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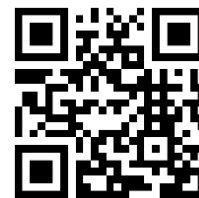


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A STUDY OF PHYSIOLOGICAL CHANGES IN BLOOD PRESSURE DURING VAMAN KARMA Choudhary S.

Assistant Professor, Department of Kriyashareer, Jupiter Ayurved Medical College, Nagpur.

ABSTRACT:

This study investigates the physiological changes in blood pressure during Vaman Karma, a key procedure in Panchakarma therapy aimed at expelling vitiated Kapha dosha. Conducted as a clinical observational study with 30 healthy individuals (ages 20-40), the research monitored blood pressure at various stages of the Vamana process, including before and after Vaman Dravya Pana, after Hrullasa, during Vaman Vega, during Vegantaravastha, after Samyak Vaman, and after Dhoomapana. Findings revealed no significant changes in blood pressure before and after Vaman Dravya Pana, but significant variations were noted during Vaman Vega and Vegantaravastha. After Samyak Vaman and Dhoomapana, significant changes in systolic blood pressure were observed, while diastolic pressure remained stable. These results highlight the need for careful monitoring of blood pressure during Vamana to ensure patient safety and optimize therapeutic outcomes. Further research is recommended to explore the long-term effects of these physiological changes.

KEYWORDS: Vaman Karma, Blood Pressure, Physiological Changes, Detoxification, Healthy Individuals.

CORRESPONDING AUTHOR:

Dr. Shashank Choudhary

Assistant Professor, Department of Kriyashareer,
Jupiter Ayurved Medical College, Nagpur, Maharashtra, India.

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INTRODUCTION:

Panchakarma therapy is vital part of Samshodhana and this therapy has attracted the attention of the people worldwide as it is a unique type of treatment of various chronic, auto immune, hormonal, degenerative disorders etc., whereas other methods of treatment have no satisfactory answer for the cure of these diseases as well as equally beneficial for the promotion and preservation of health. Among five Karmas, Vamana is the Pradhana Karma of Panchakarma therapy and it has been considered as the best line of treatment for the Kaphaja disorders. The act or the action of expelling the impurities i.e. vitiated Doshas through the upper channel is known as Vamana. Vamana Karma is the best therapy for the elimination of vitiated Kapha Dosha from all over the body through Aamaashaya by means of vomiting. Vaman karma is one of the major pradhan karma procedures of panchakarma therapy. Vaman is an urdhvabhaga shodhana of the body. The word shodhana or samshodhana means to eradicate the doshas either through adhobhaga or urdhvabhaga. Ideal time period for Vaman is vasantritu i.e. month of February and March. As vaman is remedy for kaphadosha and in vasantritu, kapha is at its maximum level in the body. Environment heat also helps in its easy excretion from the body by melting it. But in diseased condition one can opt Vaman at any time according to the need. Vaman is useful for diseased as well as healthy individuals for preservation of health & prevention of disease. Vaman can be given according to the dosha predominant stage in any season but if it is given in vasant Ritu (Kaphaprakopka) it gives wonderful result. As other Panchakarma procedures, Ayurveda mentioned various indications and contraindications for Vamana also and various complications of this procedure are also mentioned. In the process of Vamana various systems of body get involved and

various physiological changes get happened in the body. Blood pressure is one of the factors involved in this process. Blood pressure is the lateral pressure exerted by the circulating blood on the wall of blood vessels. It is regulated by nervous and endocrine system of the body. The normal adult blood pressure is considered as 120/80 mm of Hg. It is seen that many CVS related complications are arises during this process. Therefore, various precautionary measures are taken in Vamana Process to avoid such complications. Hence it is necessary to observe the physiological variations of blood pressure in Vaman process and other certain factors.

Aim & Objective:

Aim: To Study of Physiological changes in Blood Pressure during Vaman Karma.

Objectives: To study the process of Vamana and its physiology and to study the variations in blood pressure during the various stages of Vamana process.

Materials & methods: The present study is a Clinical observational type of study with the objective to study the variations in blood pressure during the various stages of Vasantik Vamana Karma in healthy persons.

Study Design: Total sample size for this study was thirty healthy individuals. Total 30 Healthy individuals irrespective of sex & socio-economic condition, between 20 – 40 years of age, with normal blood pressure were selected for Vamana process after all necessary investigations, consent and observed during the study. The blood pressure of each individual was assessed during following stages of Vamana process-

1. Before and after Vaman Dravya Pana
2. After Hrullasa,
3. During Vaman Vega,
4. During Vegantaravastha
5. After Samyak Vaman and
6. After Dhoomapana.

Assessment Criteria: - Healthy individuals were selected for Vamana process after all necessary investigations were observed during the study. Total 30 individuals were taken for study. The blood pressure of each individual was assessed during following stages of Vamana process-

- a) Before and after Vaman Dravya Pana
- b) After Hrullasa
- c) During Vaman Vega
- d) During Vegantaravastha
- e) After Samyak Vaman
- f) After Dhoomapan

Criteria for Selection

- a) Only healthy individuals irrespective of sex & socio-economic condition.
- b) Age groups 20-40 years.
- c) Blood Pressure within Normal limit.
- d) Individuals having fitness for Vamana procedure.

I. Blood Pressure Variation Observations:(Individually)

a) BEFORE VAMAN DRAVYA PAN (Table 1)

Sr.No	BP	Male	Female	Total	P value
1	110-70	03	06	09	0.2472
2	120-80	12	03	15	
3	130-90	03	03	06	

In above table p value obtained was >0.05 which suggest that there is no association in rows and columns statistically. Range of blood pressure before Vaman dravya pan is

Criteria for Rejection

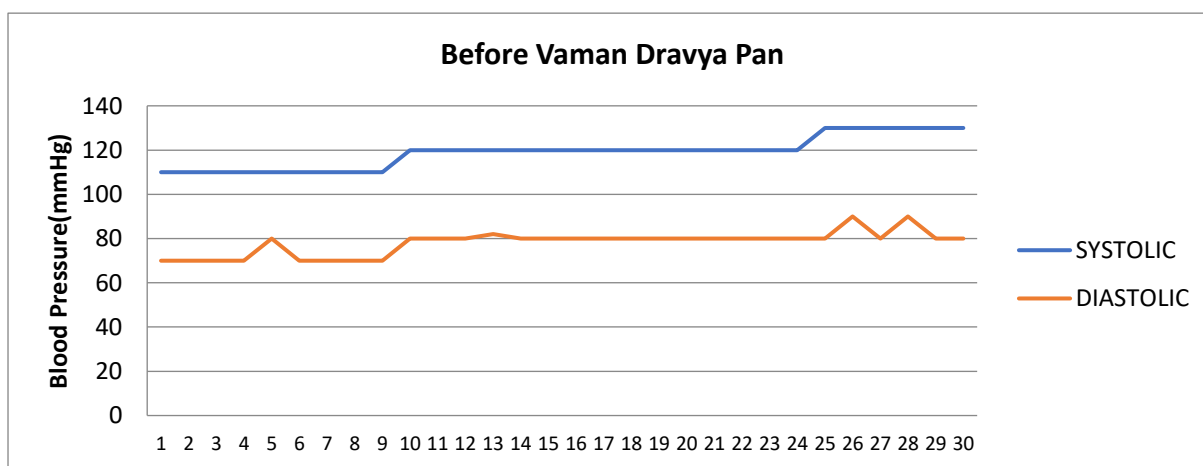
- a) Individuals with systemic disorders, cardiac problems etc. were excluded.
- b) Age less than 20 yrs and 40 years.
- c) Hypertensive or hypotensive.
- e) Individuals unfit for Vamana procedure.

Observations & Results:

Gender: In this study, totally 18 [60%] were male and 12[40%] were female it may be due to random selection of Participants.

Age: As per inclusion criteria of Participants were selected having age between 20 years to 40 yrs. and distributed it in two-sub age groups. Out of 30 Participants numbers of Participants found in age group 20-30 were 19[63.33%], in 31 to 40 yrs. were 11 [36.67%], in numbers and percentage respectively.

not associated significantly. The mean systolic blood pressure was 119 mm of Hg while 78 diastolic.



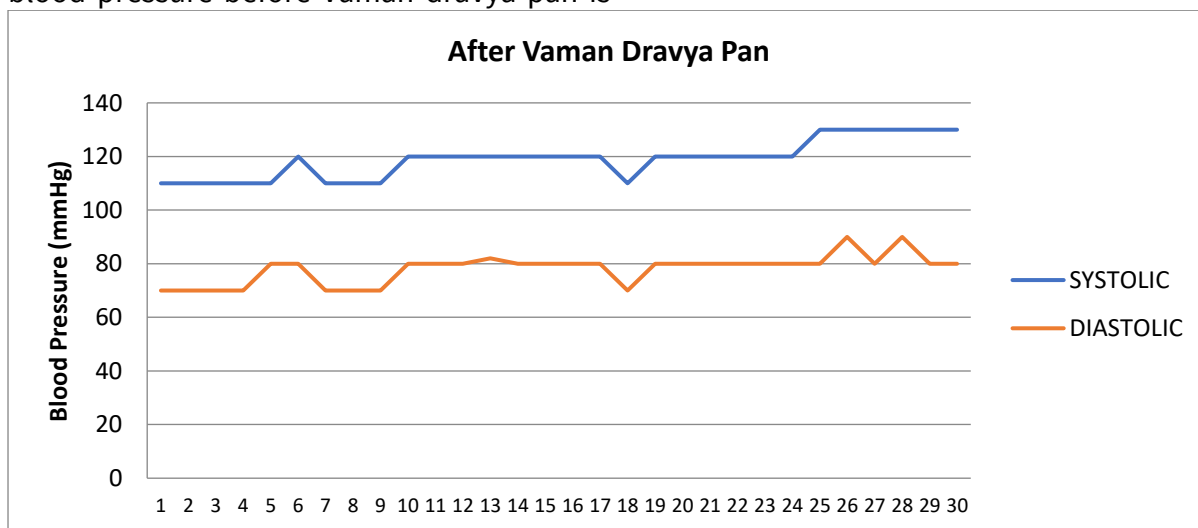
Graph 1. Shows Blood pressure shows individuals variation

b) AFTER VAMAN DRAVYA PAN: (Table No.2)

Sr.No	BP	Male	Female	Total	P value
1	110- <80	03	06	09	0.2472
2	120-80	12	03	15	
3	130-<90	03	03	06	

In above table p value obtained was >0.05 which suggest that there is no association in rows and columns statistically. Range of blood pressure before Vaman dravya pan is

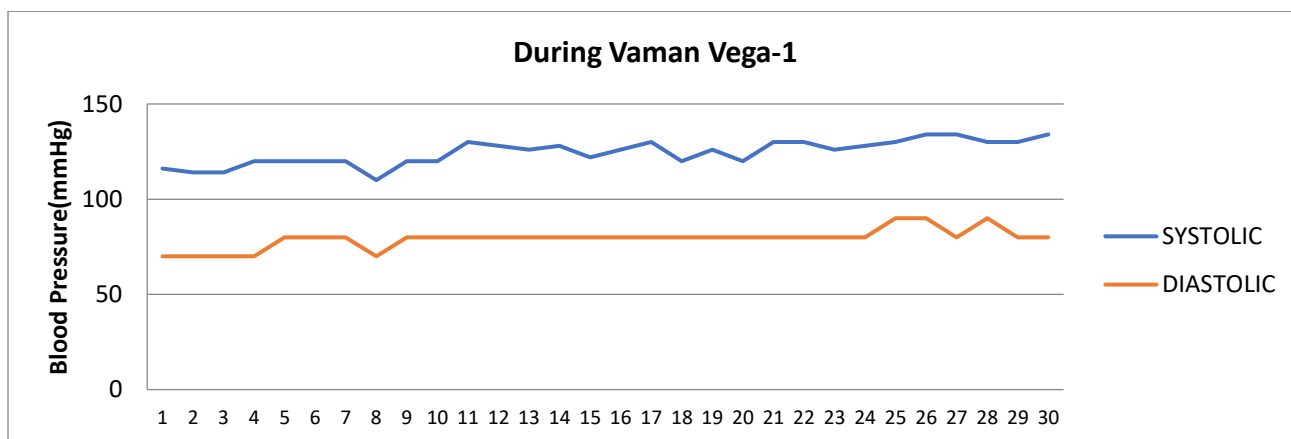
not associated significantly. The mean systolic blood pressure was 119 mm of Hg while 78 diastolic.



Graph 2. Shows Blood pressure variation after Vaman Dravya pan

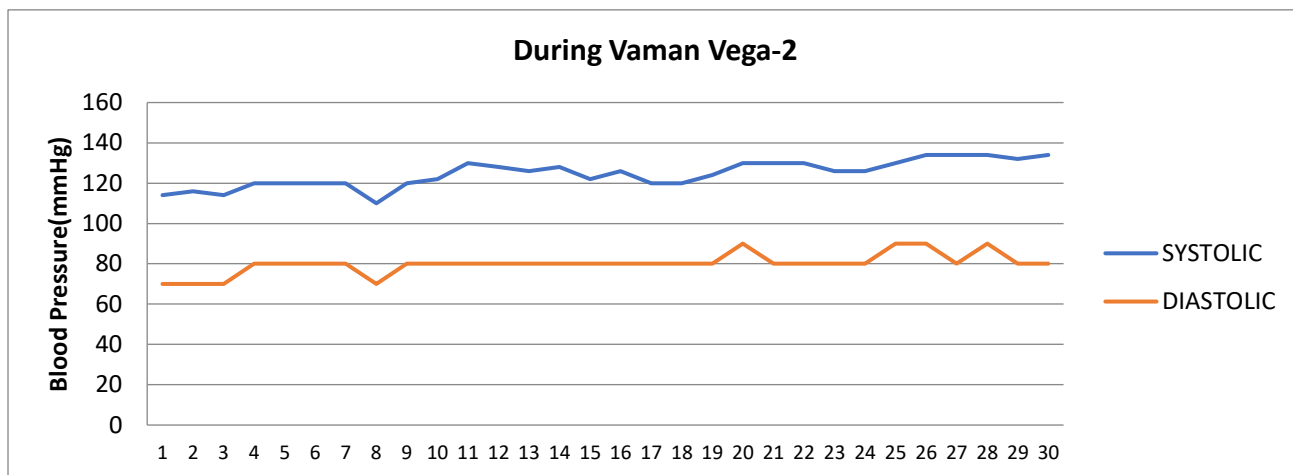
c) DURING VAMAN VEGA

First Reading: The mean blood pressure observed during Vaman vega in first reading was 129/86 mm of Hg.



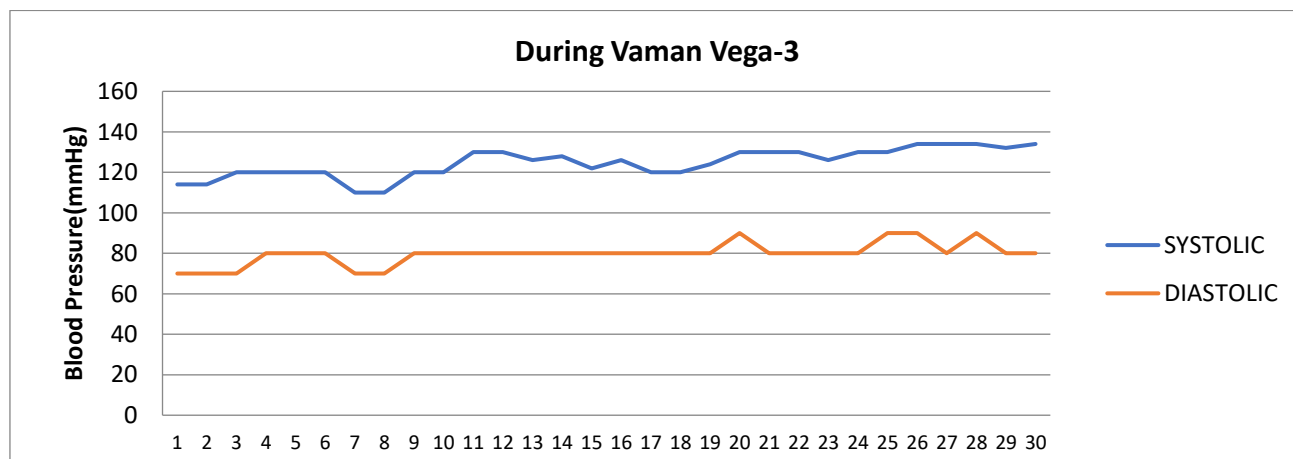
Graph 3. Blood pressure variation during Vaman vega

Second Reading: The mean blood pressure observed during Vaman vega in second reading was 131/86 mmof Hg.



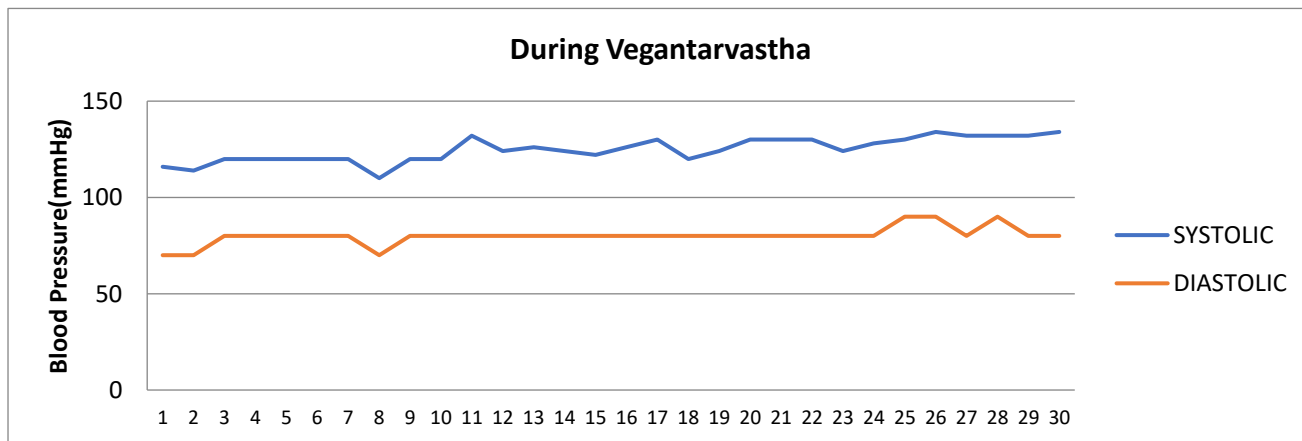
Graph 4. Blood pressure variation during Vaman vega

Third BP reading: The mean blood pressure observed during Vaman vega in third reading was 135/87 mmof Hg.



Graph 5. Blood pressure variation during Vaman vega

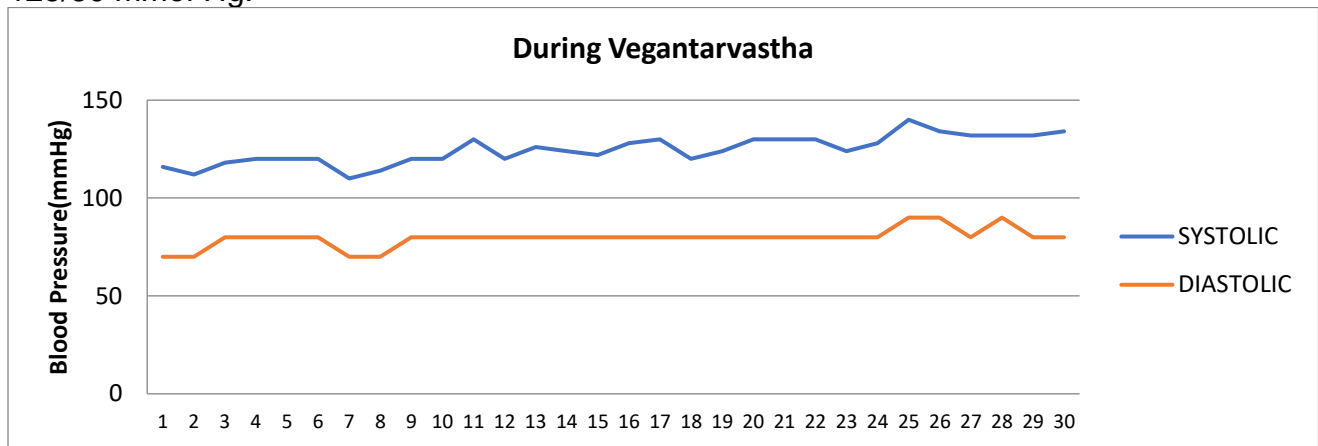
d) During Vegantarvastha: First reading: The mean blood pressure observed during Vaman Vegantarvastha in first reading was 132/86 mmof Hg.



Graph 6. Blood pressure variation during Vegantarvastha

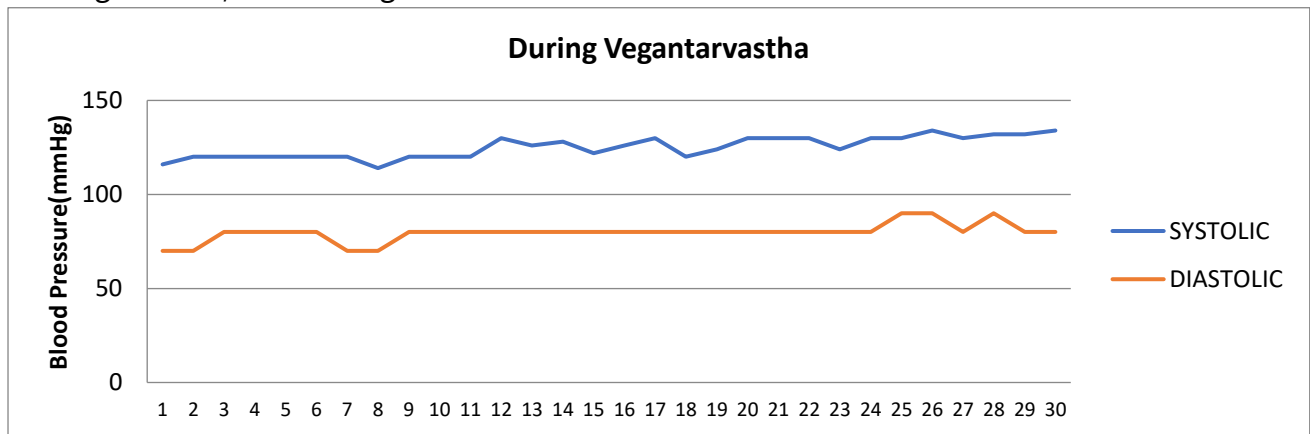
Second reading:

The mean blood pressure observed during Vaman Vegantarvasha in second reading was 125/80 mmof Hg.



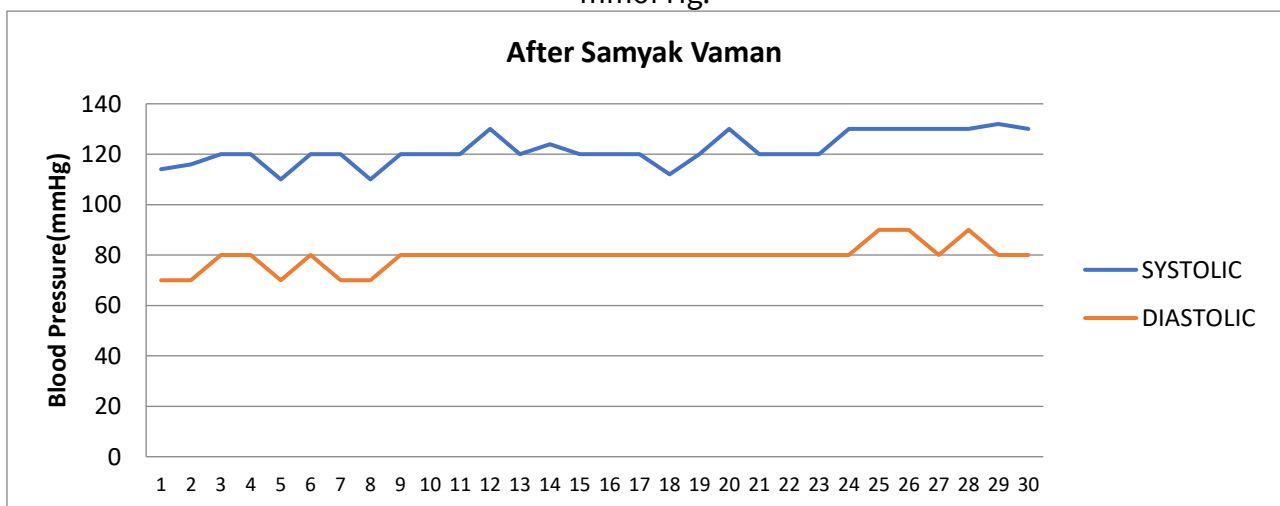
Graph 7. Blood pressure variation during Vegantarvasha

Third Reading: The mean blood pressure observed during Vaman Vegantarvasha in third reading was 125/80 mmof Hg.



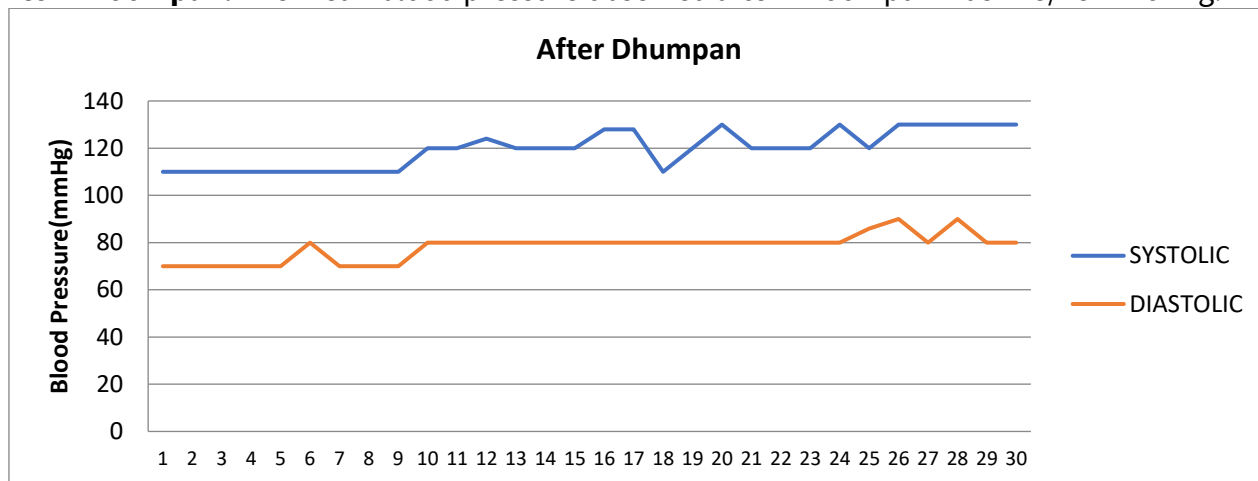
Graph 8. Blood pressure variation during Vegantarvasha

After Samyak Vaman: The mean blood pressure observed after Samyak Vaman was 121/79 mmof Hg.



Graph 9. Blood pressure variation After Samyak Vaman

e) **After Dhoompan:** The mean blood pressure observed after Dhoompan was 118/78mmof Hg.



Graph 10. Blood pressure variation After Dhoompan

II. Blood Pressure variations between steps of Vaman

Table No.3: Variation of blood pressure before vaman dravya pan and after vaman dravya pan: (paired t test)

Blood pressure		Mean± SD	SeM	T value	P value	Results
Before vaman dravya pan	Systolic	119±7.12	1.3	0.000	0.9999	Not significant
	Diastolic	78.06±5.54	1.01	0.00	0.9999	Not significant
After vaman dravya pan	Systolic	119±7.12	1.3	0.000	0.9999	Not significant
	Diastolic	78.06±5.54	1.01	0.00	0.9999	Not significant

From above table it was observed that the mean ± SD for Systolic Blood pressure before vaman dravya pan was 119±7.12 and after vaman dravya pan it was 119±7.12 with p value 0.9999 which was >0.05 at 5% level of significance, so there is no significant changes in blood pressure before and after vaman dravya pan. Next, the mean ± SD for

diastolic Blood pressure before vaman dravya pan was 78.06±5.54 and after vaman dravya pan it was 78.06±5.54 with p value 0.9999 which was >0.05 at 5% level of significance, so there is no significant changes in blood pressure before and after vaman dravya pan.

Table No4: Variation of blood pressure during vaman vega: (ANOVA Test)

Blood pressure		Mean± SD	SeM	P value	Results
1 st reading	Systolic	1.29±6.82	1.24	0.003	Very significant
2 nd reading	Systolic	1.31±5.92	1.08		
3 rd Reading	Systolic	1.35±4.54	0.82		
1 st reading	Diastolic	86.33±5.46	0.99	0.700	Not significant
2 nd reading	Diastolic	86.6±4.90	0.89		
3 rd Reading	Diastolic	87.4±4.87	0.89		

It was observed that, the Variation in systolic blood pressure during vaman vega in three reading was significant statistically as p value

obtained was <0.05 , however it was not significant in diastolic blood pressure as p value was >0.05 .

Table No.5: Variation of blood pressure during vegantarvastha: (ANOVA)

Blood pressure		Mean± SD	SeM	P value	Results
1 st reading	Systolic	132.46 ± 6.86	1.25	0.001	Extremely significant
2 nd reading	Systolic	125.6 ± 7.37	1.34		
3 rd Reading	Systolic	125.06 ± 5.67	1.03		
1 st reading	Diastolic	86.26 ± 5.03	0.91	0.001	Extremely significant
2 nd reading	Diastolic	80.8 ± 5.72	1.04		
3 rd Reading	Diastolic	79.66 ± 4.90	0.89		

It was observed that, there was Variation in systolic blood as well as diastolic blood pressure during Vegantarvastha in three

reading was extremely significant statistically as p value obtained was <0.01 .

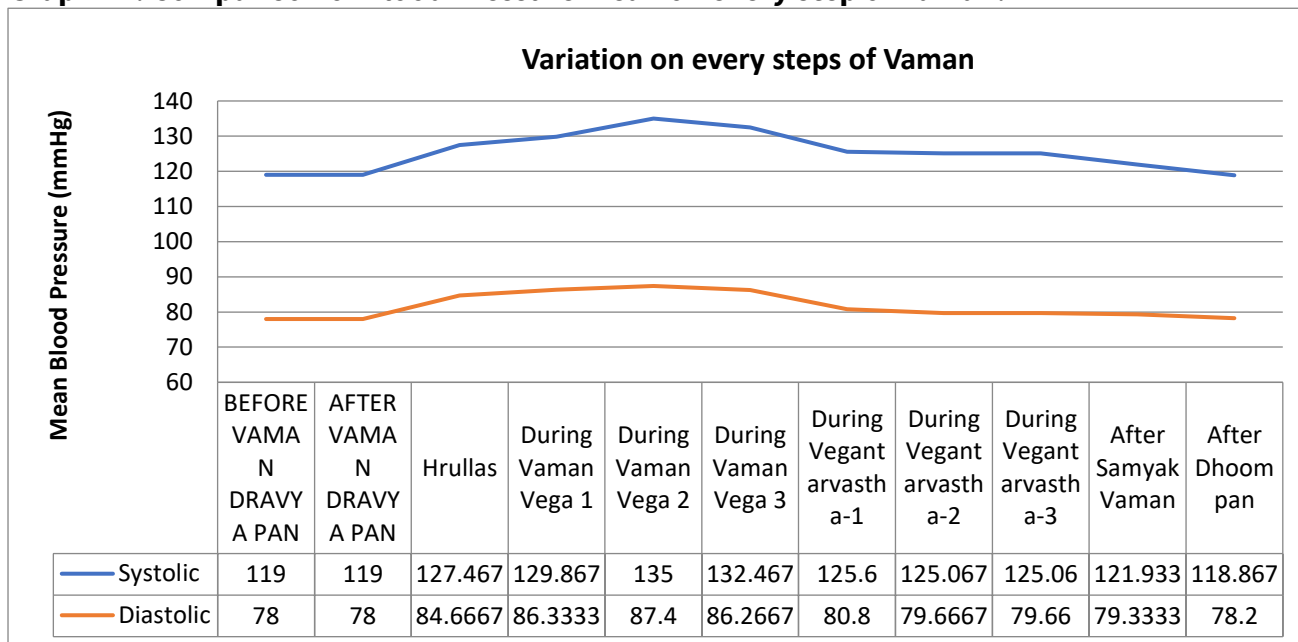
Table No.6: Variation of blood pressure After Samyak Vaman and after Dhoompan: (paired t test)

Blood pressure		Mean± SD	SeM	T value	P value	Results
Systolic	After Samyak Vaman	121.93±6.33	1.15	3.218	0.003	Very significant
	After Dhoompan	118.86±7.29	1.33			
Diastolic	After Samyak Vaman	79.33±5.20	0.95	2.007	0.0542	Not significant
	After Dhoompan	78.20±5.69	1.03			

From above table it was observed that the mean ± SD for Systolic Blood pressure After Samyak Vaman was 121.93±6.33 and After Dhoompan it was 118.86±7.29 with p value 0.003 which was <0.01 at 5% level of significance, so there was very significant changes in blood pressure After Samyak Vaman and After Dhoompan. Next in Diastolic

blood pressure the mean ± SD for diastolic Blood pressure After Samyak Vaman was 79.33±5.20 and After Dhoompan it was 78.20±5.69 with p value 0.0524 which was >0.05 at 5% level of significance, so there was no significant changes in Diastolic blood pressure After Samyak Vaman and After Dhoompan.

Graph 11: Comparison of Blood Pressure mean on every step of Vaman:



DISCUSSION:

After completion of Samyak Vamana Dhoompana was done. The mean ± SD for Systolic Blood pressure before vamana After Samyak Vaman was 121.93±6.33 and After Dhoompan it was 118.86±7.29 with p value 0.003 which was <0.01 at 5% level of significance, so there were very significant changes in blood pressure After Samyak Vaman and After Dhoompan. Next in Diastolic blood pressure the mean ± SD for diastolic Blood pressure before vaman dr After Samyak Vaman was 79.33±5.20 and After Dhoompan it was 78.20±5.69 with p value 0.0524 which was >0.05 at 5% level of significance, so there were no significant changes in blood pressure After Samyak Vaman and After Dhoompan.

Pashchaata Karma: Dhoompana remove the excessive Kapha which is accumulated in mouth and throat and helps to avoid Vyapada in Vaman Karma. After vamana there is agnimandya (loss of appetite). Agnimandya followed by Vamana has to be restored by Samsarjana course. Actually, after Vamana, the environments in the stomach got totally alkaline due to mucous secretions,

bicarbonate flows and bile extraction. This ultimately hampers the pepsin activity. "Pepsin activity is significantly diminished at pH 4 and irreversibly inactivated and denatured at a pH of > 7 so; this might be the reason why diminution of Agni takes place after Vamana.

Comparison of Blood Pressure on every step of Vaman: In procedure of vaman karma Systolic and Diastolic Blood pressure variation during each stage of Vaman it was observed that there are very significant changes seen and it was not by chance as p value obtained is <0.0001. Before Vaman Dravya Pan mean SD of Systolic BP was 119.7±7.12 and diastolic BP was 78.0±5.54. After Samyak Vaman. SD of Systolic BP was 121.9±6.33 and diastolic BP was 79.3±5.20. while After Dhoompan Systolic BP was 118.8±7.2and diastolic BP was 78.2±5.69. Any type of exercise and stress increases the arterial pressure. There is increase in sympathetic activity during vomiting due to mental stress, muscular exercise and sudden change in body posture. But this increase is rapidly controlled by baro receptor feedback mechanism. A rise in pressure activates the

baro receptor or pressure receptors, which are located in the walls of large systemic arteries. A rise in arterial pressure stretches the baro receptor and causes them to transmit signals to the C.N.S. and feedback signals, are sent back through A.N.S. to the circulation to reduce arterial pressure downwards to normal level.

Mode of Action of Vamana: From Ayurvedic point of view, Vamana is not merely a gastric lavage as considered by modern physicians, but it is a complete therapy of Kapha Dosha as well as disorders caused by it. Charaka has clearly mentioned that the drugs used in Vamana Karma get absorbed due to their Virya and reach heart (Hridaya). Wherefrom, through the circulation and then via Sthula and Sukshma Srotas, the Virya of the drug reaches at the site of the lesion which may be in the form of Dosha Sanghata. The drug first liquifies (Visyandayanti) the Dosha Sanghata then breaks (Vicchandati) it into smaller molecules which can flow through the Anu Srotas of the body and reach to Amashaya, wherefrom they are expelled out by the act of Vamana. Vamana Karma is a one type of medically induced inflammation. Every step of this Karma has its Own importance. First of all, by the Purvakarma, when Abhyantar Snehana is done, it goes upto the cellular level where the Gatra Snigdghata, Gatra Mardavta, Tvaka Singdhata like Samyaka Snehana Lakshana are produced. Ghee is considered as an anti-oxidant and source of Vitamin A Dosha become loosen at cellular level by Snehana. Many substances, which are deposited at cellular level, they become loosen by the Snehana. In case of hypothyroidism, there is a deposition of mucinous ground substance at subcutaneous area. By the act of Abhyanga and Svedana loosen substance becomes mobilised and it comes in to the blood circulation. Vamana is always done with full stomach so the pyloric end of stomach is

closed. The site of action of Vamana is Amashaya which is mentioned as a Kaphasthana. The Vamana Dravyas has the properties like Ushna, Tikshna, Sukshma, Vyavayi & Vikasi. Due to its Vyavayi Guna they get quickly circulated in to large and small capillaries of the body. Because of its Vikasi Guna, it detaches the Malas from Dhatus. By virtue of its Ushna and Teekshna qualities the accumulated Doshas gets liquified and disintegrated in to small particles at cellular level. Owing to the presence of Sukshma Guna and Anupravana nature, the Malas or Doshas float because already body has got Samyak Snigdghata and through smallest capillaries towards Koshtha ultimately reaches to Aamashaya. Detached Malas would not be obstructed even in the smallest capillaries (Asajjannamiti- Na Kwachidapi Sangha Gacchati). Where from Vamana Dravya encouraged by "Udaana Vayu" and owning the 'Agni, Vayu Mahabhautika predominance", they move in upward direction to expel the vitiated Doshas through mouth.

CONCLUSION:

It was observed that there were not significant changes in Systolic as well as diastolic Blood pressure before and after vaman dravya pan. It was observed that, the Variation in systolic blood pressure during vaman vega in three reading was significant statistically however it was not significant in diastolic blood pressure. There was Variation in systolic blood as well as diastolic blood pressure during Vegantarvasta extremely significant statistically. There was a very significant changes in Systolic Blood pressure After Samyak Vaman and After Dhoompan. There was no significant change in Diastolic blood pressure After Samyak Vaman and After Dhoompan. It was observed that Blood pressure might show variations during Vamana process and raise during Vegavastha of Vamana.

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