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Research Article

A CLINICAL STUDY OF *DRAKSHA GRITHA* IN THE MANAGEMENT OF ANAEMIA IN PREGNANCY (*GARBHINI PANDU*)

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KEYWORDS: *Draksha gritha,* Anaemia, Pregnancy, *Garbhini pandu.*

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ABSTRACT

A woman requires more nutrition during pregnancy, which is a physiological condition. When compared to non-pregnant women, a pregnant woman needs 2-3 times the amount of iron than usual. *Pandu* means pallor of body which can be correlated with 'Anemia' of modern science. Many references in Ayurvedic classics denote that *Garbhini Pandu* is available.

Design: 30 patients of *Garbhini Pandu* were selected from OPD and IPD of Prasuti Tantra and Stree Roga department from Dr.BRKR GAMC, Hyderabad and were administered 15ml of *Drakshaghrita* twice daily (morning and evening) on empty stomach orally along with *Anupana* of *Sukoshnadugdha* consecutively for 90 days.

Results: Statistically highly significant results were seen in Pallor, *Glossitis, Bhrama, Hrudrava*, Hb% and edema of the lower extremity with p< 0.001.

Conclusions: The study showed that *Draksha Gritha* is effective in the management of *Garbhini Pandu.*

INTRODUCTION

Woman indeed is the source of human progeny. When protected, she protects the progeny. A woman undoubtedly is the ultimate source of human progeny. The continuity and health of the society as well as universe depends upon her. Hence prime importance has been laid upon her health care in Indian *Shaastras* due to her role in giving birth to *Shreyasipraja*, a progeny which is physically, mentally, socially as well as healthy. In Ayurveda great importance has been given to *Garbhini paricharya* including *Pathyaapathya* to protect the growing foetus and mother, to ensure optimum nourishment to both. Pregnancy is a demanding stage. The foetus is completely dependent on its mother for nutrition, which is necessary for its growth and development. As per Ayurvedic classics, this condition occurs due to improper *Rasa Dhatu* function in mother and continuous increasing fetal demands and is considered as a *Rasa Pradoshajavikara*[1] Acharya Charaka in *Sharirasthana* has explained about *Bala varna hani* of *Garbhini* in 6th month of pregnancy. This can be considered as reference for *Garbhini pandu*. *Shodhana* is the line of treatment in *Panduroga*.

Acharya Kashyapa has described *Pandu* as a symptom of *Garbhini* in the description of *Rakta* Gulma.[2] Acharya *Harita* has opined *Vivarnatva* as one of the eight complications of Garbha.[3] In the management, as *Shodhana* is contraindicated during pregnancy, appropriate *Shamana* treatment has to be adopted. "*Draksha Ghrita*" mentioned in Charaka Samhita, has been taken for study. *Draksha* has got *Vatapittashamaka, Rakthaprasadana, Garbhasthapaka, Jeevaniya, Balya* and *Brihmana*

properties. *Ghrita* has also *Vatapittahara* and *Varna prasadana* properties.

It also shows *Samskarasyanuvartanath* property. Hence *Ghritha* and *Draksha* both are suitable drugs for *Garbhinipandu* with specific reference to Anaemia in Pregnancy. With the above ideology and as there were no studies on *Drakshaghrita* administration in the *Garbhinipandu*, the present study was taken up to evaluate the same.

METHODOLOGY

Subjects: Thirty patients of *Garbhini Pandu* were selected and included in the study based on the eligibility criteria irrespective of diet, occupation & religion from O.P.D., I.P.D., of Prasuti Tantra and Stree Roga & cases referred by other departments of Dr B.R.K.R. Govt. Ayurvedic Medical College & Hospital, Hyderabad.

Patients in the age group of 18-32yrs, both primi and multigravida with Hb% ranging between 7 to 10gm% and women in 2nd and 3rd trimester of pregnancy were included for the study irrespective of religion. Patients with Hb% below 7gm% and with anemia due to other pathologies like bleeding piles, A.P.H, nephritis and all other *Raktha pradoshajavikaras* were excluded from the study. Patients with other obstetric complications like pre-eclampsia or eclampsia, gestational diabetes, systemic diseases such as diabetes, hypertension, thalesimia, sickle cell anemia, pernicious anemia, rheumatoid arthritis and other chronic diseases were also excluded.

Study Design: This was an open clinical trial and an observational study. Informed consent was taken from all the patients before including them in the trial with 30 patients selected randomly. A case proforma was designed to collect all the important data related to patients of *Garbhinipandu*, treatment adopted and other information. Standard scorings for the subjective as well as objective parameters were done before and after treatment. Ethical clearance was obtained from the institutional ethical committee.

Assessment Criteria

Subjective Parameters: Pallor, Glossitis, *Hrudrava /Hrudayaspandana, Bhrama*.

Objective Parameters: Hb%, Odema.

Diagnostic Criteria: Hb%, RBS, HIV I & II, HbsAg, VDRL, CUE, USG - Obstetrics.

Assessments were done before and after treatment.

Follow up: Was done one month after medication was given and patients were advised follow up for 3 consecutive cycles.

Gradation of Parameters

Table 1 Gradation of Subjective parameters

Subjective Parameters	
Grading of Pallor	
No pallor	0
Pallor of conjunctiva	1
Pallor of conjunctiva, mucous membrane, nail	2
Pallor of conjunctiva, skin, mucous membrane, nail	3
Grading of Glossitis	
Absent	0
Difficulty during chewing, swallowing and speaking	1
Above symptoms + smooth, sore and tender tongue	2
Above symptoms + swelling of tongue	3
Grading of *Hridayaspandana*/ *Hrudrava* (Palpitations)	
No Palpitations	0
Palpitations not affecting daily activities.	1
Palpitations affecting daily activities.	2
Palpitations at rest.	3
***Bhrama* (Giddiness)**	
No Giddiness	0
Occasionally present	1
Giddiness occurs on change in posture	2
Constant giddiness	3

Table 2 Gradation of Objective parameters

Objective Parameters		
Grading of Hb gm%		
	0 9- 10gms%/dl	With raise in above 3gms%/dl
	1 8.6-8.9gms%/dl	With raise in 1-2.9gms%/dl
	2 8-8.5gms%/dl	With raise in 0.5-0.9gms%/dl
	3 7-7.9gms%/dl	No raise in Hb%
Grading of Edema in Lower Extremity		
	No pitting	0
	Mild pitting. 2mm depression that disappears rapidly	1
	Moderate pitting. 4 mm depression that disappears in 10-15 secs.	2
	Severe pitting. 6mm depression that may last more than 1 min.	3

Table 3 Criteria for Overall Result Assessment

Effect of Percentage	
Excellent Improvement	76%- 100%
Good Improvement	51%-75%
Moderate Improved	26%-50%
Mild Improvement	<25%

Intervention

The present clinical study was intended to assess the management of *Garbinipandu* by the oral use of *Drakshagritha*. All the 30 patients were administered with 15ml of *Drakshaghrita* twice daily (Morning and evening) on empty stomach orally along with *Anupana* (after drink) of *Sukoshnadugdha* for 90 days continuously. The treatment was planned for 90 days with three follow up on 30th, 60th and 90th day.

Draksha Gritha

Materials: *Draksha, Murchitha Gritha*

Preparation

Ghrita Murchana[4]

One *Prastha* (800ml) of ghee was taken and heated on mild fire till the complete disappearance of moisture content. Then the paste made of *Haritaki*, *Amalaki, Vibhitaki, Nagara, Musta* and *Haridra* was taken in equal quantity, all mixed together and made into a paste form by *Matulungaswarasa*. This paste was then added with ghee slowly and heated till the removal of moisture content. For this, *Drakshakalka* was added after cooling the ghee and then again it was heated for some time and filtered.

Preparation of *Draksha Kalka*

Fresh *Draksha* fruits were collected and seeds were removed from the fruits. Then they were grinded nicely and the *Kalka* was prepared and kept ready to add in the preparation of *Snehakalka*.

Preparation of *Draksha Ghrita*

Draksha Ghrita was prepared according to *Snehakalpana vidhi*,[5] where one part of the *Drakshakalka*, 4 parts of *Go-ghrita* and 16 parts of water were added together, boiled and reduced to the quantity of ghee. This was done slowly under a mild flame till the *Sneha siddilakshanas* were attained to obtain the *Madhyamapaka* for oral administration.

Administration of *Draksha Ghrita*

15ml of *Drakshaghrita* was given twice daily (morning and evening) on empty stomach orally along with *Anupana* of *Sukoshnadugdha* for administered 90 days continuously.

RESULTS

Thirty patients with only second trimester were subjected for clinical trial where, 15ml of "*Draksha Ghrita*" with *Anupana* as *Sukoshnaksheera* was administered orally morning and evening on empty stomach for 90 days daily. Assessments were carried out before and after treatment and results were assessed monthly once by both subjective and objective parameters.

More patients were observed in the age group of 23-27 yrs with 14 patients. Among 30 patients, 17 were housewives and 13 were employees. The increased incidence of *Pandu* among housewives was may be due to the poor quality of life style, food habits and alteration of food consuming times in housewives and negligence of proper diet by women due to work

and stress at their home. Regarding the socio-economic background, 33.33% were from middle class, 43.33% were low class and 23.33% were from high class. Low class people are more prone to this, because of malnutrition, maximum numbers of patients (63.33%) were consuming vegetarian diet, Heme and nonheme are the two sources of dietary iron. Nonheme iron is major source in plant origin and its absorption is limited due to the presence of fiber, phytate and phosphate and polyphenol present. Heme iron present in meat, fish and poultry is better absorbed and is not influenced by dietary factors. Thus vegetarians are more prone to suffer from iron deficiency. Among 30 patients, 50% were primipara, 33.33% were of second gravida and 16.66% were of multipara. In this study, primiparas are affected more with Anaemia. 36.66% were of 4th month gestational age, 30% were of 5th month gestational age and 33.33% were of 6th month gestational age. In this study, on an average anemia is affected to the patients of 5th month gestational age, as said it affects mainly during the second trimester.

Regarding Hb% range, among 30 patients, 26.66% were between 7-8 gms Hb%, 36.66% were between 8-9gms Hb% and 36.66% were between 9-10gms%, 56.66% of patients belonged to Hindu community due to the dominant population in the study area.

Table 4: Demographic Data

Age Group	18 – 22 Yrs	11
	23 – 27 Yrs	14
	28 – 32 Yrs	05
Occupation	House Wife	13
	Employee	15
	Others	02
Socio-Economic status	Low	13
	Middle	10
	Upper	07
Dietary Habit	Vegetarian	11
	Non-Vegetarian	19
Gravida	Primary	15
	Secondary	10
	Multi	05
IInd Trimester	4th Month	11
	5th Month	09
	6th Month	10
Haemoglobin (Hb %)	7 – 8 gms %	08
	8 – 9 gms %	11
	9 – 10 gms %	11

Effect of Treatment

Patients between age group of 18 to 22 years got more improvement than other age groups because of young and energetic age with good metabolism. Out of 11, excellent result was observed in 1 patient, good results were observed in 9 patients and moderate results were observed in 1 patient. With occupation, 15 patients who were employees got more improvement than housewives because of knowledge they had regarding the nutritional value of the food and concern on their health. So, they took medicine properly after the counseling. Out of 15, excellent results were observed in 2 patients, good results were observed in 11 patients and moderate results were observed in 2 patients.

With respect to socio-economic background, 7 Patients who belonged to upper socio-economic status got more improvement than low and middleclass patients due to the extra nutritious diet they consume along with the clinical study drug. Out of 7, excellent results were observed in 2 patients and good results were observed in 5 patients. 19 patients who were consuming non-vegetarian diet had more improvement than vegetarian patients as heme iron present in meat, fish and poultry and is better absorbed whereas nonheme iron which is a source of plant origin has got limited absorption due to the presence of fiber, phytate and phosphate and polyphenol. Out of 19, excellent results were observed in 2 patients, good results were observed in 12 patients, and moderate results were observed in 4 patients with mild result in 1 patient.

In 10 patients who were in second gravida had seen more improvement than primigravida and multi gravida patients. Out of 10, excellent results were observed in 4 patients, good results were seen in 5 patients and moderate result in1 patient. 9 Patients who were in their 5th month of gestational age were seen more improvement than 4th and 6th month gestational age patients. Out of 9, excellent results were observed in 2 patients, good results in 6 patients and moderate in 1 patient. Among 27 patients suffering from pallor, excellent results were observed in 25 patients and good results in 2 patients. Before the treatment 8 patients were under 7-8gms of Hb% and the average of Hb% for these 8 patients before treatment was 7.45gms%, whereas after the treatment the average Hb% had increased to 10.46%. In 11 patients, before the treatment, the Hb% was 8-9gms% and the average of Hb% was 8.35gms%, but after the treatment the average Hb% had increased to 10.70%. In 11 patients with 9-10gms of Hb%, average was 9.30gms% and after treatment average Hb% had gone upto 11.45%.

In both the subjective and objective parameters, overall results were interpreted as 13.33% of excellent improvement, 63.33% of good improvement, 20% of moderate improvement and 3.33% of mild improvement. Among 19 patients suffering from edema, excellent results were observed in 11 patients and good results were seen in 8 patients.

Subjective Parameters

Pallor

The initial mean score of pallor was 1.366 before the treatment and reduced to 0.066 after the treatment with statistical significance (p<0.001).

Glossitis

The initial mean score of pallor was 0.833 before the treatment and reduced to 0.266 after the treatment with statistical significance (p<0.001).

Hrdrava/Hrudayaspandana

The initial mean score of pallor was 0.733 before the treatment and reduced to 0 after the treatment with statistical significance (p<0.001).

Bhrama

The initial mean score of pallor was 1.1 before the treatment and reduced to 0.1 after the treatment with statistical significance (p<0.001).

Objective Parameters

Hb%

The initial mean score of pallor was 8.473 before the treatment and reduced to 10.91 after the treatment with statistical significance (p<0.001).

Odema

The initial mean score of pallor was 1.333 before the treatment and reduced to 0.2 after the treatment with statistical significance (p<0.001).

With the above data, 70.34% results were observed in signs and symptoms with excellent results, 19.49% of good results and 10.16% of moderate results.

Table 5 Showing Signs and Symptoms

Signs and Symptoms	Before Treatment	After Treatment		
		Excellent Result	Good Result	Moderate result
Pallor	(27) 90 %	(25) 92.59 %	(2) 7.40 %	----
Glossitis	(19) 63.3 %	(11) 57.89 %	(8) 42.10 %	----
Hrudrava	(16) 53.3 %	(16) 100 %	---	----
Bhrama	(22) 73.3 %	(19) 86.36%	(3) 13.63%	-----
Odema	(27) 90 %	(21) 77.77 %	(6) 22.22 %	----

Table 6 Effect of Study

S.No	Symptoms	Mean		SD		S.E		Df	T- value	P-value	S
		B.T	A.T	B.T	A.T	B.T	A.T				
1.	**Pallor**	1.366	0.0666	0.8087	0.2537	0.14	0.04	29	8.4009	<0.001	E.S
2.	**Glossits**	0.833	0.2666	0.7466	0.4497	0.14	0.08	29	3.5608	<0.001	S
3.	***Hrudrava***	0.733	0	0.7849	0	0.14	0	29	5.1173	<0.001	E.S
4.	***Bhrama***	1.1	0.1	0.8030	0.3051	0.14	0.05	29	6.3761	<0.001	E.S
5.	**Hb%**	8.473	10.91	0.7851	1.030	0.14	0.19	29	10.836	<0.001	E.S
6.	**Odema**	1.333	0.2	0.7581	0.4068	0.14	0.08	29	7.215	<0.001	E.S
	Total grading score	16.70	12.008	6.4655	3.4214	1.16	0.56	29	7.5209	<0.001	E.S

Df = degrees of freedom, E.S = Extremely significant, S = Significant

DISCUSSION

The speciality of giving birth to a child made a woman noble for the creative aspect of life. This is the key chain of continuation of progeny. Pregnancy is a unique process and experience in women's life as it creates a new budding life. All her needs must be fulfilled as one life participates in the creation of another and care must be taken to bring this new life into the world. Many physiological changes are taking place in women during her reproductive life. As a consequence, to these changes certain conditions manifest among which *Garbhini Pandu* is one. Acharyas have significantly explained *Garbhinimasanumasika paricharya*[6] to prevent the complications of pregnant woman and to have full term healthy child. Charaka has specified the general line of treatment for *Garbhinivyapathas*.

In Ayurveda, references regarding *Garbhini Pandu* are available in scanty. Kashyapa has mentioned *Panduta* in *Garbhini* emphasizing that any disease can manifest during pregnancy and the general line of treatment of that particular disease can be adopted. Though *Pandu* as a disease entity is mentioned in Ayurvedic texts "*Garbhini Pandu*" is not mentioned in any of Ayurvedic classics. There are only passing references like *Garbhini Vivarnata*, *Garbhini Balavarnahani* and *Asita Sati*. So, the *Pandu Roga* which is elaborately explained in classics can be taken into consideration for *Garbhini* also.

In Classics always usage of *Teekshna aushadha* are restricted for pregnant women. Therefore it is advised to use mild potency medicines[7] even in severe conditions. In modern science, iron supplementation is needed for all pregnant women from 16th to 20th weeks onwards. It correlates completely with our classical opinion like. [8]

Different *Nidanas* are mentioned which cause anaemia. *Nidanas* like *Aahara* containing excess of *Kshara, Amla, Lavana rasa Atisevana* plays very important role in the pathogenesis of *Pandu Roga*.

The present study was aimed at finding a safe and effective management in *Pandu* by administration of "*Draksha Ghrita*" which contains *Draksha* and *Go-ghrita* with *Anupana* as *Sukoshnaksheera*.

Mode of Action

The drug *Draksha* is *Madhura* in *Rasa* and has *Madhuravipaka*, *Sheetaveerya, Snigdha*, Guru and *Mridugunas* and it is *Vatapittashamaka*. The disease *Pandu* is mainly *Pittaprakopajanyavyadhi* and acts as *Pittasamaka*. Even while mentioning the *Karmas* of *Draksha*, *Rakthapittashamaaka karma* is also mentioned. Thus it is clearly understood that this drug might act on the *Dushita pitta* and is effectively capable of bringing back *Pitta* to its normalcy. *Draksha* has also got the *Karmas* like *Rakthaprasadana, Garbhasthapana, Jeevaniya*, and *Balya*. Thus by the *Karmas* of *Draksha* mentioned in the classics, it can be inferred that the drug *Draksha* might cure anemia and an effective drug that can be used during pregnancy, which can even prevent uneventful situations during ante-natal period.

Ghrita alleviates *Pitta* and *Vata*, is beneficial for *Rasa dhatu* and thereby maintains proper *Dhatu parinama karma*. It has *Sheetavirya, Mrudu* and *Varna prasadana* properties. *Ghrita* which has *Rasayana* property when administered promotes longevity and protects body from various diseases. It is also *Ruchikara. Ghrita* has got mainly *Samaskarasyanuvarthana*[9] property. It means, when treated or impregnated with other drugs, the *Ghrita* has a specific property of accepting the attributes of these drugs without losing its own characters. In other words, *Ghrita* has the capacity to transform itself so as to imbibe all the qualities of the substances added to it. This assimilating property is not so prominent in other *Snehadravyas* (*Taila, Vasa, Majja*). It is particularly significant that ghee doesn't give up its own properties even if it is mixed up with other substances possessing other properties. *Ghrita* has got a good *Pachaka* property, which helps in proper digestion and there by clearing all the *Aama* from the body, by this body and the *Srothases* becomes clean. Thus, *Pachakagni* is maintained at *Saamyavastha*, no *Dusti* in seen in the *Rasavahasrotas*, by which *Dhatwagni* is maintained well and *Dathuparinamakrama* occur accurately. Ultimately *Rakthadhathu* is also formed well. *Ghrita* possesses *Varnaprasadana* and *Twachya* properties. *Ghrita* while alleviating the *Pitta* and maintaining its normalcy, it attributes *Ranjaka pitta* to work well during the transformation of *Rasa dhatu* to *Rakthadhathu*. There by no *Pandu varna* is formed.

Draksha has *Brimhana* property which helps in proper *Rasa dhatu* formation, where in the proper *Dhatu parinama krama* takes place from *Rasadhathu* to *Rakthadhathu*. Therefore the proper functioning of *Dhathuparinamakarma* ensures *Rakthadhathu* formation. *Draksha* has also *Kaphanissaraka* property which means it takes of excess *Kapha* out from the body and makes the *Srotases* clean and clear thus absorption is increased. The *Roghaghnata* of the drug *Draksha* are *Bhrama, Vibandha, Pandu, Hriddourbalya, Garbhsayadourbalaya, Samanyadourbalya, Krishata, Sosha, Twakroga.* As the direct reference of *Panduroga* is given in the context of *Roghagnata* of

Draksha and as it is a *Mridudravya* can bead ministered in *Garbhinipandu*.

The chemical composition[10] of the drug *Draksha* fruit contains dehydro ascorbic acidie oxidized form of ascorbic acid, which helps in the absorbtion of the available iron.[11] Arginine[12] which is found in the pulp of the fruit is a semi-essential amino acid. It is involved in many metabolic processes and important in the treatment of heart diseases and high blood pressure. In 1998, the Nobel Prize for Medicine was given for arginine improves the circulation and oxygen supply of the coronary and peripheral vessels through the release of nitric oxide. When arginine is consumed, the nitric oxide level in the blood increases. Nitric oxide relaxes the walls of the blood vessels and thereby improves the circulation in the whole body. Thus by the above explanation, drug can even prevent P.I.H. In view of the above physiology of arginine, a marked result is seen in the symptom *Hridrava*.

Arginine supports the production of collagen and is therefore an important contributor to bone growth. In turn, arginine supports the growth of the osteoblasts which form the bone mass. Thus it favors the skeletal growth of the fetus there by preventing I.UG.R. Alanine which is a nonessential amino acid is found in the fruit. Amino acids are the building blocks of protein which helps in building strong and healthy muscles. Alanine[13] has been shown to help protect cells from being damaged during intense aerobic activity, when the body catabolize muscle protein to help produce energy. Thus one can say by the action of alanine the symptom *Dourbalya* is reduced. Alanine processes vitamin-B especially vitamin B5 (pantothenic acid) and vitamin B6 (pyridoxine).

While mentioning the pharmacological activities of *Draksha*, angiotensin converting enzyme (ACE)[14] activity has been mentioned. Renin-Angiotensin (RAS) plays its role in HTN and atherosclerosis. RAS helps in fluid homeostasis regulation. Angiotensin II stimulates the proliferation of CD34+cord blood cells in vitro. RAS helps in regulating hematopoietic progenitor differentiation and self-renewal. Ang-(1–7), Ang II has utility and clinical significance in bone marrow transplantation. AGTRI 1 and AGTRI 2 acts as mediator in haematopoietic system. Ang II receptor antagonists and ACE inhibitors are commonly used for treatment of cardiovascular diseases, post-transplantation erythrocytosis, or polycythemia vera. RAS components and their inhibitors maintain the balance in the hematopoietic and cardiovascular systems.

Oleanolic acid is a triterpenoid which exists in nature as a free acid or as an aglycone of triterpenoid saponins and it is often ubiquitously found with its isomer, usolic acid[15] The Oleanolicacid is a phytochemical Triterpenoid found in fruit of *Draksha*.[16] It has got Anti inflammatory, Antihypertensive properties.[17,18] An oleanolic acid derivative, methyl 3-octanoyloxyiminoolean-12-en-28-oate, also showed anti-inflammatory activity demonstrated by its anti-oedemic effects in rats with carrageenan-induced skin inflammation.[19]

The use of oleanolic acid significantly prevented an increase in the systolic blood pressure and cardiac lipid peroxidation level. However, there was no significant effect on changes in body and thymus weights which were previously caused by the glucocorticoid treatment.[20,21] Thus this chemical constituent acts on the symptom oedema. As there are many amino acids like proline, alanine and arginine in the pulp of the fruit it helps in the contribution of proteins which is one of the main constituent present in the amniotic fluid. Thus it helps in maintenance of the normal level of amniotic fluid thereby preventing oligohydromnios.

CONCLUSIONS

Garbhinipandu is the most common haematological disorder. So, considering the necessity to have a drug which is beneficial in *Panduroga*, safe and cost effective *Drakshaghrita* was selected for study. This study has showed statistically significant results in both subjective and objective parameters. Follow up has also showed the improvement in haemoglobin concentration throughout the pregnancy.

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