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TO STUDY THE EFFECT OF DHATRIPHALRASA BHAVITA GAIRIKA VATI IN THE MANAGEMENT OF GARBHINI PANDU

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ABSTRACT

In Ayurveda, disease in which Panduta means Pallor, faintness of skin, nails, eyes, face occurs that disease is called as Pandu and Padutwa occurs in Garbhini is explained as the Garbhini Pandu and it is explained under Garbhopdrava. Pandu disease occurs due vitiation of Rasa and Rakta dhatu mainly. According to Modern Science, Iron Deficiency Anemia is the most common condition with the high Prevalence rate in India. It is more common in women with low socioeconomic condition and poor dietary habits. Anemia can lands up into many Maternal and fetal complication during and after pregnancy. In the present clinical study, the drug Dhatriphala Bhavita Gairika Vati is selected for the clinical trials.

KEYWORDS: Garbhini Pandu, Anaemia, Dhatriphala, Gairika, Navayas Lauha.

INTRODUCTION

Garbhini pandu is a disease described in Ayurvedic Classical text and it resemblance with anaemia according to the modern science. It develops due to depletion of Rasa dhatu and which in turn becomes ineffective to produce healthy Rakta dhatu. Rasa dhatu increases quantitatively in pregnancy for nourishment of Garbhini, Garbha and Stana. Normal physiological dilution of rasa dhatu due to dhatvagni mandya leads to pandu in Garbhini, generally termed as Garbhini Pandu.

In Ayurveda, direct reference regarding Garbhini Pandu is not available but according to Harita Samhita, there are eight Garbhopadravas.[1] While Charaka mentioned Garbhini Bal-Varna hani during 6th month of Pregnancy[2] and Kashyapa has described Atisita Sati (Paleness during pregnancy) which if not treated may lead to fetal death.[3]4 This can be considered as reference for Garbhini Pandu. Thus Garbhini Pandu can be correlated with anaemia in pregnancy. Pregnancy is a state in which all the physiological functions are hyper stimulated in order to meet the demands of the growing foetus, hence woman should take nourishing diet.

Anaemia is commonest haematological disorder that may occur in pregnancy. According to National Family Health Survey (NFHS), the prevalence of Anaemia in pregnancy is 52.2%[4] Some physiological changes occur during the period of pregnancy. Physiological anaemia is one among them. Haemoglobin level below 10 gm/dl at any time during pregnancy is consider as Anaemia (WHO-1993, CDC 1990).[5] There is marked demand of extra iron and vitamins during pregnancy in specially in later half due to rapid expansion of blood volume and poor nutrition which lead to state of anaemia. If this anaemic condition is not treated will lead to pregnancy complications like Preterm labour, Intercurrent infection, Shock Uterine inertia, PPH. There are increased chances of puerperal sepsis and poor lactation. Maternal anaemia associated with IUGR and Low Birth Weight.

India contributes to about 80% of the maternal deaths due to anaemia in South Asia. Panduroga chikitsa includes both shodhana and shamana. Garbhini Should be treated like a pot filled with oil, slightest oscillation of such pot Causes spilling of oil.[6] In shaman chikitsa, various single and compound Preparations are told in ayurveda classics which include herbal, mineral and Herbo-mineral formulations.

- **Samprapti of garbhini pandu**

- As pregnancy progresses, foetal needs increase due to its developmental necessities. Due to increased demand of garbha, Rasa dhatu of garbhini has to work extra
- To fulfill this demands, Garbhini needs healthy diet but due to unavailability of this healthy food, dravata of rasa dhatu increases to fulfill this demand.
- Garbhaj kleda causes malavriddhi in Gabhini sharir. Drava guna and kleda causes agnimandya.

Garbhini sharir dhatuposhan gets disturbed. For compensation, garbhini hruday and dash dhamanya works under stress.

- Dravata of garbhini rasa dhatu gets increased.
- Pittadushti occurs due to increased dravata.
- Mandagni causes Amotpatti which leads to Kuposhana of Rasadi Dhatu(Dhatushaithilya) ultimately causes Bala varna sneha oja guna Kashaya
- Hridayashrit Pitta Udirana, Bhrajak, Ranjak Pitta not working properly which causes Discoloration of tvak, netra, nakha

AIM

To study the effect of Dhatriphalrasa Bhavita Gairika vati in the management of Garbhini Pandu.

OBJECTIVE

Primary objective

To study the efficacy of Dhatriphalrasa Bhavita Gairika Vati with help of assessment criteria and Hb level improvement in the management of Garbhini Pandu after three months oral therapy.

Secondary objectives

- To study the etiopathogenesis of Garbhini Pandu as per Ayurveda.
- To study the Iron Deficiency Anaemia as per modern science.
- To study literature related to Dhatriphalrasa Bhavita Gairika vati.

MATERIALS AND METHODS

- Location of study: Patient were examined and selected having classical signs and symptoms of OPD striroga and prasutitantra department of ayurvedic hospital.
- Study population: Women fulfilling inclusion criteria of Garbhini Pandu between age group of 18 to 35 yrs.
- Sample size: 96 Patients of Garbhini Pandu are randomly selected taken up into two equal

- Groups

Group A (Trail group)	Group B (Control group)
48 patients	48 patients
Dhatriphalarasa bhavita Gairika Vati	Navayas loha

- **Method of selection of patients**

A) Inclusion criteria

1. Pregnant women between 13 weeks to 24 weeks having signs and symptoms of pandu roga.
2. The patients having Hb% ranging between 8 gm% to 10 gm% only.
3. Pregnant women of age 18 to 35 yrs.
4. Primi and multigravida.

B) Exclusion criteria

1. The patients with haemoglobinopathies such as sickle cell anaemia, thalassemia, haemolytic anaemia etc.
2. The patients having iron deficiency due to other systemic disorders and surgical methods like gastrectomy, gastrojejunostomy, sprue syndrome etc.
3. The patients having high risk pregnancy.

C) Withdrawal criteria

1. Patients not completing the course of medicine.
2. Patients having any complication of medicines.
3. Any newly diagnosed disease in between trial period.

Treatment details

	Group A	**Group B**
No of patients	48	48
Drug	Dhatriphalrasa Bhavita Gairika vati[7]	Navayasa Lauh vati[8]
Dose	250 mg one tab thrice a day	250 mg one tab thrice a day
Route administration	Oral with water	oral with water
Sevan Kala	After meal	After Meal
Duration of Treatment	90 days	90 days

- **Assessment criteria**

➢ Subjective criteria

A) Daurbalya (Balahani-weakness)

No feeling of weakness during daily activities	0
Sometimes feeling weakness but performs daily activities	1
Often feeling of weakness hamper to perform daily activities	2
Always feeling of weakness unable to perform daily activities	3

B) *Hridspandan* (Palpitation)

No palpitation	0
Palpitation on heavy exertion	1
Palpitation on moderate exertion	2
Palpitation on mild exertion	3

***C) Panduta* (Pallor)**

Absent	0
Pallor of conjunctiva and mucus membrane	1
Above plus skin	2
Above plus palmer creases	3

***D) Akshikutashotha* (Periorbital oedema)**

No oedema	0
Periorbita oedema occasional	1
Periorbital oedema in morning hours	2
Periorbita oedema present throughout day	3

***E) Aruchi* (Anorexia)**

Normal urge to have a food	0
Dislike to have a food	1
Dislikes and does not take food or takes a little bit of food	2
Persistent (Throughout day)	3

- **Investigations**

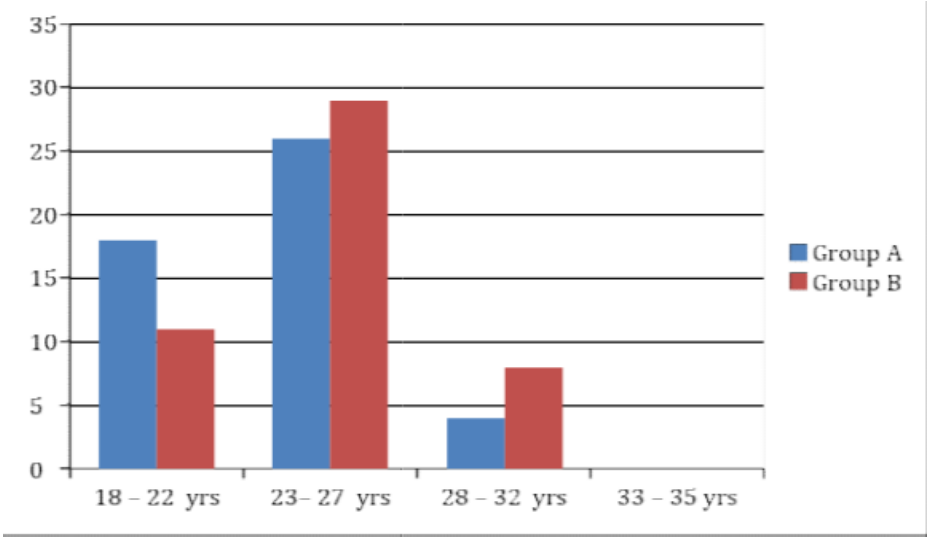
Hb gm %, CBC, Urine analysis-routine, microscopic, Peripheral blood smear.

- **Overall assessment criteria**

% of relief	**Score**
Above 75% relief	Good improvement
50 to 75% relief	Moderate improvement
25 to 50 % relief	Mild improvement
Less than 25% relief	No improvement

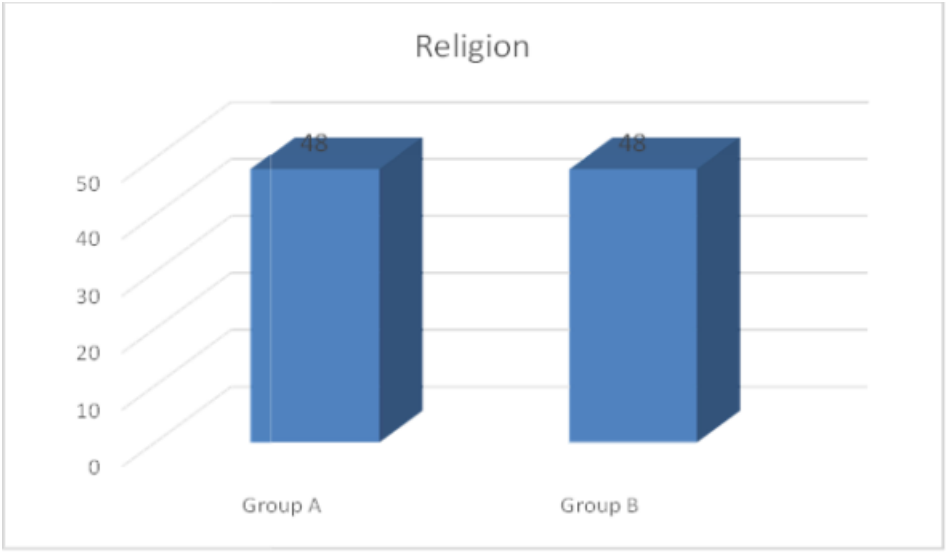
- **OBSERVATIONS AND RESULT**

1) Age wise distribution



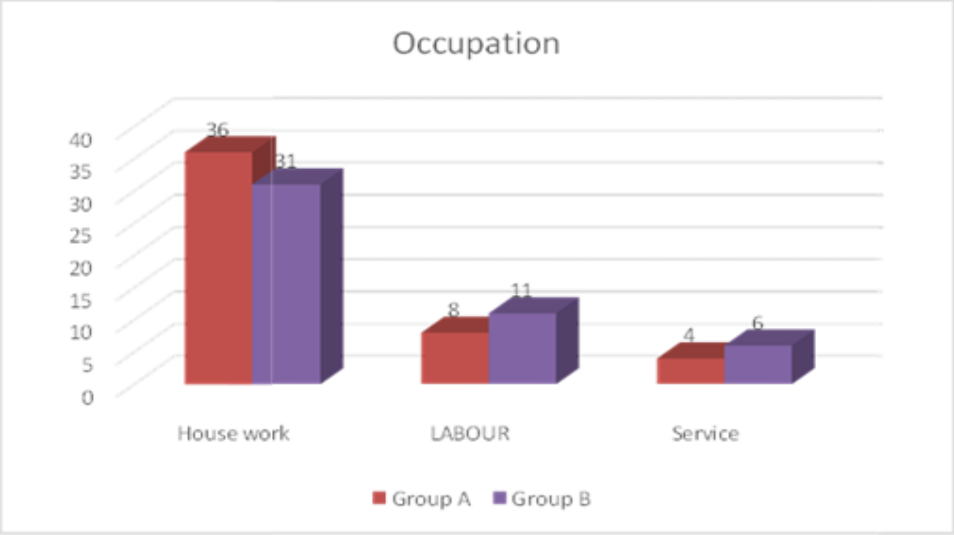
Age (yrs)	No. of Patients			Percentage (%)		
	Group A	Group B	Total	Group A	Group B	Total
18 - 22	18	11	29	37.50	22.92	30.21
23 - 27	26	29	55	54.17	60.41	57.29
28 - 32	04	08	12	08.33	16.67	12.50
33 - 35	00	00	00	00	00	00
TOTAL	48	48	96	100.00%	100.00%	100.00%

2) Religion wise distribution



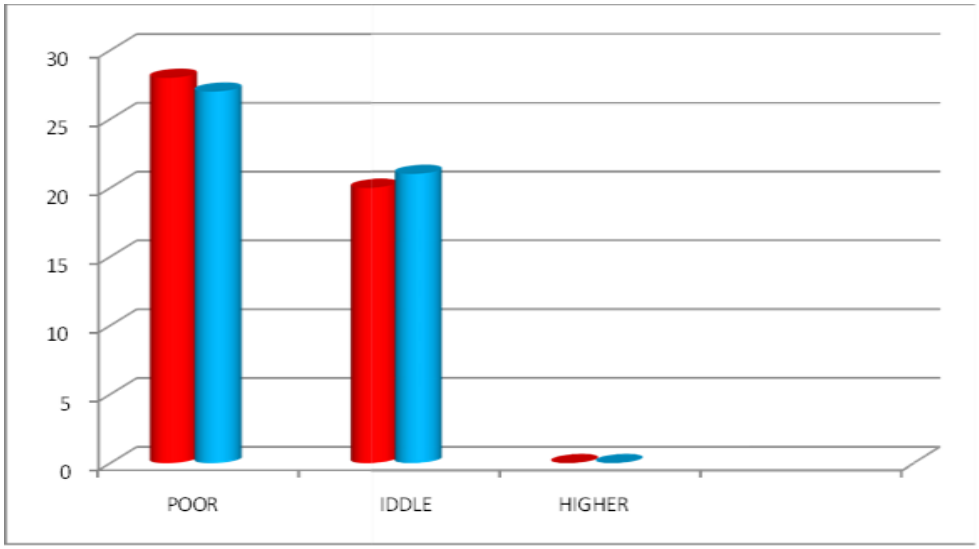
Religio n	No of Patients			Percentage (%)		
	Group A	Group B	Total	Group A	Group B	Total
Hindu	48	48	96	100%	100%	100%
Total	48	48	96	100%	100%	100%

3) Occupation wise distribution



Occup ation	No of Patients			Percentage (%)		
	Group A	Group B	Total	Group A	Group B	Total
House work	36	31	67	75.00%	64.58%	69.79%
Labou R	8	11	19	16.67%	22.92%	19.79%
Service	4	6	10	8.33%	12.50%	10.42%
Total	48	48	96	100.00%	100.00%	100.00%

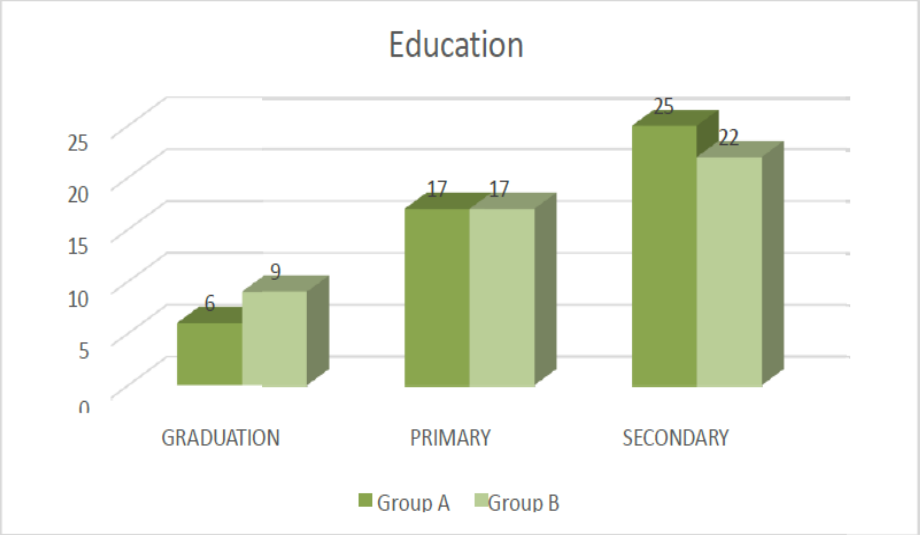
4) Economical wise distribution



Socio Economic Status	No of Patients			Percentage (%)		
	Group A	Group B	Total	Group A	Group B	total
Lower	28	27	53	58.33%	56.25%	57.29%
Middle	20	21	41	41.67%	43.75%	42.71%
Higher	00	00	00	0.0%G	0.00% ROUP A	0.0%
Total	48	48	96	100.00 % G	100.00ROUP% B	100.00%

Column1

5) Education wise distribution

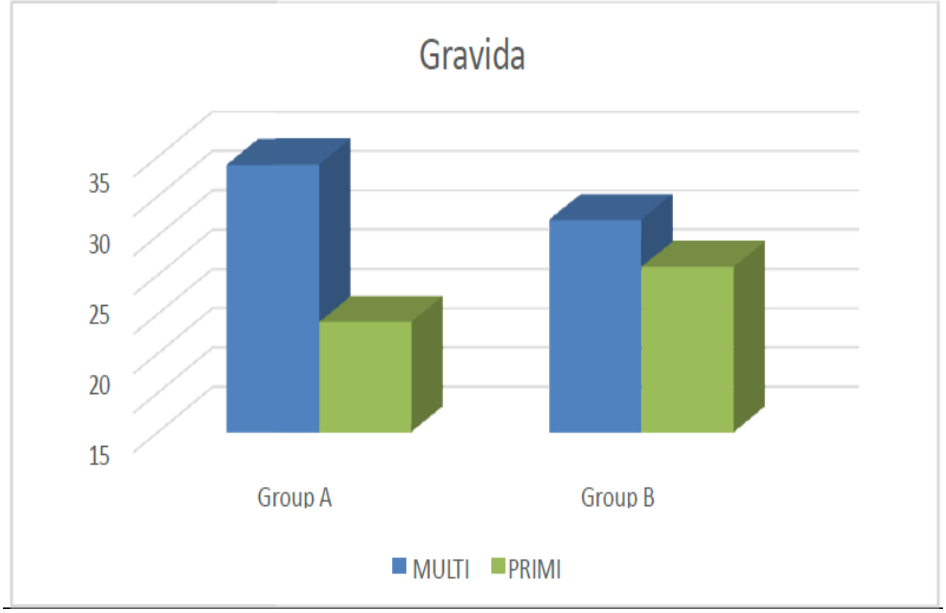


Education	No of Patients			Percentage (%)		
	Group A	Group B	Total	Group A	Group B	Total
Graduation	6	9	15	12.50%	18.75%	15.63%
Primary	17	17	34	35.42%	35.42%	35.42%
Secondary	25	22	47	52.08%	45.83%	48.96%
Total	48	48	96	100.00%	100.00%	100.00%

6) Diet wise distribution

Diet	No of Patients			Percentage (%)		
	Group A	Group B	Total	Group A	Group B	Total
Mixed	23	20	43	47.92%	41.67%	44.79%
Veg.	25	28	53	52.08%	58.33%	55.21%
Total	48	48	96	100.00%	100.00%	100.00%

7) Prakruti wise distribution



Sharir prakruti	No of Patients			Percentage (%)		
	Group A	Group B	Total	Group A	Group B	Total
KP	2	1	3	4.17%	2.08%	3.13%
KV	1	3	4	2.08%	6.25%	4.17%
PK	13	10	23	27.08%	20.83%	23.96%
PV	4	2	6	8.33%	4.17%	6.25%
VK	12	12	24	25.00%	25.00%	25.00%
VP	16	20	36	33.33%	41.67%	37.50%
TOTAL	48	48	96	100.00%	100.00%	100.00%

➢ **Statistical Analysis subjective parameters (By Wilcoxon Singed Rank Test)**

1) Daurbalya (Balahani-weakness)

Group	BT/AT	Mean	SD	Median	W-Wilcoxon test statistics	P-value
1)	AT	0.56	0.501	1		
Group B	BT	2.65	0.483	3	6.127	< 0.001
	AT	0.67	0.63	1		

2) Hridspandan (Palpitation)

Group	BT/AT	Mean	SD	Median	-Wilcoxon test Statistics	P-value
Group A	BT	2.77	0.425	3	6.068	< 0.001
	AT	0.73	0.644	1		
Group B	BT	2.75	0.438	3	6.138	< 0.001
	AT	0.56	0.616	0.5		

3. Panduta (Pallor)

Group	BT/AT	Mean	SD	Median	W- Wilcoxon test statistics	P-value
Group A	BT	2.83	0.377	3	6.182	< 0.001
	AT	0.77	0.692	1		
Group B	BT	2.69	0.468	3	6.206	< 0.001
	AT	0.9	0.472	1		

4. Akshikutashotha (Periorbital oedema)

Group	BT/AT	Mean	SD	Median	W- Wilcoxon test statistics	P-value
Group A	BT	1.52	0.583	1	5.932	< 0.001
	AT	0.44	0.501	0		
	BT	1.56	0.681	1		
Group B	AT	0.27	0.494	0	6.098	< 0.001

5. Aruchi

Group	BT/AT	Mean	SD	Median	W- Wilcoxon test statistics	P-value
Group A	BT	2.54	0.504	3	6.066	< 0.001
	AT	0.42	0.577	0		
SGroup B	BT	2.33	0.476	2	6.159	< 0.001
	AT	0.63	0.57	1		

➢ **Statistical Analysis in between the Group A and Group B**

- **Subjective Parameters (BY Mann Whitney's U Test)**

Symptom	Group	N	Mean Rank	Sum of Ranks	Mann-Whitney U Statistics	P-Value	Significance
Daurbalya	A	48	50.33	2416	1064	0.5172	Not Significant
	B	48	46.67	2240			
Hrid spandan	A	48	46.25	2220	1044	0.4265	Not Significant
	B	48	50.75	2436			
Panduta	A	48	53.59	2572.5	907.5	0.0697	Not Significant
	B	48	43.41	2083.5			
kshikuta shotha	A	48	44.75	2148	972	0.1799	Not Significant
	B	48	52.25	2508			
	A	48	53.65	2575			Not
Aruchi	B	48	41.27	1981	805	0.105	Significant

➢ **Statistical Analysis in between the Group A and Group B**

Objective parameter

1) Hb gm %

Paired t test within the Group A and Group B

Group	BT/AT	N	Mean	SD	t-statistics	P- value
Group A	BT	48	8.62	0.50	23.92	< 0.001
	AT	48	11.04	0.52		
Group B	BT	48	8.78	0.49	23.85	< 0.001
	AT	48	10.63	0.52		

Unpaired t Test in between the Group A and Group B

Group	N	Mean	SD	t-statistics	P- value
Group A	48	2.425	0.702	4.29	< 0.001
Group B	48	1.850	0.608		

Overall effect of therapy

Total Effect of therapy in 48 pts Trial Group A

Sr. No.	Improvement	No of Patients	Percentage
1.	Good Improvement (75% - 100%)	29	60.42 %
2.	Moderate Improvement (50% - 75%)	16	33.33 %
3.	Mild Improvement (25% - 50%)	03	6.25 %
4.	Unchanged (No Improvement) (0% - 25%)	00	0.00 %
Total		48	100%

Total Effect of therapy in 48 pts Control Group B

Sr. No.	Improvement	No of Patients	Percentage
1.	Good Improvement (75% - 100%)	28	58.33 %
2.	Moderate Improvement (50% - 75%)	18	37.56 %
3.	ld Improvement (25% - 50%)	02	4.17 %
4.	Unchanged(No Improvement) (0% - 25%)	00	0.00 %
Total		48	100%

DISCUSSION

Garbhini Pandu is commonly occuring garbhopdrava in developing countries like India & it causes disturbance of woman's health as well as baby's health. Garbhini Pandu can be correlates Anaemia during pregnancy according to modern science.

As Garbhini Pandu is common and serious condition during pregnancy it is selected for the clinical study and for that Dhatriphala Bhavit Gairik Vati is selected as trial drug which contains Dhatriphala and Suvarna Gairika as ingredients. Dhatriphala is Amla rasa pradhan Dravya and it is Swayonivardhan dravya of Rakta dhatu which increases quality and quantity of Rakta dhatu. Dhatriphala is also poses tridoshahara and Rasayana properties. Dhatriphala contains 1.2mg/100gms of iron and 252 mg /100gms of Vit C. Mandagni is main of cause of Prandu and dhatriphala poses deepan and pachana guna which helps in reduces causative factor of disease. Pitta is the vitiated dosha in Pandu and Suvarna Gairika has pittashamak properties. Suvarna Gairik also contains more than 16% of Iron.

Study shows that 55 no of patients were in 23-27 years, 29 patients were in 18-22 years and 12 patients were in 28-32 years and Pandu in pregnancy can met in any fertile age. Due to regional dominance maximum number of patients were Hindu. Majority of Hindus are vegetarians and Vegetarian diet contains non haem iron so vegetarians are more prone for iron deficiency anaemia. According to occupation, 67 patients were Housewives, 19 were labour 10 were doing Service. Housewives are more careless about their health, so anaemia is found more in housewives. According to Economical status, 53 patients were in lower economy and 41 were middle Class. Patients with lower economical status group cannot afford proper nutritious diet so they are more prone to anaemia. On the basis of education, 84 were Primarily educated, 47 were secondarily educated and 15 were graduated, due to lack of knowledge about hygiene and nutritious diet primarily educated to are more prone to anaemia. On the basis of Prakriti, it is found that 36 patients there of Vata-pitta Prakriti, 24 were of Vata-kapha prakriti and 23 were having Pitta-Kapha prakriti and the natural tendency of body towards pitta & kapha prakop results in Pandu. According to gravida, 61 patients were Primi gravida, 35 patients were multigravida, and Repeated pregnancies & excess blood loss during deliveries predisposes anaemia.

On score scale, 79% relieved was seen in Group A and 75% relieved seen in Group B in symptom Dourbalya, so Group A (Dhatriphalaraasa Bhavita Gairika Vati) is more effective than Group B (Navayasa Lauha Vati) in Dourbalya. There were 74% relieved in Group A and 80% relieved in Group B in the Hridspandan lakshan, so Group B is more effective than Group A in the management of Hridspandan. There were 73% relieved in Group A & 67% in Group B in Panduta (Pallor), so Group A is more effective in management of Panduta (Pallor) than Group B. In the management of Akshikutashotha, it ias obeserved that 71% relieved

seen in Group A & 83% relieved seen in Group B, so is observed that Group B is more effective than the Group A in Akshikutaashotha. In the management of Aruchi, 84% relieved seen in Group A and 73% relieved seen in Group B, so it is observed that Group A is more effective in the management of Aruchi than Group B. Hb% was increased from 8.62 to 11.04 in Group A and 8.78 to 10.63 in Group B. So it is observed that Group A is more effective than Group B in improvement of Hbgm %. Statistical Analysis within Group A and Group B by applying Wilcoxon Signed Rank test, it is observed that both Group A and Group B has significant results in all Subjective parameters of Pandu and Statistical Analysis within Group A & Group B by applying Paired t test to objective Criteria i.e Hbgm%, it is observed that both Groups has significant result as P value is <0.00. For Statistical Analysis between Group A and Group B, Mann Whitney U test is applied & It is observed than Group B more effective than Group A for symptoms Haldipandan and Akshikutashotha and Group A is more effective than Group B in symptoms of Daurbalya, Panduta and Anuchi. It is observed that 76% patients relieved in Group A and 74% in Group B. So Dhatriphalarasa Bhavita Gairika vati is slightly more significant than Navayasa Lauha Vati.

- Probable Mode of Action of Dhatriphalarasa Bhavita Gairika vati:

- Dhatriphala has tridoshahara and rasayan propertieswhich help in garbhaposhan as well as Rakyaposhan
- Dhatriphala is also poses Deepan and pachan activities, which causes Aampachan and Strotovishuddhi which is responsible for Dhatuposhan and Proper metabolism and help in correction of the disease.
- Suvarna Gairik has Shonitsthapan, Pittashamak and Anulomak activities which removes Dhatudushti created by vitiated Pitta
- According to modern Science, Dhatriphala contains Fe – 1.25mg/100g and Vit. C – 252mg/ 100gm, Vit.C Converts ferric iron to ferrus iron and prevents formation of insoluble and unabsobable iron compounds
- Suvarna Gairika (Fe2O3) is iron compound Contains Fe > 16%
- Iron present in gairika is in ferric form and Vitamin C (Ascorbic acid) present in dhatriphal is the most potent enhancer of iron absorption by its reduction to ferrous form which is absorbable form of iron in the body.
- In this way Dhatriphala Bhavita Gairik Vati helps in improving Garbhini Pandu

CONCLUSION

The present clinical study concluded that Dhatriphalarasa Bhavita gairika Vati is more

effective, well tolerated, less expensive and clinically safe formulation in the management of Garbhini Pandu.

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