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Clinical efficacy of *Punarnava Mandura* and *Dhatri Lauha* in the management of *Garbhini Pandu* (anemia in pregnancy)

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Abstract

Introduction: India is one of the countries with high prevalence of anemia during pregnancy. Anemia in pregnancy is multifactorial. Iron deficiency anemia is the most common conditions in a pregnant woman. As per ayurvedic classics, this condition occurs due to improper *Rasa Dhatu* in mother and continuously increasing fetal demands and is considered as *Rasa Pradoshajavikara*. A large number of *Lauha* preparations have been used widely for centuries to cure Anemia. **Aim:** To evaluate efficacy of *Punarnava Mandura* and *Dhatri Lauha* on *Garbhini Pandu*. **Materials and Methods:** A total 24 pregnant women with symptoms of *Garbhini Pandu* were randomly divided into two groups (A and B). In Group A (*n* = 15) *Punarnava Mandura*, two tablets (each of 500 mg) thrice a day with one cup (100 ml) of buttermilk and in Group B (*n* = 9) *Dhatri Lauha*, two tablets (each of 500 mg) thrice a day with luke warm water were administered for 90 days. The assessment was done with subjective parameters such as pallor, general weakness, dyspnea, etc., and objective parameters such as hematological parameters. Results were statistically analyzed using Student's *t*-test. **Results:** The results revealed that overall clinical improvement was better in Group A when compared to Group B. Hemoglobin was increased in patients of Group A, which was statistically significant. No adverse drug reaction was observed during the treatment period. **Conclusion:** *Punarnava Mandura* is more effective on *Garbhini Pandu* in comparison to *Dhatri Lauha*.

Key words: Anemia, *Dhatri Lauha*, *Garbhini Pandu*, *Punarnava Mandura*

Introduction

Anemia is the most common nutritional deficiency disorder in the world. WHO has estimated that prevalence of anemia in pregnant women is 14% in developed and 51% in developing countries and among them, 65–75% are in India.[1] The prevalence of anemia in all the age groups is higher in India as compared to other developing countries.[1] India contributes to about 80% of the maternal deaths due to anemia in South Asia.[2] The high prevalence of anemia in pregnancy and serious adverse consequences in both mother and baby, the management of anemia in pregnancy was accorded a very high priority both in obstetric and public health practice.

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There are no direct references of *Garbhini Pandu* (anemia in pregnancy) in Ayurveda, except *Acharya Kashyapa* has described *Pandu* as a symptom of *Garbhini* in the description of *Rakta Gulma*,[3] *Acharya Harita* has also described *Vivarnatva* as one of the eight complications of *Garbha*.[4]

Empirical use of different preparations of iron in the treatment of anemia from ancient times is evident. *Lauha Bhasma* and *Mandura Bhasma* are effective in *Pandu Roga*. On the basis of *Pandughna* (antianemic), *Prinana* (nourishing), *Raktaprasadana* (blood toner) properties and previous reports

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in *Garbhini Pandu*,[5] *Dhatri Lauha* was selected in this study. *Punarnava Mandura* is successfully used by Ayurvedic physicians for the management of all types of *Pandu*. Government of India has included it in ASHA drug kit for National Reproductive Health Care Programme.[6] In the previous study carried out on *Pandu* (iron deficiency anemia [IDA]), *Punarnava Mandura* and *Dhatri Lauha*,[7] both were given in dose of 500 mg thrice in a day, satisfactory results were not achieved. The reason noticed for this was low dose of drug. Thus, for the present study, the dose of both the drugs was increased and planned to evaluate the clinical efficacy of both the drugs with increased dose (3 g/day) on *Garbhini Pandu*.

Materials and Methods

Patients of *Garbhini Pandu* (n = 24) were selected from the outpatient department of *Stree Roga* and *Prasooti Tantra* of Institute for Post Graduate Teaching and Research in Ayurveda (IPGT and RA) Hospital, Jamnagar. Those patients fulfilling the criteria for selection were included into the study irrespective of caste, religion, etc. The study was started after getting approval by the Institutional Ethics Committee (No. PGT/7/-A/Ethics/2013-2014/1767; Date. 10/09/2013). Informed written consent was obtained from each patient before starting the treatment.

Inclusion criteria

- Pregnant women, belonging to the age group of 18 to 40 years having clinical signs and symptoms of *Garbhini Pandu*, i.e., *Panduta* (pallor), *Bhrama* (giddiness), *Daurbalya* (general weakness), *Shwasa* (dyspnea)
- Patients of second or third trimester of pregnancy with 6 g% to 10 g% of hemoglobin
- Microcytic hypochromic appearance of red blood cells in peripheral smear.

Exclusion criteria of patient

- First trimester of pregnancy
- Patients suffering from pregnancy-related complications such as pregnancy-induced hypertension, hyper emesis gravidarum, pre eclampsia, etc.
- Patients with high-risk pregnancy
- Patients having Hb% count <6 g% and more than 10 g%.

Investigations

Hematological

Hemoglobin (Hb)%, total red blood corpuscles (TRBC), total leukocytes count (TLC), differential leukocytes count (DLC), platelet count, erythrocyte sedimentation rate (ESR), packed cell volume (PCV), mean cell volume (MCV), Mean corpuscular hemoglobin (MCH), Mean corpuscular hemoglobin concentration (MCHC), and peripheral blood picture.

Specific tests for assessing iron status

Serum ferritin, serum iron, total iron binding capacity (TIBC), and transferrin saturation percentage were carried out in all the patients before and after treatment. All the investigations were carried out before and after the treatment.

Grouping and posology

The selected patients were randomly divided by simple random sampling method into two groups, A and B.

- Group A (n = 15): In this group, two tablets of *Punarnava Mandura* (500 mg each) thrice a day; before breakfast, lunch, and dinner with one cup of buttermilk were administered for 90 days
- Group B (n = 9): In this group, two tablets of *Dhatri Lauha* (500 mg each) thrice a day; before breakfast, lunch, and dinner with one cup of lukewarm water were administered for 90 days.

All the ingredients of formulations were procured from the Pharmacy of Gujarat Ayurved University and authenticated in the Pharmacognosy Laboratory of IPGT and RA, Jamnagar. *Gomutra* was collected from local areas. The trial drugs *Punarnava Mandura* and *Dhatri Lauha* were prepared in Pharmacy of Gujarat Ayurved University by following classical guidelines.

Assessment criteria

The effects of treatment after giving medications were assessed with regards to subjective and objective criteria before and after the treatment.

Subjective parameters

Assessment criteria	Score
Panduta (pallor)	
No pallor	0
Pallor of conjunctiva	1
Pallor of conjunctiva, nails, tongue	2
Pallor of conjunctiva, nails, tongue, skin	3
Pallor of conjunctiva, nails, tongue, skin, palms, and soles	4
Daurbalya (general weakness)	
No feeling of weakness during daily activities	0
Sometimes feels weakness, but performs daily activities	1
Often feels weakness hampering daily activities	2
Always feels weak, unable to perform daily activities	3
Always feeling of weakness	4
Shrama (fatigue)	
No fatigue except on hard work	0
Fatigue after moderate work for a certain time	1
Shrama after light work for a certain time	2
Shrama after routine activities for a certain time	3
Shwasa (dyspnea)	
No dyspnea	0
Dyspnea after heavy work, relieved soon, tolerable	1
Dyspnea after moderate work, relieved soon, tolerable	2
Dyspnea after light work, relieved later, tolerable	3
Dyspnea after light work, relieved later, intolerable	4
Hridspandana (palpitations)	
No palpitation	0
Palpitation on heavy exertion	1
Palpitation on moderate exertion	2
Palpitation on mild exertion	3

Contd...

Contd...

Assessment criteria	Score
Aruchi (anorexia)	
Normal instinct to have food	0
Dislike to have food	1
Dislike to have food even though hungry	2
Person dislikes and does not take food or takes a little bit	3
Persistent (throughout the day)	4
Akshikuta Shotha (periorbital edema)	
No edema	0
Edema occasional	1
Periorbital edema only in the morning hours	2
Periorbital edema present throughout the day	3
Pindikodveshthana (leg cramps)	
No leg cramps	0
Mild leg cramps only at night	1
Leg cramps present in the night or on exertion	2
Leg cramps present in the night or on exertion needs medication	3
Leg cramps present throughout the day	4
Bhrama (giddiness)	
No giddiness	0
Occasionally present (1/2 week)	1
Frequently present (1/2 day)	2
Persistent (throughout the day)	3

Objective parameters

- Hematological parameters: Hb%, TRBC, PCV, MCV, MCH, MCHC
- Specific markers of IDA: Serum ferritin, serum iron, serum TIBC, transferrin saturation %.

Assessment for overall effect of therapy

- Complete remission: 100% relief in the signs and symptoms
- Marked improvement: Above 76%
- Moderate improvement: 51–75% relief in the signs and symptoms
- Mild improvement: 26–50% relief in the signs and symptoms
- Unchanged: Up to 25% relief.

Statistical analysis

Data were presented in terms of mean, standard deviation, standard error, and student *t*-test was considered at the level of $P < 0.001$ as highly significant, $P < 0.05$ or $P < 0.01$ as significant and $P > 0.05$ as insignificant.

Observations

In the present study, maximum number of patients, i.e., 51.85% belonged to age group of 23–27 years, 88.89% of patients were Hindu, 59.26% patients had primary education, 85.18% were housewives, 66.67% patients from lower middle class, 67.57% patients belonged to urban area, 62.96% patients were from joint family, and 48.14% were having 17–20 weeks of gestation. Maximum number of patients, i.e. 55.55% were of *Vata-Pitta Prakriti*.

Among the etiological factors, it was found that majority of the patients were vegetarians (59.26%) and having the habit of *Vishamashana* (62.96%). Most of the patients were taking excessive *Lavana* (92.59%), *Amla Rasa* (92.59%), *Katu Rasa* (81.48%), and *Guru Guna* dominant (66.67%) diet. *Mandagni* was found in 88.89% patients. Addiction of tea was found in 88.89% patients. *In Viharaja Nidana*, *Diwaswapna* was found in 100% of patients and habit of suppression of urination was found in 70.37% of patients. Majority of patients were suffering from *Chinta* (100%) and *Bhaya* (92.59%). Around 66.67% of patients have a normal menstrual history, 66.67% of patients were multigravida, while 59.26% were parous.

Out of 24 pregnant women screened for the present study, all patients (100%) were having pallor and complaint of general weakness, fatigue, and anorexia. 77.78% had dyspnea on exertion, 74.07% had palpitation, 62.96% had leg cramps, 66.67% had giddiness, and 40.74% had periorbital edema.

Results

Effect of therapy on subjective parameters

Group A provided highly significant ($P < 0.001$) result in *Panduta*, *Daurbalya*, *Shrama*, *Shwasa*, *Hridspandana*, *Aruchi*, *Pindikodweshtana*, and *Bhrama* whereas relief in *Akshikuta Shotha* was statistically significant ($P < 0.05$) [Table 1].

In Group B, statistically highly significant ($P < 0.001$) improvement was found on *Shrama*, *Aruchi*, and *Bhrama* while statistically significant ($P < 0.05$) improvement in *Panduta*, *Daurbalya*, *Shwasa*, *Hridspandana*, and *Pindikodweshtana* [Table 2].

Effect of therapy on objective parameters

Group A provided improvement on all objective parameters of *Garbhini Pandu*. Increase in serum iron was highly significant ($P < 0.001$), whereas increase in Hb%, PCV, serum ferritin, and transferrin saturation was statistically significant ($P < 0.05$). Serum TIBC was decreased, but was statistically insignificant [Table 3].

Group B provided statistically insignificant improvement on hematological parameters but serum iron and transferrin saturation were statistically improved ($P < 0.05$), whereas increase in serum ferritin and reduction in serum TIBC were statistically insignificant [Table 4].

Comparative effect of therapies

On subjective parameters

On comparing Group A and B statistically significant ($P < 0.05$) difference was found on *Aruchi* and *Pindikodweshtana*. It shows that on relieving *Aruchi* and *Pindikodweshtana*, Group A is better than Group B and on the rest of other symptoms, both groups are equally effective [Table 5].

On objective parameters

On comparing Group A and B, statistically significant ($P < 0.05$) difference was noted in Hb%, MCV, MCH, and MCHC. It shows that Group A is better than Group B in relieving above parameters [Table 6].

Overall effect of therapy

None of the patients showed complete remission or marked improvement in any of the groups. In Group A, 46.67% patients had moderate improvement while 44.44% patients had moderate improvement in Group B. Mild improvement was found in 40% patients in Group A while 33.33% patients in

Group B. In Group A, 13.33% patients and 22.22% patients in Group B showed no improvement [Figure 1].

Discussion

Garbhini Pandu (anemia in pregnancy) is not a *Vyadhi*; it is described as a complication of *Garbha*. In pregnant woman, *Rasa Nadi* is compressed by the growing fetus, due to which *Rasa* does not flow freely in to the body resulting in *Pandu*. After 3 months of pregnancy, due to *Dauhridavastha*, if *Garbhini* is taking excessive *Amla* (sour) *Lavana* (salty) and *Katu* (pungent) *Rasa* (taste) or indulging in *Vishamashana* (improper diet), *Diwaswapa* (day time sleep), *Vegavidharana*, etc., and/or suffers from *Manasika Bhava* (psychological factors) it may cause *Garbhini Pandu*.

Table 1: Effect on cardinal features of *Garbhini Pandu* in Group A

Cardinal features	*n*	Mean score		Percentage relief	SD	SE	*t*	*P*
		BT	AT					
Panduta (pallor)	15	1.80	0.467	74.07	0.724	0.187	7.135	<0.001
Daurbalya (general weakness)	15	1.67	0.40	76	0.458	0.118	10.717	<0.001
Shrama (fatigue)	15	1.40	0.33	76.19	0.458	0.118	9.025	<0.001
Shwasa (dyspnea)	13	1.231	0.308	75	0.641	0.178	5.196	<0.001
Hridspandana (palpitation)	11	1.273	0.273	78.57	0.447	0.135	7.4116	<0.001
Aruchi (anorexia)	15	1.733	0.33	80.77	0.507	0.131	10.693	<0.001
Akshikutashotha (periorbital edema)	6	1.00	0.167	83.33	0.408	0.167	5.00	<0.05
Pindikodweshtana (leg cramps)	9	1.778	0.44	75	0.50	0.167	8.00	<0.001
Bhrama (giddiness)	11	1.09	0.182	83.33	0.30	0.09	10.00	<0.001

SD: Standard deviation, SE: Standard error, BT: Before treatment, AT: After treatment

Table 2: Effect on cardinal features of *Garbhini Pandu* in Group B

Cardinal features	*n*	Mean score		Percentage relief	SD	SE	*t*	*P*
		BT	AT					
Panduta (pallor)	9	2.00	0.778	61.11	0.833	0.278	4.4	<0.05
Daurbalya (general weakness)	9	1.22	0.33	72.72	0.782	0.261	3.411	<0.05
Shrama (fatigue)	9	1.22	0.22	81.81	0.50	0.167	6.00	<0.001
Shwasa (dyspnea on exertion)	7	1.00	0.286	71.43	0.488	0.184	3.873	<0.05
Hridspandana (palpitation)	6	1.00	0.33	66.67	0.516	0.211	3.162	<0.05
Aruchi (anorexia)	9	1.00	0.22	77.78	0.441	0.147	5.292	<0.001
Akshikutashotha (periorbital edema)	4	1.00	0.25	75	0.50	0.25	3.00	>0.05
Pindikodweshtana (leg cramps)	6	1.00	0.33	66.67	0.516	0.211	3.162	<0.05
Bhrama (giddiness)	6	1.33	0.33	75	0.00	0.00	(+inf)	<0.001

SD: Standard deviation, SE: Standard error, BT: Before treatment, AT: After treatment

Table 3: Effect on laboratory parameters of *Garbhini Pandu* in Group A (*n*=15)

Laboratory parameters	Mean score		Percentage relief	SD	SE	*t*	*P*
	BT	AT					
Hb (g/dL)	8.84	9.5	6.88↑	1.05	0.27	2.40	<0.05
TRBC (10^6/μL)	3.82	3.98	4.05↑	0.43	0.11	1.45	>0.05
PCV (%)	27.60	29.49	6.4↑	2.63	0.68	2.7	<0.05
MCV (fl)	73.96	74.89	1.24↑	4.52	1.16	0.79	>0.05
MCH (pg)	23.79	24.11	1.29↑	1.91	0.49	0.63	>0.05
MCHC (g/dL)	32.00	32.01	0.02↑	0.95	0.24	0.03	>0.05
Serum iron (IU/L)	33.65	38.35	12.27↑	4.51	1.16	4.04	<0.001
Serum ferritin (IU/L)	6.71	8.22	18.39↑	2.09	0.54	2.8	<0.05
Serum TIBC (IU/L)	360.88	359.13	0.48↓	47.25	12.20	0.14	>0.05
Transferrin saturation (%)	9.69	10.99	11.85↑	2.27	0.59	2.21	<0.05

↓: Decrease, ↑: Increase SD: Standard deviation, SE: Standard error, BT: Before treatment, AT: After treatment, MCHC: Mean corpuscular hemoglobin concentration, MCH: Mean corpuscular hemoglobin, TRBC: Total red blood corpuscles, PCV: Packed cell volume, Hb: Hemoglobin, TIBC: Total iron binding capacity

In the present study, majority of patients (59.26%) were having vegetarian diet. Iron supplied from vegetarian diet is mainly nonheam iron and its bioavailability is only about 1–10%. Thus, vegetarians are more prone for IDA. Most of the patients were habituated for consumption of excessive *Lavana Rasa* (92.59%) and *Guru* (heavy) *Ahara* (66.67), which hampers the proper *Rasa Dhatu* formation and leads to *Ama* production. It is the foremost step in the development of *Pandu*. 88.89% were habituated to tea. Tannins in tea can cause iron absorption to drop by 60%.[7] All patients were suffering from *Chinta* and had habit of *Diwaswapa*. Chronicity of the *Chinta* weakens digestive power and that ultimately is responsible for vitiation of *Rasavaha Srotas* resulting in *Aruchi*, *Angamarda* etc., symptoms.[8] *Diwaswapa* has been known to vitiate all three *Doshas* as per *Sushruta*[9] and especially *Kapha* and *Pitta* as per *Acharya Charaka*[10] which then pin down the normal functioning of *Agni*. Majority of the patients 64.86% were multigravida, and 48.65% were parous. Repeated pregnancies and excessive blood loss during deliveries predispose for Anemia.[11]

Table 4: Effect on laboratory parameters of *Garbhini Pandu* in Group B (*n*=9)

Laboratory parameters	Mean score		Percentage relief	SD	SE	*t*	*P*
	BT	AT					
Hb (g/dL)	8.64	8.25	4.71↓	1.39	0.46	−0.83	>0.05
TRBC (10^6/μL)	3.76	3.94	4.39↑	0.52	0.17	0.99	>0.05
PCV (%)	27.09	26.61	1.79↓	3.89	1.29	−0.37	>0.05
MCV (fl)	72.35	67.63	6.98↓	4.03	1.34	−3.51	<0.05
MCH (pg)	23.14	20.94	10.50↓	1.57	0.52	−4.2	<0.05
MCHC (g/dL)	31.90	30.87	3.35↓	0.98	0.33	−3.15	<0.05
Serum iron (IU/L)	26.63	37.00	28.01↑	10.75	3.58	2.89	<0.05
Serum ferritin (IU/L)	4.14	5.79	28.36↑	2.39	0.8	2.05	>0.05
Serum TIBC (IU/L)	360.78	344.44	4.53↓	37.80	12.60	1.3	>0.05
Transferrin saturation (%)	7.6	10.80	29.73↑	2.67	0.89	3.61	<0.05

↓: Decrease, ↑ : Increase, SD: Standard deviation, SE: Standard error, BT: Before treatment, AT: After treatment, MCHC: Mean corpuscular hemoglobin concentration, MCH: Mean corpuscular hemoglobin, TRBC: Total red blood corpuscles, PCV: Packed cell volume, Hb: Hemoglobin, TIBC: Total iron binding capacity

Table 5: Comparative effect of Group A and Group B on chief complaints

Chief complaints	Percentage relief		Mean difference	*t*	*P*
	Group A	Group B			
Panduta (pallor)	74.07	61.11	0.11	0.34	>0.05
Daurbalya (general weakness)	76	72.72	0.38	1.50	>0.05
Shrama (fatigue)	76.19	81.81	0.67	0.33	>0.05
Shwasa (dyspnea)	75	71.43	0.21	0.75	>0.05
Hridspandana (palpitation)	78.57	66.67	0.33	1.39	>0.05
Aruchi (anorexia)	80.77	77.78	0.62	3.04	<0.05
Akshikuta Shotha (periorbital edema)	83.33	75	0.08	0.29	>0.05
Pindikodweshtana (leg cramps)	75	66.67	0.67	2.5	<0.05
Bhrama (giddiness)	83.33	75	0.09	0.73	>0.05

Table 6: Comparative effect of Group A and Group B on laboratory parameters

Parameters	Percentage of relief		Mean difference	*t*	*P*
	Group A	Group B			
Hb	6.88	4.71	1.04	2.08	<0.05
PCV	6.40	1.79	2.36	1.78	>0.05
TRBC	4.05	4.39	0.01	0.06	>0.05
MCV	1.24	6.98	5.65	3.08	<0.05
MCH	1.29	10.50	2.51	3.31	<0.05
MCHC	0.02	3.35	1.04	2.56	<0.05
Serum iron	12.27	28.01	5.66	1.81	>0.05
Serum ferritin	18.39	28.36	0.13	0.14	>0.05
Serum TIBC	0.48	4.74	14.59	0.78	>0.05
Transferrin saturation (%)	11.85	29.73	1.91	1.87	>0.05

TIBC: Total iron binding capacity, MCHC: Mean corpuscular hemoglobin concentration, MCH: Mean corpuscular hemoglobin, MCV: Mean cell volume, TRBC: Total red blood corpuscles, PCV: Packed cell volume, Hb: Hemoglobin

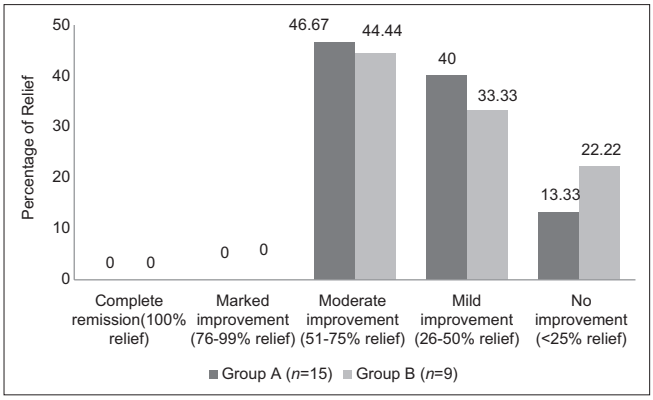

Figure 1: Overall effect of therapies

Punarnava Mandura provided a significant improvement on all subjective parameters of *Garbhini Pandu*, due to its *Pitta-Kapha Shamaka*, *Pandughna*, *Rasayana* (rejuvinative), *Deepana-Pachana* (digestive), *Raktavardhaka*, and *Anulomana* (laxative) properties which leads to the correction of metabolism, increase iron absorption, and improves blood formation. *Dhatri Lauha* provided relief on subjective parameters and serum iron, serum ferritin, serum TIBC, and transferrin saturation due to its *Pandughna*, *Prinana*, *Rakta Prasadana* properties as well as antioxidant, immunomodulator, hepatoprotective, and hematinic properties, which increase *Dhatu Poshana* as well as Iron absorption. There was decrease in hematological parameters, may be due to lack of *Ushna Veerya Dravyas* in *Dhatri Lauha*, hence it did not corrected the *Bhutagni* (enzymes responsible for metabolism).

Probable mode of action of *Punarnava Mandura* in *Garbhini Pandu*

Contents of *Punarnava Mandura* are *Kashaya* (astringent), *Laghu* (light), *Ruksha* (dry), *Shita* (cold), *Katu*, and *Pittakapha Shamaka*. *Punarnava* is *Anulomana*, *Mutrala* (diuretic) and has been proved as hepatoprotective and antioxidant.[12-15] *Mandura Bhasma* possesses significant hematinic and cytoprotective, hepatoprotective activity.[16,17] *Triphala*, an Ayurvedic *Rasayana*, is antianemic and anti-oxidant. It contains *Amalaki* (*Emblica officinalis* Gaertn.) that is *Rochana*, *Deepana*, and *Anulomana* having a role in the digestion, absorption, and motility of digestive materials in the gut. As it is *Hridya*, *Yakrututtejaka*, and *Shonita Sthapana*, it has a direct action on *Rasavaha* and *Raktavaha Srotas*. It has been considered as a potent *Rasayana* enhancing the essence of all the *Dhatus*. *Amalaki* is a rich source of iron and Vitamin C. *Trikatu* is a known bioavailability enhancer.[18] *Gomutra* (cow urine) is an important ingredient of the drug and proved for its antimicrobial, antioxidant,[19] and antianemic due to its erythropoietin stimulating factor.[20] *Anupana* of buttermilk is digestive due to the presence of probiotics,[21] *Pandughna*,[22] and rich source of minerals and Vitamin B_{12}.[23] The significant results obtained in the subjective parameters, as well as laboratory parameters, could be attributed to these properties.

Probable mode of action of *Dhatri Lauha* in *Garbhini Pandu*

Contents of *Dhatri Lauha* are *Kashaya*, *Ruksha*, *Sheeta*, and *Tridoshashamaka specially Kapha-Pitta Shamaka*. *Dhatri* is *Rasayana* and *Yakrututtejaka* and has been proved as antioxidant, immunomodulator, and hepatoprotective.[24] *Yashtimadhu* (*Glycyrrhiza glabra* L.) is *Rasayana* and active bio-availability enhancer.[25] *Amruta* (*Tinospora cordifolia* [Willd.] Miers.) is also *Rasayana* and hepatoprotective. All these drugs have action on *Rasavaha and Raktavaha Srotas* and enhance the essence of all the *Dhatus*. *Lauha Bhasma* possesses a significant hematinic and *Deepana-Pachana* property. *Amalaki*[26] and *Amruta*[27] is a rich source of Vitamin C which enhances the iron absorption.

Thus, cumulative effects of all the drugs lead to the correction of metabolism, increase iron absorption, improved blood formation, and improves the subjective and objective parameters of *Garbhini Pandu*.

No adverse effects were reported during the entire period of the study.

Conclusion

Punarnava Mandura provided better results against the symptoms of *Garbhini Pandu*. *Dhatri Lauha* showed better results on subjective parameters only. With increased dose, both drugs were able to break the disease pathogenesis. Hence, better results were found. *Punarnava Mandura* and *Dhatri Lauha* are effective and safe at increased dose on *Garbhini Pandu*, but *Punarnava Mandura* is comparatively better in *Garbhini Pandu*.

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Conflicts of interest

There are no conflicts of interest.

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हिन्दी सारांश

गर्भिणी पाण्डु (गर्भावस्था जन्य एनीमिया) में पुनर्नवा मण्डूर और धात्री लौह के प्रभाव का एक चिकित्सीय, अध्ययन

दीपिका खंडेलवाल, शिल्पा बी. दोंगा, लक्ष्मीप्रिया देई

मातृत्व प्रत्येक स्त्री का विशेषाधिकार या जन्मसिद्ध अधिकार है। गर्भावस्था प्रेरित एनीमिया हीमोग्लोबिन एकाग्रता में गिरावट शामिल है जिसमें बहुत ही सामान्य स्थिति है। आयुर्वेद में इस अवस्था को गर्भिणी पाण्डु के अधीन अध्ययन किया। गर्भ केवल पाण्डु रोग के लिए एक निदानार्थक रोग के रूप में संकेत दिया है। इस कारण शरीर की कुपोषण के लिए अग्रणी रस धातु के भ्रूण की मांग और अनुचित कार्य करने से गर्भावस्थाजन्य पाण्डु होता है। २४ रोगियों की कुल स्त्री रोग और प्रसूति तंत्र के बहिर मरीज विभाग की ओर से दर्ज किए गए थे। इन २४ रोगियों को दो समूहों में विभाजित किया गया। ग्रुप ए में १५ रोगियों को पुनर्नवा मण्डूर एक कप तक्र के साथ ५०० मि.ग्रा. की दो गोलियाँ दिन में तीन बार और ग्रुप बी में ०९ रोगियों को धात्री लौह हल्के गर्म पानी के साथ ५०० मि.ग्रा. की दो –दो गोलियाँ दिन में तीन बार दिया गया। परिणामों में पुनर्नवा मण्डूर गर्भावस्था में एनीमिया के इलाज में प्रभावी था ये निष्कर्ष निकाला गया।