

**EFFECT OF VYOSHADI GHRITA ON PANDU W.S.R. TO IRON DEFICIENCY ANEMIA****Dr. Amol Patil<sup>1</sup>, Dr. Jagdish Patil<sup>2</sup>, Dr. M. B. Patil<sup>3</sup>, Dr. Ajit Dahatonde<sup>4</sup> and Dr. Janardhan K.<sup>5</sup>**<sup>1</sup>HOD and Assist Prof. Dept. of Kaumarabhritya, Shri Gurudeo Ayurvedic College Mozari Amravati Maharashtra, India.<sup>2</sup>HOD and Assist Prof. Dept. of Panchakarma, Shri Gurudeo Ayurvedic College Mozari Amravati Maharashtra, India.<sup>3</sup>HOD and Assist Prof. Dept. of Rognidan & Vikruti vidnyana, Shri Gurudeo Ayurvedic College Mozari Amravati Maharashtra, India.<sup>4</sup>Asst. Prof. Dept. of Kaumarabhritya, Shri Dhanvantary Ayurvedic Medicaal college Mathura UP, India.<sup>5</sup>Asst. Prof. Dept. of Kaumarabhritya, Sri Adi Siva Sadguru Ali Shaeb Sivvaraula Ayurvedic Medical College Guntakal Dist. Anantapur AP, India.**\*Corresponding Author: Dr. Amol Patil**

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**ABSTRACT**

Anemia is the very common disease belongs from micronutrients category and affects health status world widely. Malnutrition associated with iron deficiency is most common causes for anemia. *Ayurveda* described anemia as *Pandu Roga* and mentioned various treatment modalities for same i.e; *Vyoshadi Ghrita*. This article presents effect of *Vyoshadi Ghrita* on *Pandu W.S.R.* to iron deficiency, for the study purpose selected patients were randomly allocated according to the inclusion criteria. *Vyoshadi Ghrita* was given to children belongs from ages 1 to 12 years for two months. Subjective as well as objective parameters were considered for the assessment of treatment response. The study suggests that *Vyoshadi Ghrita* control root cause of *Pandu*, shatter the *Samprapti* of disease and prevent disease by improving digestive power. The study concluded that *Vyoshadi Ghrita* improves clinical symptoms and hematological values and thus offer effective management of *Pandu roga*.

**KEYWORDS:** Ayurveda, Iron Deficiency Anemia, *Pandu Roga*, *Vyoshadi Ghrita*.**INTRODUCTION**

Anemia is a disease occurs due to lack of sufficient iron supply which is very essential for the synthesis of hemoglobin and anemia is considered as common hematologic disease of childhood. The statics reveal that 30% of the global population suffers from iron-deficiency anemia and most of affected persons belong from developing countries.<sup>[1]</sup> In India around 50% of children are suffered from disease.<sup>[2]</sup> *Ayurveda* described *Pandu Roga* as iron deficiency anemia.<sup>[3]</sup> There are different types of elemental iron preparations are available in market for the management of disease. *Ayurveda* also described various treatment modalities for anemia such as; *Vyoshadi Ghrita* which contains *Loha Bhasma* along with herbal drugs.<sup>[4]</sup> This article presents investigational report on effect of *Vyoshadi Ghrita* in *Pandu Roga*.

**MATERIALS AND METHODS****Selection of patients**

30 children possess characteristics of *Pandu roga* were selected for the present study. Diagnosed cases of *Pandu roga* were included from *Kaumarabhritya* OPD and IPD of S.V. Ayurvedic Hospital, Tirupati.

**Inclusion Criteria**

- Patients possess classical signs and symptoms of *Pandu roga*.
- Children with hemoglobin percentage between 6 to 11 gm/ dl.
- Patients of either sex between the age group of 1 to 12 years.

**Exclusion Criteria**

- Patients possess severe Anaemia due to systemic disorders.
- Patients possess hemorrhagic diathesis i.e; Hemophilia, ITP and Vit. K deficiency etc.
- Hereditary disorders like Thalassaemia and Sideroblastic anemia, etc.

**Duration of Study**

The period of study was for two months. Follow up period were decided twice in a month to check the changes in disease condition.

**Formulation Selection**

*Vyoshadi Ghrith* which possess ingredients like; *Trikatu*, *Triphala*, *Haridra*, *Daruharidra*, *Bilwa*, *Punarnava*,

*Nagarmotha, Phata, Vidang, Devdaru, Vrichikali, Bharangi, Lohabhasma, Cow's ghee and Cow's milk.*<sup>[4]</sup>

### Preparation of Ghrita

Drugs of formulation were taken in *Khalva* and powdered finely then this powder mixed in eight liters of *Ghritum* and thirty two liters of milk after some time. *Ghritum* kept on *mandagni* (50° to 90°) and avoid *Mrudu* or *Kher Paka*. After *Madhyam Paka*<sup>[5]</sup> of *Ghrita* the formulation filtered through cotton cloth and store in glass bottle.

### Dosage

Selected thirty patients were given *Vyoshadi Ghrita*, the dosage was given for a period of 2 months according to age group:

- First group (1 to 4 yrs.) = 6 ml per day (in divided dose).
- Second group (5 to 8 yrs.) = 10 ml per day (in divided dose).
- Third group (9 to 12 yrs.) = 15 ml per day (in divided dose).

### Assessment Criteria

#### A) Subjective Parameter<sup>[6]</sup>

- Panduta*
- Mandagni*
- Gatrashool*
- Seernaloma*
- Pindikodveshtana*
- Shrma-swasa*
- Akshikutashotha*

#### B) Objective Parameter

Hb %, MCV, MCHC, TIBC and Serum Ferritin were selected as assessment criteria before and after the treatment.

### OBSERVATIONS

The 30 patients were selected for the study; among them there were 5 dropouts. 33.33 % patients were from 1-4

years age groups, 26.66 % from 5-8 years age group and 40 % from 9-12 years of age group. 43.33% patients were female and 56.66% were males. 70 % patients were mixed dietary habits and 30 % patients were vegetarian. 20% patients possess *Madhyam Abhyavarana Shakti*, 70% patients possess *Avara Ahyaharana Shakti* and 10% patients possess *Pravara Abhyavarana Shakti*. Bowel habit of patients of *Pandu* also considered for study, 43.33% of the patients possess constipation, 43.33% having irregular bowel and 16.66 % of patients possess regular bowel habits. According to *Purvavyadhi Vritha* out of 30 patients of *Pandu*, 5 patients reported history of Viral Hepatitis.

*Mandagni* and *Panduta* were found in 100% of the cases, *Pindikodvestana* and *Gatrashool* in 76.66%, *Shrama-Swasa* in 60%, *Seernaloma* in 43.33% and *akshikutashotha* in 40% of the patients, (Table 1).

**Table 1: Laxshana wise distribution of 30 patients of Pandu Roga.**

Sr. No.	Laxshana (Symptoms)	No of patients	%
1.	<i>Pandutva</i>	30	100
2.	<i>Mandagni</i>	30	100
3.	<i>Gatrashoola</i>	23	76.66
4.	<i>Shrama-Swasa</i>	18	60
5.	<i>Seernaloma</i>	13	43.33
6.	<i>Pindikodvestana</i>	23	76.66
7.	<i>akshikutashotha</i>	12	40

### RESULTS

The mean score of *Panduta* was reduced from 1.533 to 0.53 with mean improvement of 65.2% which was statistically significant ( $P < 0.001$ ) (Table No.2), 80% patients showed mild improvement and 10% patients showed moderate improvement and 10% patients showed unchanged in *Panduta*. (Table No.3).

**Table 2: Effects of Vyoshadi Ghrita Therapy on parameters of 30 patients of Pandu Roga.**

Symptoms	Day	n	Mean		%	SD	SE	't' Value	'p' Value
			BT	AT					
<i>Panduta</i>	0-30 Days	30	1.5333	1.33333	13.043	0.4068	0.0743	2.6926	< 0.001
	0-60 Days	30		0.53	65.2	0.45	0.08	12	< 0.001
<i>Mandagni</i>	0-30 Days	30	1.9	0.833	56.14	0.5833	0.1065	10.01	< 0.001
	0-60 Days	30		0.5	75.44	0.679	0.124	11.56	< 0.001
<i>Gatrashool</i>	0-30 Days	30	1.033	0.4	61.29	0.6149	0.1123	5.641	< 0.001
	0-60 Days	30		0.27	74.19	0.7739	0.1413	5.4264	< 0.001
<i>Seernaloma</i>	0-30 Days	30	0.566	0.4	29.41	0.0379	0.0692	2.4083	< 0.001
	0-60 Days	30		0.23	58.82	0.4794	0.0875	3.8078	< 0.001
<i>Pindiko-dveshtana</i>	0-30 Days	30	0.966	0.5667	41.37	0.4983	0.091	4.397	< 0.001
	0-60 Days	30		0.27	72.41	0.6512	0.1189	5.8871	< 0.001
<i>Shrama-Swasa</i>	0-30 Days	30	0.9	0.5	44.44	0.5632	0.1028	3.8898	< 0.001
	0-60 Days	30		0.2	77.77	0.8769	0.1601	4.3723	< 0.001
<i>Akshikuta-shotha</i>	0-30 Days	30	0.5	0.3667	26.66	0.3457	0.0631	2.1122	< 0.001

	0-60 Days	30		0.1	80	0.4982	0.0909	4.3969	< 0.001
Hb	0-60 Days	30	8.84	10.21	16	0.56	0.1	13	< 0.001
MCHC	0-60 Days	30	29.83	32.4	8.6	2	0.36	7	< 0.001
MCV	0-60 Days	30	74.88	82.9	11	4.77	0.87	9.2	< 0.001
Serum Ferritin <sup>7</sup>	0-60 Days	30	10.5	17	58.86	2.25	0.411	15.09	< 0.001
TIBC	0-60 Days	30	393	333	15.332	23.297	4.2535	14.177	< 0.001

The mean score of *Mandagni* was reduced from 1.9 to 0.5 with mean improvement of 75.44% which was statistically significant ( $P < 0.001$ ) (Table No.2). In which 46.66 % patients showed mild improvement, 43% patients shown moderate improvement, 3.33% patients shown marked improvement and 6.66% patients shown unchanged in *Mandagni*. (Table No.4)

The mean score of *Gatrashool* was reduced from 1.033 to 0.27 with mean improvement of 74.19% which was statistically significant ( $P < 0.001$ ) (Table No.2). 46.66% patients had shown mild improvement, 10% patients shown moderate improvement, 40% patients shown unchanged in *Gatrashool* and 3.33% shown marked improvement (Table No.5). The mean score of *Seernaloma* was reduced from 0.566 to 0.23 with mean improvement of 58.82 % which was statistically significant ( $P < 0.001$ ) (Table No.2). 33.33% patients showed mild improvement and 66.66% patients showed unchanged in *Seernaloma* (Table No. 6).

The mean score of *Pindikodveshtana* was reduced from 0.966 to 0.27 with mean improvement of 72.41% which was statistically significant ( $P < 0.001$ ) (Table No.2). 50% patients showed mild improvement, 10% patients shown moderate improvement and 40% patients shown unchanged in *Pindikodveshtana*. (Table No.7)

The mean score of *Shrama-Swasa* was reduced from 0.9 to 0.2 with mean improvement of 77.77 % which was statistically significant ( $P < 0.001$ ) (Table No.2). 26.66% patients showed mild improvement, 16.66 % patients shown moderate improvement and 53.33% patients shown unchanged and 3.33% patients shown marked improvement in *Shrama-Swasa* (Table No. 8).

The mean score of *Akshikutashotha* was reduced from 0.5 to 0.1 with mean improvement of 80 % which was statistically significant ( $P < 0.001$ ) (Table No.2), 40 % patients showed mild improvement and 80 % patients shown unchanged in *Akshikutashotha*. (Table No.9)

The mean score of 'Hb' concentration was from 8.84 to 10.21 with mean improvement of 16 % which was statistically significant ( $P < 0.001$ ), 50 % patients showed mild improvement and 26.7 % patients showed moderate improvement and 23.3% patients showed no change in 'Hb' concentration (Table No. 10). The mean score of 'MCHC' concentration was from 29.83 to 32.4 with mean improvement of 8.6 % which was statistically significant ( $P < 0.001$ ) (Table No.2). The mean score of 'MCV' concentration was from 74.88 to 82.9 with mean improvement of 11% which was statistically significant.

( $P < 0.001$ ) (Table No.2) The mean score of 'Serum Ferritin' concentration was found to be from 10.5 to 17 with mean improvement of 58.86% which was statistically significant ( $P < 0.001$ ) (Table No.2). The mean score of 'TIBC' concentration was from 393 to 333 with mean improvement of 15.33 % which was statistically significant ( $P < 0.001$ ) (Table No.2). 20 % showed marked improvement, 60 % showed moderate improvement, 13.33% showed mild improvement while 6.66% were showed complete improvement (Table 11).

**Table 3: Response of Vyoshadi Ghrita Therapy on Panduta of 30 patients of Pandu Roga.**

Response	No. of Patients	%
Unchanged	3	10
Mild	24	80
Moderate	3	10
Marked	0	0

**Table 4: Response of Vyoshadi Ghrita Therapy on Mandagni of 30 patients of Pandu Roga.**

Response	No. of Patients	%
Unchanged	2	6.66
Mild	14	46.66
Moderate	13	43
Marked	1	3.33

**Table 5: Response of Vyoshadi Ghrita Therapy on Gatrashool of 30 patients of Pandu Roga.**

Response	No. of Patients	%
Unchanged	12	40
Mild	14	46.66
Moderate	3	10
Marked	1	3.33

**Table 6: Response of Vyoshadi Ghrita Therapy on Seernaloma of 30 patients of Pandu Roga.**

Response	No. of Patients	%
Unchanged	20	66.66
Mild	10	33.33
Moderate	0	0
Marked	0	0

**Table 7: Response of Vyoshadi Ghrita Therapy on Pindikodveshtana of 30 patients of Pandu Roga.**

Response	No. of Patients	%
Unchanged	12	40
Mild	15	50
Moderate	3	10
Marked	0	0

**Table 8: Response of Vyoshadi Ghrita Therapy on Shrama-Swasa of 30 patients of Pandu Roga.**

Response	No. of Patients	%
Unchanged	16	53.33
Mild	8	26.66
Moderate	5	16.66
Marked	1	3.3

**Table 9: Response of Vyoshadi Ghrita Therapy on Akshikutashotha of 30 patients of Pandu Roga.**

Response	No. of Patients	%
Unchanged	18	80
Mild	12	40
Moderate	0	0
Marked	0	0

**Table 10: Response of Vyoshadi Ghrita Therapy on 'Hb' concentration of 30 patients of Pandu Roga.**

Response	No. of Patients	%
Unchanged	7	23.3
Mild	15	50
Moderate	8	26.7
Marked	0	0

**Table 11: Total Effect of Vyoshadi Ghrita Therapy on Panduroga.**

Result	No. of Patients	%
Complete	2	6.66
Marked	6	20
Moderate	18	60
Mild	4	13.33
Unchanged	0	0

## DISCUSSION

Medicated Ghrita was chosen for the management of Pandu roga. The formulation used for Pandu roga may contain Loha bhasma (Iron) in combination with drugs having Katu, Tikta and Amla rasa which possess haematinic action.

### **Incidence study of all the children is as follows**

**Treatment status:** 30 children were enrolled, five patients were drop out during the study due to their personal problem. Remaining patients completed clinical studies.

**Age group:** The selection of age below 3 years due to 8% of total population of Indian children suffer from anemia, it is common in preschool children due to the insufficient bioavailability of dietary iron, increased iron requirement during growth period and blood loss associated with other disease.

**Sex consideration:** The study involves male and female patients equally.

**Diet:** Vegetarian are more susceptible to the disease due to insufficient iron supply.

**Bowel Habit:** Bowel habits suggests that the symptom in Vataja and Tridoshaja Pandu Rogi.

**Purvavyadhi Vritha:** Viral Hepatitis is the most common cause of disease.

### **Effect of Therapy on Disease Symptoms Panduta**

Panduta is the most important sign of Pandu roga where luster of the skin is lost. This is the common sign of the disease which appeared as first observation. Raktadhatu and Pitta dosha involve Varna and Prabha properties, Bhrajaka and Ranjaka Pitta, is also the property of Ojas. Ojakshaya, Raktakshaya and Pitta prakopa increases the patients become Hatprabha or Panduta appears. Therapy offer satisfactory results in above mentioned symptoms.

### **Gatrashool**

Panduroga involve aggravation of Pitta & Vata Dosha and Gatrashool. Therapy offer beneficial results due to Shamana of Pitta & Vata Dosha.

### **Pindikodveshtana**

Pindikodveshtana was noted because of oxygen contents in the blood reduced as red blood cells were less in quantity in blood that produces ischemia in calf muscles, as we know that calf muscles is recognized as peripheral heart of body which work more than other part of body so it more prone to be produce pain. Another reason is vitiated Vata due to Dhatukshaya. The reason for maximum relief in trial compounds may again be attributed to the Rasayana drugs present in Vyoshadi Ghrita.

### **Shrama-Swasa**

Shrama-Swasha or Dyspnoea on exertion in Pandu is due to lack of proper nourishment and Raktalpata due to which respiratory organs have to work quickly so as to provide rapid blood flow to body tissues and that is the reason of Shrama-Swasha. The reason for good result may be given as it has Triphala, Trikatu which are known drug as Swashahara and Kaphavata nashana. It content Loha Bhasma, so oxygen carrying capacity of RBCs is increased and heart has not to pump so quickly any more.

### **Seernaloma**

Seernaloma may be due to RasaKshaya and Dhatu Shaiithilya, so with the help of study drug which are having property like Rasayana given good result in the above feature. Another cause of Seernaloma is Pitta Vridhi which gets corrected by the Pitta Shamaka Guna of Vyoshadi Ghrita.

### **Probable mode of action of Vyoshadi Ghrita**

The effects of ingredients of Vyoshadi Ghrita are Pandugna, Deepan, Pachan, Varnya, Raktadoshagna,

*Krimigna, Pitta-Kaphagna, Balya and Rasayana.* It supposed to increase digestive power and clean the *strotorodha*.

The media *Ghrita* acts most adaptively in this disease condition and attributes to the restoration of *dhatubala*. The *Ghrita* used in the drug first undergo 'Murchana'<sup>8</sup>, process that remove the *Ama dosha of ghrita* and provide good colour and fragrance.

Action of the medicine mainly depends upon its subtle constituents like *Rasa, Guna, Veerya, Vipaka, Prabhava etc.*

**Rasa:** Most of the drugs are having *Katu, Tikta Rasa.* *Amalaki* is an *Amla rasa pradhana* it can increase *Raktha* and hence in *Rakthalpatha, Amla preeti* is seen, it also being a rich source of Vit. C helps in absorption of iron. Hence it is used in anemia along with iron compound. *Shunti, Marica, Pippali* and *Haridra* are *Katu rasa pradhana dravyas* which can promote *Agni* by their *Deepana* and *Pachana* properties which can nullify the *Agnimandhya, Aruchi* like *laksanas* of *Pandu roga*. They also provide an acidic media for the better absorption of *Loha bhasma* (Iron).

**Guna:** *Laghu, Ruksha, Snigdha gunas* of *dravyas* can revert back the conditions like *Dhatu Shaithilya, Gourava*.

**Virya:** Most of *dravyas* of *yoga* have *Ushna Virya* that helps to get better *Agni*.

**Vipaka:** Most of *Dravyas* have *Katu Vipaka* and some of the *Dravyas Madhura Vipaka viz; Amalaki, Shunti, Pippali, Loha bhasma*.

**Prabhava:** *Trikatu* and *Triphala* manly acts as a *Deeana*. *Pramathya* property of *Marica* may help in clearing the *Srothoavarodha. Vidanga, Haridra, Patha and Mustha* acts as a *Krimighna* and *Loha bhasma* can directly increase the *Raktha dhatu* (Hematinic effect). *Amalaki* can act as *Rasayana* to prevent *Ojokshaya. Raktapunarnava, Devdaru* and *Bharangi* act on *Raktadushti*.

**Dosagnata:** All the ingredients of *yoga* are *Tridosahara* and *Kapha Vatashamaka*.

**Dhatu:** It is noted in the study that almost all the *Dhatu*s, if not complete then at least partial, are improved by treatment. Considering the involvement of *Dhatu*s in the disease, *Rasa Dhatu* and *Rakta Dhatu* showed more depletion in comparison to other *Dhatu*s.

**Agni:** The study clearly showed that all the patients reported *Agnimandya*. This attributing to varying degrees of decrease in *Abhyavaharana Sakthi* and *Jaranasakthi, Kayagni*, responsible for the *Dhatwagni* and *Bhootagni*, on losing its rhythm results in immature *Dhatu*

formation. Due to the impaired *Kayagni* malnutrition occurs. In *Pandu* due to *Agnivikriti Varnahani, Prabhahani, Utsahahani* and *Krishata* are seen. Treatments normalize *Agni*, so most of the components of treatment acquired good results due to improvement in *Agni*.

The *Vyoshadi Ghrita* offer *Samprapti Vighatana* of *Pandu* along with *Rasayana* effect which acts as *Vyadhipratyanika Chikitsa*.

Patients tolerated *Vyoshadi Ghrita*. No adverse effects were noticed in any of the patients during the course of therapy. *Vyoshadi Ghrita* was found to be safe drug in the management of *Pandu Roga*.

## CONCLUSION

The study concluded as follows:

- ❖ *Vyoshadi Ghrita* is an important drug described in Ayurveda classics and possesses therapeutic uses.
- ❖ *Vyoshadi Ghrita* offer effective management of *Pandu roga*.
- ❖ *Vyoshadi Ghrita* possesses haematinic effect.
- ❖ No adverse effects such as; constipation and gastric irritation etc. was observed after the administration of *Vyoshadi Ghrita*.
- ❖ For complete cure of *Pandu roga* long term use of *Vyoshadi Ghrita* is required.

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