



**STUDY THE EFFECT OF PUNARNAVADI VATI WITH ANUPANA OF PUNARNAVA KWATHA IN COMPARISON TO PUNARNAVA KWATHA WITH ANUPANA OF MADHU IN GARBHINI SHOTHA**

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### ABSTRACT

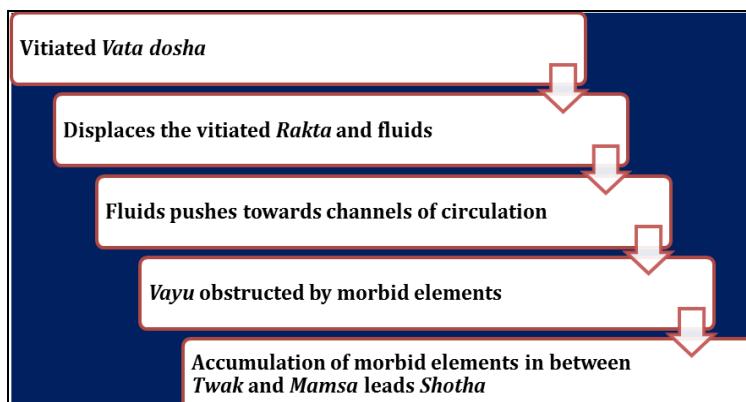
Sotha is the main problem related to the pregnancy and ayurveda described Vata as main cause of Shotha. Modern science also emphasizes anemia and hypoproteinemia as common causes of edema in pregnancy. The edema (Sotha) in pregnancy also arises due to the lack of antenatal care, poor maternal nutrition and poor reproductive knowledge. Kwatha of Punarnava root, Deodaru and Murva along with Anupana of Madhu is indicated in Garbhini shotha. Considering this fact we planned a study to observe role of Punarnavadi Vati with Anupana of Punarnava Kwatha in comparison to Punarnava Kwatha with Anupana of Madhu in Garbhini Shotha. Statistical analysis showed significant effect of drugs in both groups on leg circumference, pit filling time and weight. However trial group exhibited better effects as compared to the control group and difference between them was found to be statistically significant.

**KEYWORDS:** Garbhini, Garbhopadrava, Shotha, Punarnava root, Deodaru and Murva.

### INTRODUCTION

*Garbhini shotha* is very common complication associated with pregnancy. Pre-eclampsia and anemia mainly causes edema in pregnancy, incidence of pre-eclampsia varies from 5% - 15% while incidence of

anemia in pregnancy ranges widely from 40%-80% in tropics. Lack of antenatal care, poor maternal nutrition and poor reproductive knowledge leads high number of cases of edema in pregnancy.<sup>[1-5]</sup> The general pathogenesis of *Shotha* is depicted in **Figure 1**.



**Figure 1: General pathogenesis of Shotha.**

### MATERIAL AND METHODS

#### Trial Group

*Punarnavadi Vati* 2 gm (4 tablets of 500mg each) with *Anupana of Punarnava kwatha* 40 ml B.I.D. for 7 days.

#### Control Group

*Punarnava kwatha* 40 ml with *Anupana of Madhu* (5ml) B.I.D. for 7 days.

Apart from above mentioned medicines, both groups were given iron and calcium supplements to fulfill excessive demand in pregnancy. Immunization, *Pathya-Apathya Ahara* and *Vihara* was advised in both groups.

### **Preparation of *Punarnavadi Vati***

*Punarnavadi Vatis* manufactured at private pharmacy, *Punarnava Churna* (1kg), *Deodaru* (1kg) and *Murva Churna* (1kg) was taken and mixed. Seven *Bhavnas* of *Punarnava*, *Deodaru* and *Murva kwatha* were given to that of *Churna* for regular seven days. Tablets (500mg of each) were made up of *Churna* by adding gum in it using tablet machine.

### **Preparation of *Punarnava kwatha***

*Punarnava Bharad Churna* 20 gm was taken; 320 ml of water was added and heated slowly till to reduce up to 40 ml. Then it was filtered and given to the patients as a single dose in Luke warm form.<sup>[6-9]</sup>

### **Inclusion Criteria**

1. Patients with edema of pregnancy
2. Any gravidae.
3. Age group 16-40 yrs.
4. IPD and OPD patients possess symptoms of edema in pregnancy.

### **Exclusion Criteria**

1. Age < 16 years and age > 40 years.
2. Patients having hypertension more than 160/110 mm Hg.
3. Complicated pregnancies.
4. Patients having known cardiac problems.
5. Patients having history of eclampsia.
6. Known case of any severe systemic diseases.
7. Patients having severe renal pathology.
8. Patients having medical or surgical emergency.
9. Patients having severe anemia Hb% below 5 gm%.

### **Treatment Protocol**

Selected patients were randomly divided into two groups; trial and control groups. Trial Group served with *Punarnavadi vati* 2 gm (4 tablets of 500 mg each) with *Anupana* of *Punarnava kwatha* (40 ml) B.I.D. for 7 days. Control Group received *Punarnava kwatha* (40 ml) with *Anupana* of *Madhu* (5ml) B.I.D. for 7 days.

### **Assessment Criteria**

The effect of treatment is considered according to following parameters:

- a. Leg circumference measured above ankle sheen area.
- b. Pit filling time.
- c. Weight of patient.

Along with above parameters blood pressure, albumin urea, Hb% and fluid intake and urine output chart was also recorded.

### **a) Leg circumference above ankle sheen area**

Edema of pregnancy manifests earlier as pedal oedema because it is most dependant part of body and pressure of gravid uterus on inferior vena cava are among the responsible factors. It is measured in morning hours, as

whole night rest decreases edema and recorded in millimeters.

### **b) Pit filling time**

As edema of pregnancy is pitting in nature, pit is formed when firm pressure is applied and when left alone, it gets filled in some period of time. If edema is more and its consistency is harder, it takes more time to get filled. On the other hand if edema is less and softer, it takes less time for pit to get filled. Hence pit filling time is selected as a parameter. Firm pressure is applied with the tip of thumb at lower shin area above the medial malleolus for five seconds and time required for fitting of pit was recorded in seconds.

### **c) Weight of the patient**

As edema is the disease in which retention of water plays an important role and edema of pregnancy is generalized one. Hence weight is an absolute indicator of progress or regress of the disease. Weight was recorded in kg.

### **Albuminurea and Blood pressure**

As edema of pregnancy is one of important sign of pre-eclampsia which was associated with hypertension and albumin urea and which may get complicated in the form of eclampsia. Hence urine routine examination was done and presence of albumin in urine was recorded.

### **Haemoglobin**

Anemia plays an important role especially in low socio-economic conditions, in odema of pregnancy; hence Hb% analysis was carried out before and after treatment.

### **Fluid intake and urine output**

As water retention plays an important part in edema of pregnancy, prognosis of disease assessed by daily fluid intake and urine output chart.

## **RESULT AND DISCUSSION**

### **Analysis of *Vati***

1. **Weight of tablet** – Average weight of *Punarnavadi Vati* was found to be 513mg and S.D. was reported as 6.5 mg i.e. 1.26%.
2. **Disintegration** – Disintegration time of *Punarnavadi Vati* was found to be 20 minutes.
3. **Friability** – Friability of *Punarnavadi Vati* was reported to the 1.2%.
4. **Hardness** – Hardness of *Punarnavadi Vati* was found to be 4.5 Kg/sq.cm.

### **Analysis of *Kwatha***

- 1) pH - 6.6
- 2) Specific gravity - 1.0169
- 3) Colour - Greenish brown
- 4) Taste - Mild bitter astringent

Results were evaluated as excellent when edema on ankles was decreased by 10 mm or more. When it was decreased between 5-10 mm good performances was

noted and in case of decrease in edema less than 5mm poor performance was recorded.

## OBSERVATIONS

### 1. Mean edema on ankles

Edema	0 day	3rd day	7th day	10th day
<i>Trial group</i>	228.00	223.85	218.47	216.26
<i>Control group</i>	238.70	237.56	234.73	234.30

Mean edema on ankles was decreased on 3<sup>rd</sup> day in trial group by 4.15 while in control group by 1.14, on 7<sup>th</sup> day mean edema was decreased by 5.38 while in control

group by 2.38, on 10<sup>th</sup> day when patients were not given medicines mean edema was decreased in trial group by 2.21 and 0.43 in control group.

### 2. Mean pit filling time

Pit filling time	0 day	3 <sup>rd</sup> day	7 <sup>th</sup> day	10 <sup>th</sup> day
<i>Trial group</i>	34.56	29.56	21.66	18.23
<i>Control group</i>	35.76	33.97	29.9	28.33

Mean pit filling time was decreased on 3<sup>rd</sup> day in trial group by 5, while in control group by 1.8. On 7<sup>th</sup> day mean pit filling time was decreased by 7.9, while in

control group by 4.07. On 10<sup>th</sup> day when patients were not given medicines mean pit filling time was decreased in trial group by 3.43, while in control group by 1.57.

### 3. Mean Weight

Weight	0 day	3 <sup>rd</sup> day	7 <sup>th</sup> day	10 <sup>th</sup> day
<i>Trial group</i>	53.56	53.26	52.78	52.75
<i>Control group</i>	52.25	52.1	52.08	52.01

Mean weight was decreased on 3<sup>rd</sup> day in trial group by 0.3, while in control group by 0.15. On 7<sup>th</sup> day mean weight was decreased in trial group by 0.48, while in

control group by 0.02. On the 10<sup>th</sup> day when patients were not given medicines mean weight was decreased in trial group by 0.03, while in control group by 0.07.

## Statistical Analysis

### Effect of treatment in both groups

#### 1) Edema on Ankles

0 – 10 days	n	Mean of difference	SD	SE	't'	P
<i>Trial group</i>	30	11.73	6.52	1.19	9.85	P < 0.05
<i>Control group</i>	30	04.40	2.54	0.46	9.56	P < 0.05

On applying paired 't' test on each group, edema on ankles is regressed during 0 day to 10<sup>th</sup> day in both groups significantly and mean difference is higher in trial group than control group. On applying unpaired 't' test

on both group, value of 't' is 5.77, which means P < 0.05. It proves that the effect of drug in trial group is better than control group significantly.

#### 2) Pit filling time

1-10 days	n	Mean of difference	SD	SE	t	P
<i>Trial group</i>	30	16.33	6.15	1.12	14.58	P < 0.05
<i>Control group</i>	30	7.43	4.34	0.79	9.41	P < 0.05

On applying paired 't' test on each group pit filling time was regressed during 0 day to 10<sup>th</sup> day in both groups

significantly and mean difference was higher in trial group than control group.

#### 3) Weight

0-10 days	n	Mean of difference	SD	SE	t	P
<i>Trial group</i>	30	0.816	0.359	0.065	12.436	P < 0.05
<i>Control group</i>	30	0.233	0.583	0.106	2.187	P < 0.05

On applying paired 't' test on each group, weight was regressed during 0 day to 10<sup>th</sup> day in both groups

significantly and mean difference was higher in trial group than control group.

#### 4) Albumin urea

0- 10 days	N	Mean of difference	SD	SE	t	P
Trial group	20	1.075	0.53	0.12	8.82	P < 0.05
Control group	21	1.119	0.46	0.10	11.19	P < 0.05

On applying paired 't' test, effect of treatment on albumin urea in both group was found to be statistically significant.

#### 5) Fluid Input and Urine Output

##### a) Fluid Input

0 -10 days	n	Mean of difference	SD	SE	t	P
Trial group	30	8.33	77.55	14.17	0.58	P > 0.05
Control group	30	6.67	77.17	14.10	0.47	P > 0.05

On applying paired t test on each group, t value of trial group was found to be 0.58 which was insignificant and t

value of control group was 0.47, which was found to be insignificant.

##### b) Urine Output

0 -10 days	n	Mean of difference	SD	SE	t	P
Trial group	30	133.33	72.27	13.21	10.09	P < 0.05
Control group	30	131.67	76.9	14.05	9.37	P < 0.05

On applying paired t test, effect of treatment on urine output was found to be statistically significant in both groups.

concluded that *Punarnavadi vati* with *Punarnava kwatha* can be used as effective treatment modality for the management of *Garbhini shotha*.

## DISCUSSION

Mean edema, pit filling time were decreased gradually in both groups, more markedly in trial group and continued to decreases after stoppage of drug. Mean weight was decreased in both groups, more in trial group, but rate of reduction in weight was reduced in both group after stoppage of treatment. This is due to the increase in weight in pregnant woman in third trimester. Hb% was increased in both groups significantly. Albumin urea was decreased in both groups significantly. Urine output was increased in both groups significantly. Statistical analysis showed significant effect of drugs in both groups on leg circumference, pit filling time and weight, but in trial group effects of drug was found to be better than in control group and difference between them was considered statistically significant.<sup>[8-11]</sup>

## CONCLUSION

*Punarnava*, *Deodaru* and *Murva* described by Acharya Kashyapa for managing edema of pregnancy. These drugs are safe in pregnancy, without any side-effects. So there was necessity to establish their role in pregnancy edema by scientific evidences. Hence this topic was selected to find out more effective treatment for *Garbhini shotha* without any side effects. The formulation was prepared and standardized as per standard procedures and administered to the patients which were selected randomly. The drug was given twice daily for 7 days and patients were followed up on 0, 3, 7, and 10<sup>th</sup> day of treatment. Leg circumference, pit filling time, weight, albuminurea, fluid input and urine output were recorded on each follow up periods. Study

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