



## International Journal of Allied Medical Sciences and Clinical Research (IJAMSCR)

ISSN:2347-6567

IJAMSCR /Volume 7 / Issue 3 / Jul - Sep - 2019  
www.ijamscr.com

Research article

Medical research

### Giving effect instant star fruit village of pregnant women with blood pressure hypertension

Nur Eka Dyastuti<sup>1</sup>, Suharyo Hadisaputro<sup>2</sup>, Apoina Kartini<sup>3</sup>

<sup>1</sup>Poltekkes Kemenkes Semarang/Semarang, Indonesia

<sup>2</sup>Poltekkes Kemenkes Semarang Semarang/Semarang, Indonesia

<sup>3</sup>Universitas Diponegoro/Semarang, Indonesia

\*Corresponding Author: Nur Eka Dyastuti

Email id: nureka107@yahoo.com

#### ABSTRACT

##### Background

Hypertension is one of high risk pregnancies can lead to preeclampsia, eclampsia until menyebabkan maternal and infant mortality. Treatment of hypertension has been done with the administration of antihypertensive drugs.

##### Research purposes

Proving an instant effect of the leatherback village on blood pressure in pregnant women with hypertension.

##### Research methods

This study was an experimental study with a kind of quasi experiment with nonrandomized pretest posttest design with control group design. Total sample of 28 respondents were divided into 1 treatment group and one control group. Nifedipine drug given to the intervention group accompanied with the leatherback hometown instant dose of 50 grams / day for 14 days. The control group only received the drug nifedipine only. Measurements of blood pressure on days 1, 8 and day 15. The data were analyzed using the general linear model test Repeated Measure.

##### Research result

The results reveal there is a decrease in systolic and diastolic blood pressure before and after giving instant leatherback villages ( $p = 0.001$ )

##### Conclusion

Consuming village starfruit instant dose of 50 grams / day for 14 days can lower the blood pressure of pregnant women with hypertension.

**Keywords:** Star fruit, potassium, blood pressure, hypertension of pregnancy

#### INTRODUCTION

Hypertension (high blood pressure) in pregnancy is hypertension that occurs after 20

weeks of pregnancy, the blood pressure reaches  $\geq 140 / 90$  mmHg without proteinuria. [1] Hypertension may occur before and during the pregnancy progresses. There are two hypertensive

disorders of pregnancy are gestational hypertension (GH) and preeclampsia (PE). [2] Hypertension in pregnancy also can continue to be mild preeclampsia and eventually progress to severe preeclampsia and eclampsia. [3]

Hypertension is the second leading cause of maternal death, which occurred about 5 -10% of all pregnancies. 4.5 World Health Organization (WHO) estimates that 8% of women die every day from complications of pregnancy and childbirth around 99% of all developing countries and approximately 80% of maternal deaths are due to increased complications during pregnancy. Referring to WHO data, the maternal mortality rate (MMR) is a global world, at 216 per 100,000 live births and nearly 50% higher compared with AKI se asia which 164,000 live births in 2015. [6]

In 2015 MMR in Indonesia a number of 305 per 100,000 live births, the figure had decreased compared with AKI in 2012. A survey of health demographics Indonesia (IDHS) that is equal to 359 per 100,000 live births, 7 but the target is still very much with targets Millennium Development Goal's (MDG) that is 102 per 100,000 live births which seharusnya been achieved in 2015. [8]

Number of cases of maternal mortality in Central Java province in 2016 as many as 602 cases have decreased compared to the number of maternal deaths in 2015 as many as 619 cases. Thus the maternal mortality rate in Central Java province has decreased from 111.16 per 100,000 live births in 2015 to 109.65 per 100,000 live births in 2016. [9]

The three major causes of maternal death in Indonesia is bleeding, hypertension in pregnancy and infection. In the period 2010 - 2013, hypertension in pregnancy have different trends from other dominant cause of death, in which bleeding and infection tended to decrease, while hipertensi in pregnancy have increased from year to year. 10 In Central Java province, hypertension in pregnancy become the most dominant cause of maternal mortality for the last two years, even experienced an increase in the percentage of 27.08% in 2016 11 to 32.97% in 2017. [12]

Districts / cities with the highest maternal mortality cases are Brebes is 52 cases, followed by Semarang 35 cases, and tegal 33 cases. Based Brebes district health profile in 2017, the number of maternal mortality has decreased compared to 2016 with the number of AKI as many as 54 cases

of 33 086 live births and in 2017 the number of AKI as many as 31 cases of 32,594 live births. Preeclampsia causes of death were as many as 23 cases (74%), bleeding in 4 cases (13%) and other causes in 4 cases (13%). [9]

Complications of hypertension in pregnancy including uteroplacental ischemia, arteriolar spasms, convulsions and coma. In the guidelines of the National Care Medicine which summarizes various studies, concluding that women with preeclampsia risk of cardiovascular disease, increased risk of hypertension four times the risk of ischemic heart disease two times, stroke and DVT (deep vein thrombosis) in the future, the risk of death higher including those caused by illness serebrovaskular. [13]

Treatment of hypertension consists of pharmacological and non-pharmacological therapy. Nonpharmacologic therapy should be implemented by all people with hypertension of pregnancy with the aim of lowering blood pressure and controlling the risk factors and comorbidities. [14] Treatment of hypertension in pregnancy is one that is with *ekpektatif* care, giving magnesium sulfate and *atihipertensi* in severe preeclampsia and corticosteroids in women with complications of HELLP syndrome (hemolysis elevated liver enzymes, low platelets count). 13 As for the non-pharmacological treatment of hypertension such as by Dietary therapies (diet therapy) to reduce sodium intake, increasing the intake of potassium and magensium, a diet rich in fruits and vegetables, an assortment of antioxidants and dietary supplements. [15]

In isolated communities consume high fruit and vegetable, only 1% of the population who suffer from hypertension, while people who love to consume processed foods, trans fats, saturated fats, refined carbohydrates, low in fiber, high sodium intake and asupa low potassium recorded one-third of population suffers from hypertension. Potassium is one mineral that influence blood pressure, which needs adequate potassium intake is 4700 mg per day. Maintaining an adequate daily intake of potassium is recommended by the National High Blood Pressure Education Program Coordinating Committee (JNC 7) in 2003 for prevention of primary hypertension. 15 In the United States, by increasing potassium intake alone will decrease the number of people with hypertension are known by 17% and will increase life expectancy by 5.1 years

in more than 12 million Americans. Several meta-analyses have reported that increasing potassium intake, significantly lowering both blood pressure in individuals with hypertension or who are not hypertensive. [15]

Observational studies showed that increasing potassium intake of 750 - 1000 mg can lower blood pressure by 2-3 mmHg. The reduction is an important benefit for the cardiovascular system in reducing vascular cerebro accident (CVA) and cerebro vascular disease (CVD). The trials of short-term (<2 weeks) have shown the effect of decreasing systolic and diastolic blood pressure, although the decline will be greater in a longer duration of intervention. [15] fruits as sources of potassium include star fruit village. Hometown star fruit contains 133 mg of potassium per 100 grams. [16]

Star fruit contained village in Indonesia is the fruit easily available, have a reasonable price, not a seasonal fruit that is available all year long, which is commonly consumed fruit by the community. Has many evidence based, which examines the influence of the fruit of hypertension, with the expectation that if applied in cases of hypertension in pregnancy will also give the same effect .. Based on the background and identify the problem, then the purpose of this study was to analyze the effect of leatherback insan village to pressure blood in pregnant women with hypertension.

### The results of the study as follows

**Table 1. Differences Systolic blood pressure in groups with the same time**

		N	mean	SD	P value
SISTOLIK1	Village	14	141.79	3,599	0.661
	Control	14	143.43	5,302	
SISTOLIK8	Village	14	135.86	2,248	0,000
	Control	14	139.14	1,460	
SISTOLIK15	Village	14	131.36	2,678	0,000
	Control	14	138.14	1916	

(Source: Primary data is processed, 2019)

The systolic blood pressure values obtained on the first day of sig of 0.661 is greater than 0.05, indicating on the first day there were no differences in systolic blood pressure of both the village and the control group. The systolic blood pressure values obtained on the eighth day sig of 0.000 is less than 0.05, indicating on the eighth day there

## RESEARCH METHODS

This research is an experimental design quasy nonrandomized pretest posttest design with control group. Samples were taken from pregnant women with gestational hypertension in the area of Brebes health center on the Moon from March to April 2019. In the 28 samples are determined by purposive sampling. Samples were divided into two groups: one group giving instant star fruit intintervensi village and the control group with the number of each of 14 people. The intervention group was given an instant star fruit ie nonpharmacological therapy hometown, were also given standard antihypertensive drugs from the clinic. While the control group was not given an instant star fruit but only given standard antihiperetnsi drug therapy from the clinic. The collection of data through interviews and observations.

## RESEARCH RESULTS

### Differences in Systolic Blood Pressure Analysis on Various groups at the same time

This analysis aimed to compare the differences in blood pressure of various groups, starfruit village and the control group.

was a very noticeable difference in systolic blood pressure of both the village and the control group. The systolic blood pressure on the fifteenth day was obtained sig of 0.000 is less than 0.05, indicating on the fifteenth day there is a very real difference in systolic blood pressure of both the village and the control group.

**Table: 2 Analysis Systolic blood pressure difference between the group with the same time**

		N	mean	SD	P value
DIASTOLIK1	Village	14	90.14	3,780	0.432
	Control	14	92.00	3.595	
DIASTOLIK8	Village	14	86.07	3,407	0,000
	Control	14	87.79	3.32	
diastolic 15	Village	14	81.14	2.878	0,000
	Control	14	86.93	3.293	

(Source: primary data in though, 2019)

This analysis aims to compare the difference in systolic blood pressure between the groups, the leatherback bangkok-village, Bangkok-control, village-control.

The results of the analysis of differences in systolic blood pressure of the first day in all groups no differences and the apparent difference in each

group is very small. so in getting the results p value of 0.404 is greater than 0.05 then there is no difference. On the eighth day the average village and average control also differs very significantly. On the fifteenth day, all groups significantly different, characterized by the difference in systolic blood tekanan very large.

**Table: 3: Analysis of Differences in Systolic Blood Pressure In group Same with Different Time**

Group	Couple Variables	The average difference	standard deviation	P value
Village	Pre - Post 1	5,929	5,091	0,001
	Pre - Post 2	10 429	3,155	0,001
	Post 1 - Post 2	4,500	4,034	0,014
Control	Pre - Post 1	4,286	5341	0,002
	Pre - Post 2	5,286	5,165	0,002
	Post 1 - Post 2	1,000	2,287	0.123

(Source: Data pimer in though, 2019)

This analysis aims to compare the difference in systolic blood pressure in the same group at different times, namely: between pre - post 1, pre - post 2 posts 1 - post 2.

The results of the study as follows:

The results of the data analysis paired systolic blood pressure in a group home, known results of

the analysis the average difference in systolic blood pressure of the first day and the days that followed a significant difference. In the control group, the results of the analysis are known differences in average systolic blood pressure of the eighth day and the next day is the fifteenth day did not differ (0.123).

**Table: 4 Diastolic Blood Pressure Difference Analysis on Different Groups with the Same Time**

variable	Group	Group	The average difference	P value
SISTOLIK1 (Pre)	Village	Control	-1643	0,404
SISTOLIK8 (Post 2)	Village	Control	-3286	0,000
SISTOLIK15 (Post 3)	Village	Control	-6786	0,000

(Source: primary data in though, 2019)

The aim of this analysis is to compare the difference in diastolic blood pressure in different groups with the same time, the village and control

Diastolic blood pressure values obtained on the first day of sig of 0.432 is greater than 0.05, showing on the first day there was no difference in

diastolic blood pressure of both the village and the control group.

Blood pressure diastolic blood pressure values obtained on the eighth day sig of 0.000 is less than 0.05, indicating on the eighth day there was a very noticeable difference in diastolic blood pressure of

both the village and the control group. Diastolic blood pressure on the fifteenth day was obtained sig of 0.000 is less than 0.05, indicating on the fifteenth day there is a very noticeable difference in diastolic blood pressure of both the village and the control group.

**Table 5. Analysis Diastolic Blood Pressure Differences between groups at the same time**

variables	Group	Group	Difference average	P value
DIASTOLIK1	Village	Control	-1857	0,579
DIASTOLIK8	Village	Control	-1714	0.127
DIASTOLIK15	Village	Control	-5786	0,000

(Source: Primary data is processed, 2019)

This analysis aims to compare the diastolic blood pressure between the groups, namely, the village - control.

The results of the analysis of differences in diastolic blood pressure of the first day in all groups no differences and the apparent difference

between each group is very small. On the eighth day between village and controls did not differ (0.127). On the fifteenth day, all groups significantly different, characterized by the difference in diastolic blood tekanan very large. The average village and different controls (0,000).

**Table 6. Differences Analisis Diastolic blood pressure in the same group at different times**

Group	Couple Variables	The average difference	standard deviation	P value
Village	Pre - Post 1	4,071	3,583	0,003
	Pre - Post 2	9,000	4,000	0001
	Post 1 - Post 2	4929	3,647	0,002
Control	Pre - Post 1	4,214	4807	0,002
	Pre - Post 2	5,071	4,480	0,002
	Post 1 - Post 2	0857	4036	0.395

(Source: Primary data is processed, 2019)

This analysis aims to compare the diastolic blood pressure in the same group at different times, ie between pre - post 1, pre - post 2 posts 1 - post 2.

The results of the data analysis paired diastolic blood pressure in a group home, known the results of analysis are differences in average diastolic blood pressure of the first day and the days that followed a significant difference. In the control group, the results of the analysis are known differences in average diastolic blood pressure eighth day and the next day is the fifteenth day did not differ (0.395).

## DISCUSSION

### Against Kampung Belimbing Instant Influence Blood Pressure in Pregnancy

Blood pressure is the pressure of the blood vessels that work against the blood vessel walls. Blood pressure is the amount of force exerted by the blood inside the arteries when blood is pumped throughout the blood circulation system. Each time the heart muscle to contract, blood is pressed against the walls of blood vessels and is calculated as systolic blood pressure (the upper number). When the heart relaxes between the pulsation, the pressure in the vessel wall is calculated as diastolic blood pressure (the bottom number) . [18]

Based on the results of this study show that the instant leatherback village 50 grams / day for 14

days can lower systolic and diastolic blood pressure.

The systolic blood pressure at the instant group showed a decline of leatherback village began harike 8 with a mean value of 135.86 mmHg up to day 15 the mean value of 131.36 mmHg. While the systolic blood pressure control group showed a decrease of 8 days to a mean value of 139.14 mmHg up to day 14, the mean value of 138.14 mmHg.

Diastolic blood pressure in an instant group of leatherback village to village day 1 with a mean value of 90.14 until day 14, the mean value of 81.14 mmHg. Whereas in the control group the mean value of 92.00 to 1 to day 14, the mean value of 86.93 mmHg.

Blood pressure in the treatment group (starfruit village) decreased on day 15, this is because hypertension occurring in pregnancy due to decreased blood flow and perfusion of the uterus which stimulates the release of renin in excess, it causes renin that is issued will flow with blood to the liver and react together to transform angiotensin angiotensin I to angiotensin II, which if accumulated together will cause vasopasme thromboxane which causes the lumen arteriol arteriol narrowed and the pressure increases. In addition, angiotensin II also stimulates the adrenal cortex to produce hormones aldosterol which causes sodium retention and cause an increase in volume and blood pressure. 19

To inhibit the formation of angiotensin II takes substances flavonoids which are bioactive compounds with high antioxidant, acts directly on the smooth muscle by activating endothelium driven relaxing factor (EDRF), causing vasodilation and inhibits angiotensin-converting enzyme (ACE) so that angiotensin I can not be converted into angiotensin II. Anthocyanins are the most abundant compound in the flavonoid substance will accumulate into endothelial cells and protect against free radicals, so as to maintain Nitric Oxide Synthase (NOS) as a powerful vasodilator. [20, 21]

Star fruit which is useful for the body to control blood pressure, as well as carbon dioxide in the blood. Potassium is also beneficial for the working muscles and trigger node requirements. High potassium will facilitate delivery of oxygen to the brain and help keep keseimbangan fluids, so the body becomes more fresh. Patients with high blood

pressure is recommended to consume the star fruit regularly. [17]

The comparison with tomato juice research that the average reduction in systolic blood pressure before the administration of juice 143.91 mmHg. Once given the tomato juice be 135.11 mmHg, while the average diastolic blood pressure before becoming 87.16 95.63 mmHg mmHg, meaning that the provision of tomato juice with a dose of 250 ml daily for 14 days effective as blood pressure > 140/90 mmHg, Value effect size of 0.09 in systolic blood pressure and systolic blood pressure of 0.15, which means there is no influence of systolic and diastolic blood pressure in patients with hypertension pregnant women. [22]

In this study, the average systolic blood pressure in a group of leatherback leatherback In the group of village before becoming 135.86 141.79 mmHg mmHg. While the diastolic blood pressure group before 90.14 mmHg village leatherback be 86.07 mmHg. The comparison of these studies that midwifery care in pregnant women with gestational hypertension with tomato juice and provision granting instant star fruit (bangkok and villages) can help lower blood pressure in hypertensive pregnancy. It can be concluded, giving the village an instant star fruit can lower systolic and diastolic blood pressure in pregnant women with hypertension.

In both of these groups activities / work the same as farmers. One activity that can do that is to walk in the morning. Walk while pregnant has benefits to breathe clean air and fresh, strengthen pelvic floor muscles, may accelerate the decline in the infant's head into the optimal or normal position and prepare mentally to face labor. One of the benefits of walking morning was a decrease in blood pressure. A decrease in blood pressure occurs in the proper circulation of blood vessels that dilate and the pressure will drop. [23]

## CONCLUSIONS

- There are differences in systolic blood pressure before and after giving instant leatherback village with  $p = 0.001$ .
- There is a difference in diastolic blood pressure before and after giving instant leatherback village with  $p = 0.001$ .

## SUGGESTION

- Health workers  
As input for health workers, especially midwives in the development of midwifery services in non-pharmacological treatment that kampung dapat star fruit serve as natural based therapy that can lower blood pressure in pregnant women with gestational hypertension.
- For further research

The results of this study can be used as a source of information in developing further research on hypertension in pregnancy. For further research can use other fruit contains high levels of potassium as an intervention. Also need to do in detail on the psychological factors that respondents can raise or lower blood pressure, as well as with a larger sample size and optimum dosing,

## REFERENCES

- [1]. Nugroho, T. Patologi Kebidanan. Cetakan 2. Yogyakarta: Nuha Medika. 2012, 1-7.
- [2]. Saifuddin AB, Adriaansz G, Wiknjosastro GH and Wasposito D. Buku Acuan Nasional pelayanan Kesehatan Maternal Dan Neonatal. Jakarta: PT Bina Pustaka sarwono Prawirohardjo, 2009.
- [3]. Ai Yeyeh, Rukiyah. Asuhan Kebidanan Patologi Kebidanan. Jakarta: Trans Indo Media, 2012.
- [4]. Raopa Malik VK. *Hypertension in Pregnancy*. Springer Int Publ Switz. 2016
- [5]. Vest Ar, Cho LS. *Hypertension in pregnancy*. Springer Sci [internet]. 2014. Available from: <http://dx.doi.org/10.1007/s11883-013-0395-8>
- [6]. WHO. *Maternal mortality Data by WHO region*. WHO, 2015.
- [7]. KEMENKES. Profil Kesehatan Indonesia Tahun 2016. Jakarta: KEMENKES RI, 2017.
- [8]. BKKBN, BPS and KEMENKES. Survei Demografi Dan Kesehatan Indonesia. Jakarta: BKKBN, BPS Dan KEMENKES RI, 2013.
- [9]. Dinas kesehatan Jawa tengah *Profil Kesehatan Jawa Tengah*. 2016.15-17, [www.dinkesjatengprov.go.id](http://www.dinkesjatengprov.go.id), diakses tanggal 6 november 2018.
- [10]. KEMENKES. Profil Kesehatan Indonesia Tahun 2014. Jakarta: Kementerian Kesehatan Republik Indonesia, 2015.
- [11]. Dinkes PJ. Profil Kesehatan Provinsi Jawa Tengah Tahun 2016. Semarang: Dinas Kesehatan Provinsi Jawa Tengah, 2017.
- [12]. Dinkes PJ. Profil Kesehatan Provinsi Jawa Tengah Tahun 2017. Semarang: Dinas Kesehatan Provinsi Jawa Tengah, 2018.
- [13]. Wibowo N, Irwinda R, Frisdiatiny E, et al. Pedoman Nasional Pelayanan Kedokteran Diagnosis Dan Tata Laksana Pre-Eklamsia. Jakarta: PT Bina Pustaka Sarwono Prawirohardjo, 2009.
- [14]. Sudoyo AW, Setiyohadi B, Alwi I, K MS and Setiati S. Buku Ajar Ilmu Penyakit Dalam, Edisi Keempat Jilid I. Jakarta: Pusat Penerbitan Ilmu Penyakit Dalam Fakultas Kedokteran Universitas Indonesia, 2007.
- [15]. Houston MC. *The importance of potassium in managing hypertension*. *Current hypertension reports*. 13, 2011, 309-17.
- [16]. Aulia Arza, Putri. Pengaruh Pemberian Jus Averrhoa Carambola Terhadap Penurunan Tekanan Darah pada Lansia Penderita Hipertensi. 2018, 51-56.
- [17]. Cholifah Noor, Suyatno, dan Dewi. Pengaruh Juice Belimbing Manis (Averrhoa Carambola) Terhadap Tekanan Darah Pada Lansia Dengan Hipertensi Di Desa Lemah Putih Kec. Brati Kab. Grobogan. 2, 2018, 118-125.
- [18]. Hernawati. *Sistim Renin-Angiotensin-Aldosteron: Perannya Dalam Pengaturan Tekanan Darah dan Hipertensi*. Makalah FPMIPAUI Jurusan Biologi Bandung, diakses tanggal 14 mei 2019
- [19]. Kowalak. Buku Ajar Patofisiologi. Jakarta EGC, 2011.
- [20]. Won EYK, Ee DYK, Ee HYL, Im DK, Aek NB, Im YO, et al. Flavonoids From The Buds OF Rosa Damascena Inhibit The Activity Of 3-Hydroxy-3-Methylglutaryl-Coenzyme A Reductase And Angiotensin I-Converting Enzyme. 2010, 882-6
- [21]. June M, Erdman JW, Balentine D, Arab L, Beecher G, Dwyer JT, et al. Flavonoids and Heart Health : Proceedings of the ILSI North America Flavonoids Workshop 2018.



- [22]. Theresia Anita. Pengaruh Pemberian Jus Tomat (*Lycopersium Cummune*) Terhadap Penurunan Tekanan Darah Ibu Hamil Dengan Hipertensi Dalam Kehamilan. 2017.
- [23]. Taufik, Mokhamad, Nur Chakim dan Nuniek Nizmah Fajriyah. 2014. Tekanan Darah Ibu Hamil Primigravida Sebelum dan Sesudah Melakukan Olahraga Jalan Kaki Selama Sepuluh Menit Jurnal Ilmu Kesehatan. 4(1), 2014.

**How to cite this article:** Nur Eka Dyastuti, Suharyo Hadisaputro, Apoina Kartini. Giving effect instant star fruit village of pregnant women with blood pressure hypertension. *Int J of Allied Med Sci and Clin Res* 2019; 7(3): 850-857.

**Source of Support:** Nil. **Conflict of Interest:** None declared.