emesis in 1st trimester pregnant women at PMB Anita Iriani, Kabupaten Bekasi.

RESULTS AND DISCUSSIONS

Respondents' Identity Based on Degree of Emesis Prior to Administering a Combination of Ginger and B6

Table 1. Identity of Respondents Based on the Degree of Emesis Before Giving the Combination of Ginger and B6

Degree of emesis before administration of a combination of ginger and B6	Frequency	Percentage
Light	6	40.0%
Currently	7	46.7%
Heavy	2	13.3%
Degree of Emesis Before being given Acupressure Point PC6 and ST 36	Frequency	Percentage
Light	5	33.3%
Currently	8	53.3%
Heavy	2	13.3%
Degree of Emesis After being given Acupressure Point PC6 and ST 36	Frequency	Percentage
Light	13	86.7%
Currently	2	13.3%

Based on table 3 above The first trimester pregnant women with hyperemesis gravidarum at BPM Anita Iriani, Bekasi Regency who were given acupressure points PC6 and ST 36 who were involved in this study, as many as 33.3% of respondents had a mild degree of emesis before being given acupressure points PC6 and ST 36, then 53.3% of respondents had a moderate degree of emesis before being given acupressure points PC6 and ST 36, and 13.3% of respondents had a moderate degree of emesis before being given acupressure points PC6 and ST 36.This shows that most of the first trimester pregnant women with hyperemesis gravidarum at BPM Anita Iriani, Bekasi Regency who were given PC6 and ST 36 acupressure points who were involved in the study had moderate degrees of emesis before being given PC6 and ST 36 acupressure points. The15 first trimester pregnant women with hyperemesis gravidarum at BPM Anita Iriani, Bekasi Regency who were given PC6 and ST 36 acupressure points who participated in the study, 86.7% of respondents had a mild degree of emesis after being given PC6 and ST acupressure points. 36, then 13.3% of respondents had a moderate degree of emesis after being given acupressure points PC6 and ST 36. This shows that the majority of pregnant women in the first trimester with hyperemesis gravidarum at BPM Anita Iriani Bekasi Regency were given acupressure points PC6 and ST 36 who were involved in the study has a mild degree of emesis after being given acupressure points PC6 and ST 36.

Testing Assumptions of Normality of Difference in Emesis Degrees of Pregnant Women Before and After Giving a Combination of Ginger and B6 (Pyrindoxine)

Testing the normality of the difference in the degree of emesis in pregnant women before and after the intervention of giving a combination of ginger and B6 (Pyrindoxine) was used with the aim of knowing the normality of the data. Normality test with Shapiro Wilk, using the criterion if the p value > level of significance (alpha = 5%) means that the data is normally distributed. The normality test for the difference in the degree of emesis in pregnant women before and after giving the combination of ginger and B6 (Pyrindoxine) can be seen in the table below:

Table 2. Data on Differences in Emesis Degrees of Pregnant Women Before and After Giving a Combination of Ginger and B6 (Pyrindoxine)

	Data on Difference in Emesis Degrees of Pregnant Women Before and After Giving a Combination of Ginger and B6 (Pyrindoxine)
Shapiro Wilk	0.963
Probability	0.753

From the table above, it is known that the difference in the degree of emesis in pregnant women before and after giving the combination of ginger and B6 (Pyrindoxine) with Sahpiro Wilk's statistic is 0.963 with a p value = 0.753. This shows that the data before and after the treatment are normally distributed.

Testing the Different Degrees of Emesis for Pregnant Women Before and After Giving a Combination of Ginger and B6 (Pyrindoxine)

Testing the differences in the degree of emesis in pregnant women before and after the intervention of a combination of ginger and B6 (Pyrindoxine) using the Paired t test with the hypothesis

H0: There is no significant difference in the degree of emesis in pregnant women before and after being given a combination of ginger and B6 (Pyrindoxine)

H1: There is a significant difference in the degree of emesis in pregnant women before and after giving a combination of ginger and B6 (Pyrindoxine)

Test criteria if probability ≤ α (5%) then H0 is rejected, which means that there is a significant difference in the degree of emesis in pregnant women before and after intervention by giving a combination of ginger and B6 (*Pyrindoxine*). The results of testing the difference in the degree of emesis in pregnant women before and after giving the combination of ginger and B6 (Pyrindoxine) can be seen in the following table:

Table 2. Degrees of Emesis

Degree of Emesis	Average	T Statistics	P Value
Before Giving the Combination of Ginger and B6 (Pyrindoxine)	8,800	6,808	0.000
After Giving a Combination of Ginger and B6 (Pyrindoxine)	5,600		

From the test results it is known that the value of p = 0.000. This means that the p value < level of significance (α = 5%), which means H0 is rejected. So, it can be concluded that there are significant differences in the degree of emesis of pregnant women before and after being given a combination of ginger and B6 (Pyrindoxine). Judging from the average score, the average degree of emesis in pregnant women after giving the combination of ginger and B6 (Pyrindoxine) is lower than the average degree of emesis in pregnant women before giving the combination of ginger and B6 (Pyrindoxine). It can be concluded that giving a combination of ginger and B6 (Pyrindoxine) is effective in reducing emesis in pregnant women.

Testing Assumptions of Normality of Difference in Emesis Degrees of Pregnant Women Before and After Acupressure Point PC6 and ST 36

Testing the normality of data on the difference in emesis degrees of pregnant women before and after acupressure points PC6 and ST 36 is used to determine the normality of the data. Normality testing with Shapiro Wilk. The results of the normality test for the difference in the degree of emesis

in pregnant women before and after the PC6 and ST 36 acupressure points can be seen in the following table:

Tabel 3. Data on Differences in Emesis Degrees of Pregnant Women Before and After Administering Acupressure Points PC6 and ST 36

	Data on Difference in Emesis Degrees of Pregnant Women Before and After Acupressure Point PC6 and ST 36
Shapiro Wilk	0.903
Probability	0.107

In table 15 it is known that the normality of data on the difference in emesis degrees of pregnant women before and after acupressure points PC6 and ST 36 with Sahpiro Wilk's results is 0.903 with a p value = 0.107. The normality test on the difference in emesis degrees of pregnant women before and after acupressure points PC6 and ST 36 showed a probability > alpha (5%), so that the data on the difference in emesis degrees of pregnant women before and after acupressure points PC6 and ST 36 were declared to be normally distributed.

Testing the Different Degrees of Emesis for Pregnant Women Before and After Acupressure Point PC6 and ST 36

Test the differences in emesis levels of pregnant women before and after acupressure points PC6 and ST 36 using the Paired t test with the hypothesis:

H0: There is no significant difference in the degree of emesis in pregnant women before and after acupressure points PC6 and ST 36

H1: There is a significant difference in the degree of emesis in pregnant women before and after acupressure points PC6 and ST 36

If the probability ≤ α (5%) then H0 is rejected, it can be concluded that there are significant differences in the degree of emesis in pregnant women before and after acupressure points PC6 and ST 36.

The results of testing the difference in the degree of emesis in pregnant women before and after acupressure points PC6 and ST 36:

Table 4. Degrees of Emesis

Degree of Emesis	Average	T Statistics	P Value
Before Acupressure Point PC6 and ST 36	9.133	6,325	0.000
After Acupressure Point PC6 and ST 36	6,467		

The results obtained are p = 0.000. It can be concluded that there are significant differences in the degree of emesis in pregnant women before and after acupressure points PC6 and ST 36. Judging from the average value, the average emesis degree of pregnant women after acupressure intervention at PC6 and ST 36 points is lower than the average emesis degree of pregnant women before PC6 and ST 36 acupressure points. It can be concluded that PC6 and ST acupressure points 36 effectively minimize the symptoms of emesis in pregnant women.

Testing Assumptions of Normality of Emesis Degree Data for Pregnant Women After Giving the Combination of Ginger and B6 (Pyrindoxine) and Acupressure Points PC6 and ST 36

Testing the normality of emetic degree data for pregnant women after giving a combination of ginger and B6 (Pyrindoxine) and acupressure points PC6 and ST 36 is used to determine the

normality of a data with Shapiro Wilk, using the criterion p value > level of significance (alpha = 5%) means that the data is distributed normal. Normality test on the degree of emesis in pregnant women after giving a combination of ginger and B6 (Pyrindoxine) and acupressure points PC6 and ST 36. The results are shown in the following table:

Table 5. Normality Assumption Test

	Emesis Degrees of Pregnant WomenAfter Giving a Combination of Ginger and B6 (Pyrindoxine)	Emesis Degrees of Pregnant WomenAfter Acupressure Point PC6 and ST 36
Shapiro Wilk	0.905	0914
Probability	0.112	0.158

In table 17, it is known that the normality test for emetic degree data for pregnant women after administration of a combination of ginger and B6 (Pyrindoxine) with the statistical results of Sahpiro Wilk is 0.905 with a probability of 0.112. The results of normality in the emesis degree data for pregnant women after giving a combination of ginger and B6 (Pyrindoxine) resulted in a probability > alpha (5%), so that the emesis degree data for pregnant women after giving a combination of ginger and B6 (Pyrindoxine) was stated to be normally distributed.

The normality test on the emesis degree data of pregnant women after acupressure points PC6 and ST 36 with Sahpiro Wilk is 0.914 with a probability value of 0.158. The results of the normality test on the emesis degree data of pregnant women after the PC6 and ST 36 acupressure points yielded a probability > alpha (5%), the emesis degree data of pregnant women after the PC6 and ST 36 acupressure points were declared to be normally distributed.

Testing the Assumptions of Homogeneity of Emesis Degree Data for Pregnant Women After Giving the Combination of Ginger and B6 (Pyrindoxine) and Acupressure Points PC6 and ST 36

Testing the homogeneity of the emesis degree data for pregnant women after giving a combination of ginger and B6 (Pyrindoxine) and acupressure points PC6 and ST 36 was used with the aim of knowing whether the data was homogeneous or not. The homogeneity test was carried out by Levene's test, using the criterion if the value of p = > level of significance (alpha = 5%) means that the data is homogeneous. The results of the emesis degree data test for pregnant women after giving a combination of ginger and B6 (Pyrindoxine) and acupressure points PC6 and ST 36 in the following table:

Table 6. Testing the Homogeneity Assumptions

	Emesis Degrees of Pregnant WomenAfter Giving the Combination of Ginger and B6 (Pyrindoxine) and Acupressure Points PC6 and ST 36
Levene's	0.512
Probability	0.480

In table 18 it is known that the homogeneity test for the degree of emesis in pregnant women after administration of a combination of ginger and B6 (Pyrindoxine) yielded a Levene's statistical result of 0.512 with a probability of 0.480. The homogeneity test results on the emesis degree data of pregnant women after giving a combination of ginger and B6 (Pyrindoxine) with a probability > alpha (5%), which means that the emesis degree data of pregnant women after giving a combination of ginger and B6 (Pyrindoxine) is stated to be homogeneous.

Testing the Different Degrees of Emesis for Pregnant Women After Giving the Combination of Ginger and B6 (Pyrindoxine) and Acupressure Points PC6 and ST 36

Testing the differences in the degree of emesis in pregnant women after giving a combination of ginger and B6 (Pyrindoxine) and PC6 and ST 36 acupressure points using an independent t test with the hypothesis:

H0: there is no significant difference in the degree of emesis in pregnant women after giving a combination of ginger and B6 (Pyrindoxine) and acupressure points PC6 and ST 36

H1: there is a significant difference in the degree of emesis in pregnant women after giving a combination of ginger and B6 (Pyrindoxine) and acupressure points PC6 and ST 36

If the probability ≤ α (5%) then H0 is rejected, so it can be concluded that there is a significant difference in the degree of emesis in pregnant women after giving a combination of ginger and B6 (*Pyrindoxine*) and PC6 and ST 36 acupressure points.

The results of testing the differences in the degree of emesis in pregnant women after giving a combination of ginger and B6 (Pyrindoxine) and acupressure points PC6 and ST 36 are in the following table:

Table 7. Table of Testing Differences in Emesis Degrees

Degree of Emesis	Average	T Statistics	P Value
After Giving a Combination of Ginger and B6 (Pyrindoxine)	5,600	-1,908	0.067
After Acupressure Point PC6 and ST 36	6,467		

The test results in table 19 show that the resulting probability is 0.067. Value of p = > level of significance (α = 5%), H0 is accepted. It can be said that there is no significant difference in the degree of emesis in pregnant women after giving a combination of ginger and B6 (Pyrindoxine) and acupressure points PC6 and ST 36. Judging from the average value, the average degree of emesis in pregnant women after giving a combination of ginger and B6 (Pyrindoxine) is lower than the average degree of emesis in pregnant women after acupressure points PC6 and ST 36.

DISCUSSION

Differences in Degrees of Emesis Before and After Given a Combination of Ginger and B6 (Pyrindoxine) in 1st Trimester Pregnant Women at PMB Anita Iriani

Based on the results of research at BPM Anita Iriani, Bekasi Regency, the results showed that the majority of pregnant women in the 1st trimester of pregnancy with emesis obtained an average degree of emesis in pregnant women before giving a combination of ginger and B6 (Pyrindoxine) of 8,800. Then the average degree of emesis in pregnant women after giving a combination of ginger and B6 (Pyrindoxine) is 5,600. The test results showed that the average degree of emesis for pregnant women after giving the combination of ginger and B6 (Pyrindoxine) was lower than the average degree of emesis for pregnant women before being given the combination of ginger and B6 (Pyrindoxine).

Meanwhile, the normality test on the difference in emetic degrees of pregnant women before and after being given a combination of ginger and B6 (Pyrindoxine) statistical results for Sahpiro Wilk = 0.963 with a probability of 0.753. The normality test results for the difference in the degree of emesis in pregnant women before and after giving the combination of ginger and B6 (Pyrindoxine) yield a probability > alpha (5%), so that the data is said to be normally distributed according to the difference in the degree of emesis in pregnant women before and after giving the combination of ginger and B6 (Pyrindoxine) (Hendry et al., 2023)..

Gingercan be effectively used in order to minimize the symptoms of nausea and vomiting during pregnancy. The use of ginger to minimize nausea and vomiting does not pose a bad risk to the fetus if consumed according to the rules. One of the pharmacological functions of ginger is as an

antiemetic agent which can expel gas from the stomach, relieve gas, is a strong aromatic stimulant and can control vomiting by increasing intestinal peristalsis(Alyamaniyah & Mahmudah, 2014)

Vitamin B6 or pyridoxine is a water-soluble vitamin which is an essential coenzyme in the metabolism of amino acids, fats and carbohydrates. Pyridoxine, or vitamin B6, has been scientifically studied as a remedy for nausea and vomiting. The mechanism of action of pyridoxine for pregnant women also does not pose a teratogenic risk. 2 randomized controlled trials found that regular use of pyridoxine was effective in minimizing the severity of nausea but had no effect on the frequency of vomiting. (Maternity et al., 2017).

Differences in Degrees of Emesis Before and After Given Acupressure Points PC6 and ST36 in First Trimester Pregnant Women at PMB Anita Iriani

Based on the results of research at BPM Anita Iriani, Bekasi Regency, it was found that the majority of pregnant women in the 1st trimester of pregnancy who felt emesis symptoms found that the average degree of emesis in pregnant women before the PC6 and ST 36 acupressure points was 9,133. Then the average degree of emesis in pregnant women after acupressure points PC6 and ST 36 is 6,467. From the results of data analysis it is known that the average emesis degree of pregnant women after acupressure points PC6 and ST 36 is lower than the average emesis degree of pregnant women before being given acupressure interventions at PC6 and ST 36 points.

While testing the normality of the difference in emesis degrees of pregnant women before and after acupressure points PC6 and ST 36 is used to determine the normality of the data. Normality test with Shapiro Wilk, using the criterion if the value of p = > level of significance (alpha = 5%) means that the data is normally distributed.

Acupressure therapy at acupressure point PC6 (Pericardium 6) and at point ST36 (Zusanli/leg three miles). In a study by the World Health Organization (WHO) acupressure point P6 has been shown to significantly reduce nausea, vomiting and has an analgesic effect. The location of the acupressure point P6 is between the flexor carpi radialis and the palmaris tendon of the longus muscle, about 2 inches prosimal to the distal crease from wrist stimulation. PC6 point has been tested in several ways including in acupuncture, acupressure, electrical stimulation, acoustic stimulation and so on (Fithrah, 2014).

Comparison of Effectiveness Results After Giving a Combination of Ginger and B6 (Pyrindoxine) With Acupressure Points PC6 and ST36 in First Trimester Pregnant Women at PMB Anita Iriani

The results of research at BPM Anita Iriani, Bekasi Regency, showed that the majority of pregnant women in the 1st trimester of pregnancy who felt emesis symptoms found that the average degree of emesis in pregnant women after giving a combination of ginger and B6 (Pyrindoxine) was 5,600. Then the average degree of emesis of pregnant women after acupressure points PC6 and ST 36 is 6,467. the results of data analysis showed that the average emesis degree of pregnant women after giving a combination of ginger and B6 (Pyrindoxine) was lower than the average emesis degree of pregnant women after acupressure points PC6 and ST 36.

Testing the normality of emetic degree data for pregnant women after administration of a combination of ginger and B6 (Pyrindoxine) and PC6 and ST 36 acupressure points were used to determine the normality of the data. Normality test with Shapiro Wilk, using the criterion if the value of p = > level of significance (alpha = 5%) means that the data is normally distributed. The normality test results for the degree of emesis in pregnant women after giving a combination of ginger and B6 (Pyrindoxine) and acupressure points PC6 and ST 36.

Based on the normality test on the emesis degree data of pregnant women after giving a combination of ginger and B6 (Pyrindoxine) with Sahpiro Wilk statistics = 0.905 with p = 0.112. The results of the normality test on the emesis degree data of pregnant women after giving a combination of ginger and B6 (Pyrindoxine) yielded a probability > alpha (5%), meaning that the emesis degree

data of pregnant women after giving a combination of ginger and B6 (Pyrindoxine) was stated to be normally distributed.

CONCLUSION

There is a significant difference in the degree of emesis in pregnant women before and after giving the combination of ginger and B6 (Pyrindoxine). It was found that there were significant differences in the degree of emesis in pregnant women before and after acupressure points PC6 and ST 36. And the degree of emesis in pregnant women after giving a combination of ginger and B6 (Pyrindoxine) was lower than the average degree of emesis in pregnant women after acupressure points PC6 and ST 36. No There is a clear mechanism for acupressure to treat nausea and vomiting during pregnancy. In theory, the purpose of the acupressure mechanism is to apply pressure to certain points that activate small, myelinated nerves in the muscles and send stimulation to higher central nerves, including the spinal cord, midbrain, hypothalamus, and pituitary axis. Depending on the location of the stimulus, different effects are observed.

The general public more often uses ginger and B6 to reduce nausea and vomiting so far. Ginger is an herbal plant rich in benefits that has long been used as a treatment for nausea and vomiting for pregnant women. The method for reducing complaints of nausea and vomiting for pregnant women, midwives only intervene by administering anti-nausea drugs (B6) as well as counseling regarding diet and giving herbs such as consuming ginger. Pregnant women are rarely given PC6 acupressure therapy and at the ST 36 point to reduce nausea and vomiting.

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