



Research Article

A COMPARATIVE CLINICAL STUDY TO EVALUATE THE EFFICACY OF DHATRI LAUHA AND MURVADI YOGA IN THE MANAGEMENT OF PANDU ROGA W.S.R TO IRON DEFICIENCY ANEMIA

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ABSTRACT

Pandu is Varnopalakshita vyadhi. Vata and Kapha with Pitta as the predominant one aggravate in the Dhatus, as a result Dhatus become weak and heavy. By the vitiation of Doshas and Dhatus leads to the reduction in the properties of Ojas and leading to the symptoms like loss of complexion, strength etc leading to Pandu roga. Pandu roga is characterised by pale colour, depletion of blood and fat, weakness, weakened sense organs etc which can be correlated to Iron deficiency anemia. Iron deficiency anemia is the most common type of anemia worldwide. This occurs when iron or physiological requirements exceed absorption. This is the commonest nutritional deficiency and a major health problem globally. More than half of patients with anaemia are assumed to have iron deficiency. Between 30% and 70% population in the developing world is iron deficient. Ayurveda has a good approach in treating the Pandu roga. Acharyas have mentioned both Shodhana and Shamana line of treatment for Pandu roga. Hence the present study intends to clinical evaluation of the therapeutic effect of the formulation in patients of Pandu roga.

INTRODUCTION

Pandu roga is a Pitta Pradhana Tridoshaja vyadhi in which Rasa and Rakthavaha srotas are involved. Initially Rasadhatu will undergo Dusti resulting in Dusti and Kshaya of Raktha dhatu. Due to Kshaya of Raktha, patient becomes weak and the properties of Ojas get reduced, resulting in reduction in complexion, strength, blood, fat and vitality.

Anaemia refers to a state in which the level of haemoglobin in the blood is below the reference range appropriate for age and sex. Around 30% of total world population is anaemic and half of these have iron deficiency.

Ayurveda has a good approach in treating the Pandu roga. Acharyas have mentioned both Shodhana and Shamana line of treatment for Pandu roga. Hence present study is aimed at finding the effect of Dhatri

Loha^[1] and Murvadi Yoga^[2] in Pandu roga. Dhatri Lauha explained in The Ayurvedic Formulary of India (Reference from Bhaishajya ratnavali) contains Ingredients such as Dhatri, Loha Bhasma, Yastimadhu and Guduchi.

Murvadi Yoga explained in Gada nigraha contains Ingredients such as Murva, Bala and Chitraka which are having properties such as Balya, Brumhana, Deepana, Pachana which will be surely beneficial in Pandu roga.

This work is a humble effort to compare Dhatri lauha and Murvadi Yoga in the management of Pandu roga.

MATERIAL AND METHODS

Source of Data

Literary source

All Ayurvedic, modern literatures and compiled texts pertaining to drugs and disease in the intended study.

All journals, websites etc were referred pertaining to drugs and disease in the intended study.

Drug Source

The drugs were collected from GMP Certified Company.

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Table 1: Ingredients of Dhatri Lauha

S.No	Name of Plant	Botanical Name	Proportion
1	<i>Dhatri</i>	<i>Emblica officinalis</i>	8 Part
2	<i>Loha bhasma</i>		4 Part
3	<i>Yastimadhu</i>	<i>Glycyrrhiza glabra</i>	2 Part
4	<i>Guduchi</i>	<i>Tinospora cordifolia</i>	q.s -for Bhavana

Table 2: Ingredients of Murvadi Yoga

S.No	Name of Plant	Botanical Name	Proportion
1	<i>Murva</i>	<i>Marsdenia tenacissima</i>	1 Part
2	<i>Bala</i>	<i>Sida cordifolia</i>	1 Part
3	<i>Chitraka</i>	<i>Plumbago zeylanica</i>	1 Part

Clinical Source

Patients of *Pandu roga* were selected from OPD And IPD of Department of Kayachikitsa, Karnataka Ayurveda Medical Hospital, Mangalore and from medical camps and referrals.

Method of Collection of Data

Sample size

A minimum of 60 patients fulfilling the diagnostic and inclusion criteria of either gender were selected for the clinical study. They were randomly assigned into two groups, Group A and Group B with 30 patients each.

Group A: 30 patients were administered *Dhatri Lauha*

Group B: 30 patients were administered *Murvadi Yoga*.

Inclusive criteria

- Patients willing to sign a detailed informed consent
- Patients fulfilling the diagnostic criteria
- Patients of either sex.
- Patients of 16-60 years of age

Exclusive criteria

- Anemia in pregnancy and lactating mother
- Anemia due to acute or chronic blood loss
- Patient suffering from infectious, congenital, malignant and systemic diseases.

Subjective Criteria

In - <i>Twak, Netra and Nakha</i>	
Absent	0
In any 2 of these	1
In any 3 of these	2
In all	3

<i>Daurbalya</i>	
Not present	0
Weakness on mild work, relived later	1
Weakness after doing moderate work, relieved soon	2
Weakness even in rest	3

Study Design

A comparative clinical study with pre-test and post-test design has been conducted on 60 patients fulfilling the inclusion criteria.

Intervention

60 patients of *Pandu roga* were selected and randomly assigned into two equal groups as Group A and Group B.

Group A

30 patients of *Pandu roga* were administered *Dhatri Lauha*- 2 tablets (1 tablet- 350mg) twice daily, with Honey and *Ghrita*, after food for 30 days.

Group B

30 patients of *Pandu roga* were administered *Murvadi Yoga*-2 tablets (1 tablet- 350mg) twice daily, with Hot water, after food for 30 days.

Duration of time: 30 days

Patient was reviewed on 0th, 15th, 31st days.

Follow up

Patient was reviewed after the treatment on 45th day.

Assessment Criteria

The assessment was done on the basis of subjective and objective parameters.

Aruchi	
Not present	0
Mild, experiences occasionally	1
Moderate, experiences frequently	2
Experiences daily	3

Shrama	
Not present	0
Mild, without affecting daily activities	1
Moderate, affecting daily routine	2
Even on sitting or performing daily activities	3

Bhrama	
Not present	0
Mild, without affecting daily activities	1
Moderate, affecting daily routine	2
Even on sitting or performing daily activities	3

Swasa	
No dyspnea	0
Dyspnea present but not affecting daily activities	1
Dyspnea present affecting daily activities	2
Dyspnea present even in rest	3

Hridaya Spandana	
Not present	0
After mild work, relived soon	1
After moderate work, but tolerable	2
Even at rest	3

Rukshata: In- Twak, Nakha, Netravartma, Jihva, Hastapadata	
Absent	0
In any 2 of these	1
In any 3 of these	2
In all	3

Pindikodweshtanam	
Absent	0
Cramps after 1 hour of walk	1
Cramps after 1/2 hour walk	2
Cramps after 15 minutes walk	3

Objective Parameters

Objective parameters were assessed on the basis of values obtained.

Hb: In between 8-10 mg/dl

MCV: <80 fl

Statistical Analysis

- For the statistical analysis, the data obtained in both the groups were recorded, presented in tabulations and drawings.
- To infer the clinical study and to draw conclusion paired 't' test was applied for within the group analysis and unpaired 't' test was applied for between the group analysis.

OBSERVATION

The patients who have fulfilled the inclusion criteria have been assessed by several parameters. They are observed on the basis age, sex, occupation, religion etc and also the *Dashavidha Pariksha* is made and observations are recorded. All these observations made on 60 Patients will be discussed here.

1. Age

In this study 16-60 years of age is selected as inclusion criteria as it is considered as *Madhyama Vaya*. On observation out of 60 patients 90% were reported in the age group of 31-60 years followed by 10% in 16-30 years. This may be due to work pressure and stressful life. As in the age of 30 to 60 years there will be lot of work load which will alter the food and lifestyle of person. This may be the main reason to develop *Pandu roga*.

2. Gender

In this study it is observed that out of 60 patients maximum number of patients i.e., 60% (36) patients were male and 40% (24) were females. This may be due to less consumption of nutritious food, mental stress, abnormality in digestion etc may be the reason in males and in females due to menstruation they require more quantity of dietary iron. This may be the probable cause.

3. Religion

Out of 60 patients, 54 (90%) patients were Hindus and 6 (10%) patients were Muslims. Maximum number of patients i.e., 54 (90%) patients in this study were belonging to Hindu religion; there is no relevant significance in between religion and *Pandu Roga*, as this may be due to demographic dominancy of Hindu population surrounding the hospital.

4. Education

Out of the 60 patients, 27 (45%) patients were studied up to graduation, 20 (33.33%) patients were studied up to P.U.C, 9 (15%) patients were studied up to high school, 4 (6.66%) patient had studied up to

primary. Maximum number of patients in this study was found to be well educated. Hence education does not have special effect on *Pandu roga* and it may be due to improper diet and mental status.

5. Marital Status

Out of 60 patients, 53 (88.33%) patients were married and 7 (11.66%) patients were unmarried. The observation reveals that majority of patients were married, this may be due to more of family stress and more responsibility which makes person to forget about maintenance of his/her own health.

6. Occupation

Out of the 60 patients, 37 (61.66%) patients were working person, 18 (30%) patients were House wife and 5 (8.33%) patients were students. Maximum patients in this study i.e., 37 (61.66%) patients were Working persons. This may be due to improper diet and skipping the meal due to work pressure and some *Manasika nidanas* like *Chinta* etc which is common in working persons.

7. Socio economic status

Out of 60 patients, 51 (85%) patients belongs to middle class, 7 (11.66%) patients belongs to lower class, 2 (3.33%) patients belongs to upper class. Maximum patients in this study belonged to middle class. This may due to poverty, work pressure and ignorance towards health.

8. Diet

Out of 60 patients, 39 (65%) patients were following mixed diet and 21 (35%) patients were following pure vegetarian diet. The maximum patients suffered from disease were following mixed diet, as *Mamsa ahara* is *guru* and it does *Agnimandya* and produces abnormality in formation of *Rasa dhatu*. This may be the reason to produce *Pandu roga*.

9. Sleep

Out of 60 patients, 51 (88.33%) patients had good sleep and 9 (11.66%) patients had disturbed sleep. Maximum number of patients had good sleep and hence nothing conclusive can be said about role of sleep in causing *Pandu roga*.

10. Bowel consistency

Out of 60 patients, 52 (86.66%) patients had normal bowel consistency and 8 (13.33%) patients had hard bowel consistency. Maximum number of patients had normal bowel consistency and hence nothing conclusive can be said about role of bowel consistency in causing *Pandu roga*.

11. Prakrithi

Out of 60 patients, 25 (41.66%) patients were of *Vata Pitta Prakruti*, 17 (28.33%) patients were of *Vata Kapha Prakruti* and 18 (30%) patients were *Pitta*

Kapha Prakruti. Maximum patients in this study i.e., 25 (41.66%) patients were of *Vata-Pitta Prakruti*. This helps us to understand that *Vata-Pitta Prakruti* persons are more prone to *Pandu Roga*.

Assessment of Total Effect of Therapy

Group-A: Overall effect of *Dhatri Lauha*

Table 3: Overall effect of *Dhatri Lauha*

Effect of Treatment in Group - A		
Class	Grading	No of patients
0-25%	Minimal	0
26%-50%	Mild	0
51% - 75%	Moderate	7
76% - 99%	Marked	9
100%	Complete Remission	14

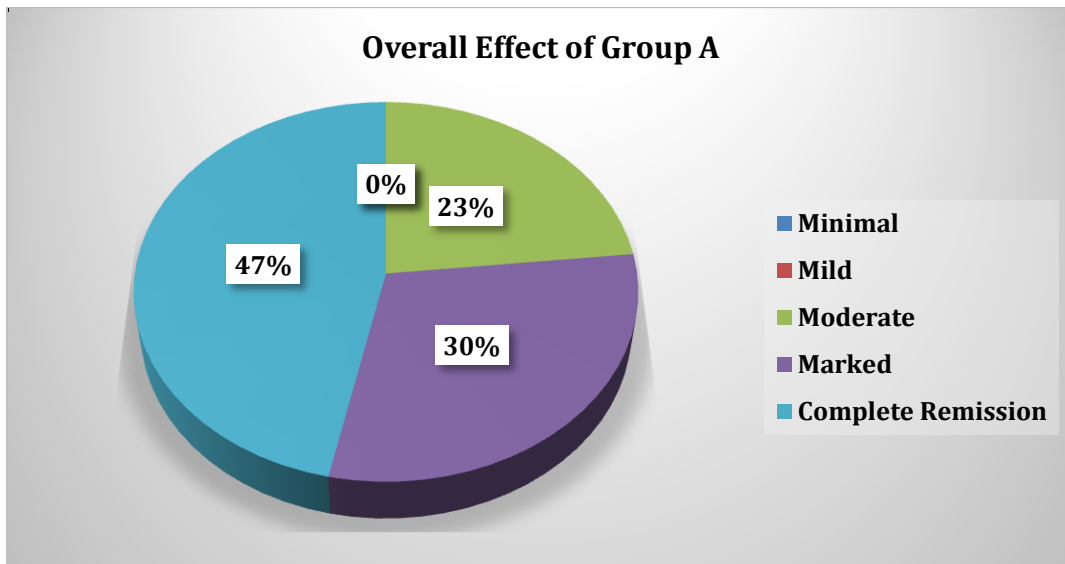


Figure 1: Overall effect of *Dhatri Lauha*

Group-B: Overall effect of *Murvadi Yoga*

Table 4: Overall effect of *Murvadi Yoga*

Effect of Treatment in Group - B		
Class	Grading	No. of patients
0-25%	Minimal	0
26%-50%	Mild	0
51% - 75%	Moderate	2
76% - 99%	Marked	6
100%	Complete Remission	22

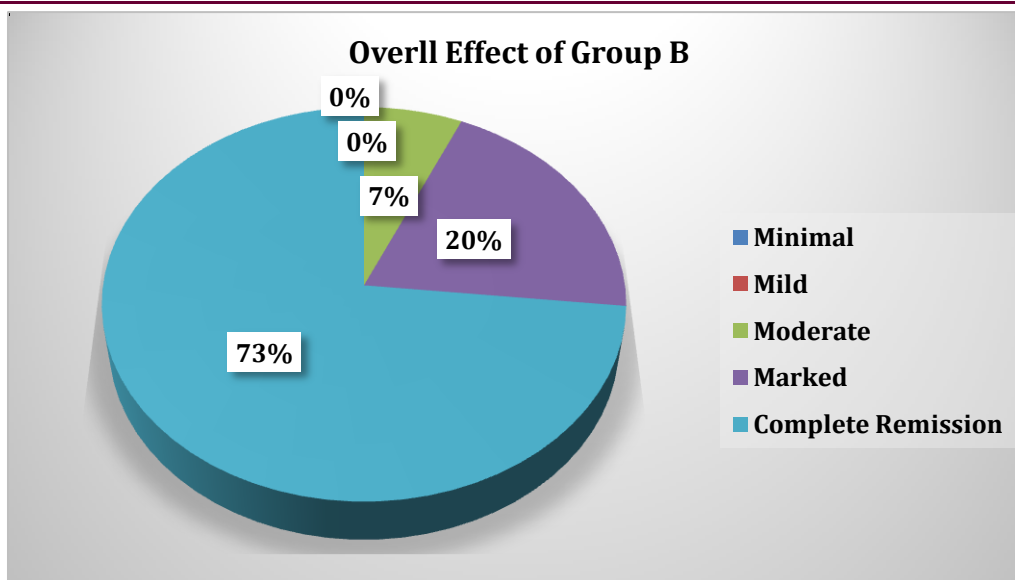


Figure 2: Overall effect of Murvadi Yoga

Table 5: Comparative results of Group-A and Group-B

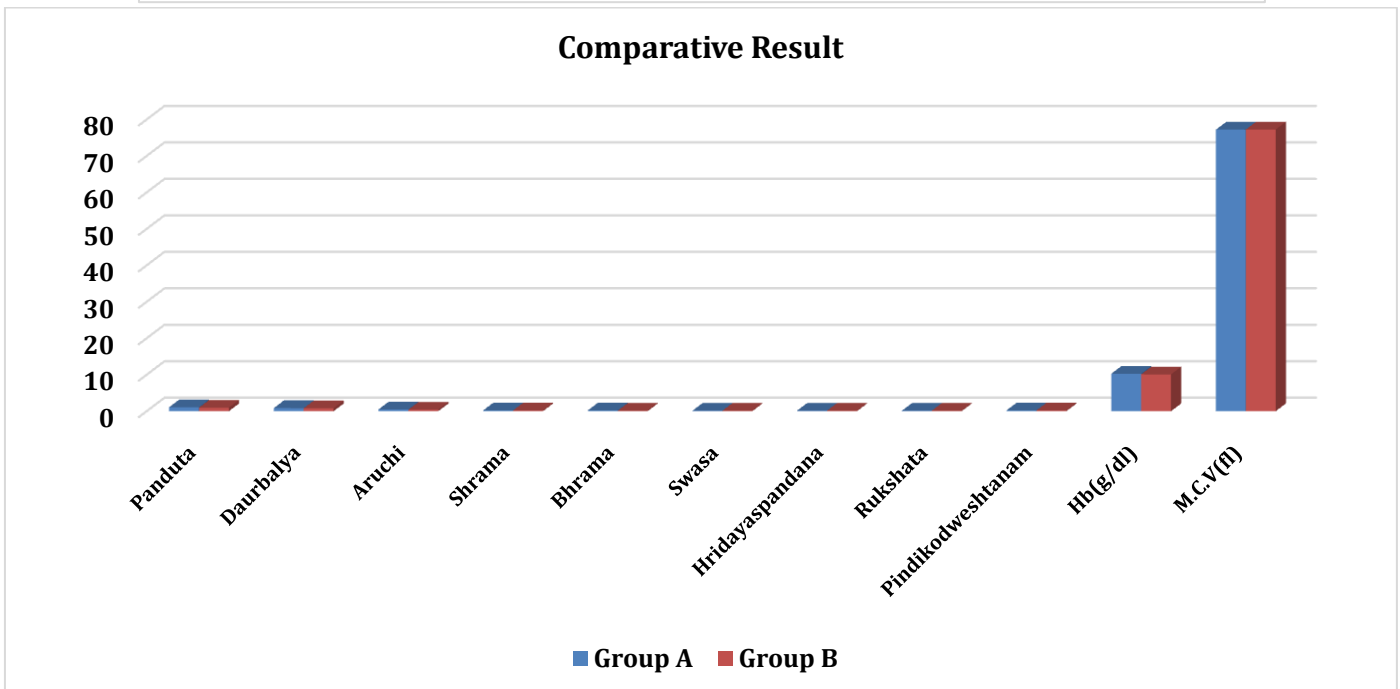
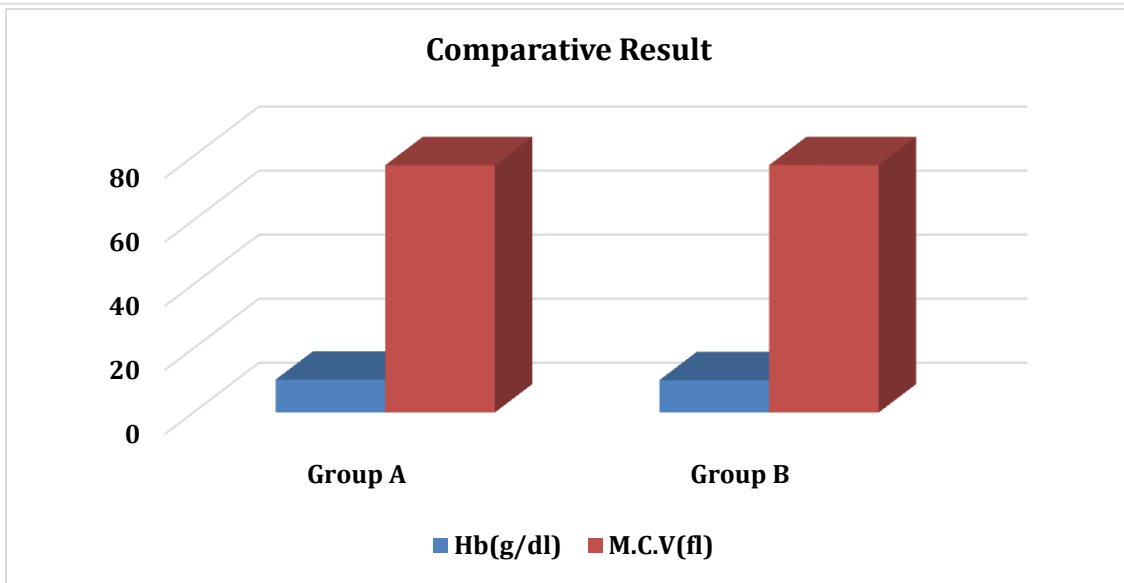
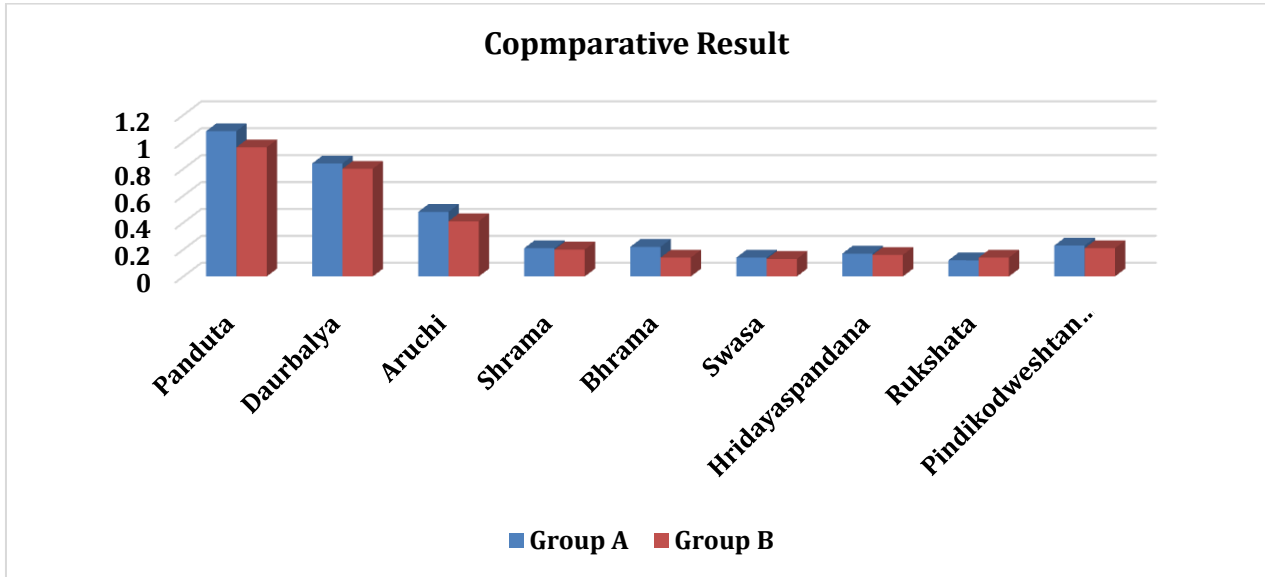
Signs and Symptoms	Group A (Mean Score)	Group B (Mean Score)	SD	SE	T Value	P Value
<i>Panduta</i>	1.08	0.96	0.590	0.110	1.07	>0.05
<i>Daurbalya</i>	0.84	0.80	0.825	0.153	0.29	>0.05
<i>Aruchi</i>	0.48	0.41	0.899	0.167	0.40	>0.05
<i>Shrama</i>	0.21	0.20	0.597	0.111	0.10	>0.05
<i>Bhrama</i>	0.22	0.14	0.579	0.107	0.80	>0.05
<i>Swasa</i>	0.14	0.13	0.557	0.103	0.12	>0.05
<i>Hridayaspandana</i>	0.17	0.16	0.386	0.072	0.13	>0.05
<i>Rukshata</i>	0.12	0.14	0.371	0.069	0.38	>0.05
<i>Pindikodweshtanam</i>	0.23	0.21	0.631	0.117	0.21	>0.05
Hb(g/dl)	10.26	10.09	0.843	0.157	1.01	>0.05
M.C.V(fl)	77.20	77.24	1.762	0.327	0.13	>0.05

Table 6: Comparative results of Group-A and Group-B

Group A	Group B	Mean Difference	SE (±)	T value	P value
87.60	95.35	7.75	2.45	2.60	<0.05

Comparative analysis of the overall effect of the treatments in both the groups was done by statistically with unpaired t test. The test shows that the treatment is significant in Group B when compared to Group A. Group A overall result is 87.60% and Group B overall result is 95.35%.

Figure 3: Comparative results of Group-A and Group-B



DISCUSSION

Discussion on probable mode of action of *Dhatri Lauha*:

- *Dhatri Lauha* is herbo mineral drug mentioned in The Ayurvedic Formulary of India (Reference from *Bhaishajya ratnavali*). The ingredients of this medicine are *Amalaka*, *Loha Bhasma*, *Yasti madhu* and *Guduchi*.
- *Amalaki* is *Amla rasa pradhana Dravya*, as poor absorption of iron is one of the main reasons of IDA, *Amalaki* acts here by its *Tridoshahara* and *Rasayana* properties, thus nourishes the *Dhatu*s and is also known to enhance the absorption of iron. Mainly *Amalaki* contains high quantity of Vitamin C which plays an important role in the kinetics of iron metabolism and the utilization of iron for red blood cell formation. *Amalaki* is also having antioxidant properties by virtue of antioxidants present in it which include Vitamin C, bioflavonoids, flavones, polyphenols, and carotenoids. Hence *Amalaki* which balances *Tridosha* and also has *Rasayana* property will help in curing *Pandu roga*.
- *Loha Bhasma* helps in reducing the symptoms of Anemia because it is a rich source of natural iron that helps to restore haemoglobin levels. By this patient feels better and symptoms gets reduced.
- *Yasti madhu* has *Shonita Sthapana* property which prevents bleeding tendency and normalize hematopoiesis and also *Yastimadhu* has a *Rasayana* property by which it will be beneficial in symptoms such as *Daurbalya*, *Shrama*, *Bhrama* etc hence Plays a important role in curing *Pandu Roga*.
- *Guduchi* which has *Madhura Vaipaka* and *Tridosha shamana* property will surely help in this disease and also *Guduchi* is having *Rasayana* property which will be beneficial in the patients of *Pandu roga*.
- Thus *Dhatri Lauha* showed positive result in decreasing the signs and symptoms of *Pandu roga*.

Discussion on Probable mode of action of *Murvadi Yoga*

- *Murvadi yoga* is the herbal preparation mentioned in *Gada Nigraha*. The ingredients of this medicine are *Murva*, *Bala* and *Chitraka*.
- *Murva* which has *Madhura tikta Rasa*, *Sheeta Veerya* and *Madhura Vipaka* has the potency of *Pitta Shamana*. As in *Pandu Roga* the mainly *Pitta* will be vitiated which does the *doshana* of *Rasa Dhatu* and hinders the *Uttarothara Dhatu Poshana*. Here *Murva* which is *Pitta Shamaka* in nature and also its *Tiktha* rasa helps in *kriminashana* and better digestion relieves the symptoms of *Pandu roga*.

- *Bala* which has *Madhura rasa*, *Guru guna*, *Sheetha veerya* and *Madhura vipaka* gives strength to the body. As it does *Vatapitta Shamana* it will surely help in the symptoms of *Pandu* such as *Daurbalya*, *Bhrama*, *Shrama*, *Pindikodweshtanam* etc by this it will improve the overall strength of *Pandu Rogi*. Weakness is the main complaint that patients will have in *Pandu roga* and this will be the magical drug in curing these symptoms.
- *Chitraka* which is *Katu rasa Pradhana Dravya* with *Usna Veerya*, *Katu Vipaka* is good *Deepana Pachana Dravya*. As in *Pandu roga* the patients will be having *Aruchi* and digestive related problems, all the food they consume will not correctly digest and absorbed to the body, by which there will be *Daurbalya* etc symptoms seen. Hence this drug will act on digestive system by which it corrects the *Aruchi* and digestive related problems and there will be proper digestion and absorption in patients and *Uttarothara dhatu vriddhi* is seen. In this way *Chitraka* acts as a very useful drug in *Pandu roga*.

CONCLUSION

- *Pandu Roga* is *Pitta Pradhana Tridoshaja Vyadhi* with the involvement of *Rasa* and *Rakthavaha Srotas*.
- *Pandu Roga* is presented with symptoms such as *Panduta*, *Daurbalya*, *Aruchi*, *Shrama*, *Bhrama*, *Swasa*, *Hridayaspandana*, *Rukshata* and *Pindikodweshtanam*.
- *Pandu Roga* is correlated to iron deficiency anemia because of similar features like pallor, weakness, palpitation, shortness of breath etc.
- In the present study comparative analysis is made on two groups with 30 patients in each group. In Group A 30 patients of *Pandu roga* was administered with *Dhatri Lauha- 2* tablets (1 tablet- 350mg) twice daily with honey and *Ghrita* after food for 30 days and in Group B 30 patients of *Pandu roga* was administered with *Murvadi Yoga-2* tablets (1 tablet- 350mg) twice daily with hot water after food for 30 days.
- Some observations like diet, occupation, socio economic status etc can lead to *Pandu Roga*.
- The overall effect of treatment on subjective and objective parameter of the assessment criteria pertaining to *Pandu* was subjected to statistical analysis by adopting the paired 't' test for assessment within the groups and unpaired 't' test for assessment between the groups.
- The *Lakshanas* like *Panduta*, *Daurbalya*, *Aruchi*, *Shrama*, *Bhrama*, *Swasa*, *Rukshata* and

Pindikodweshtanam were shown better result in Group B.

- The *Lakshanas* like *Hridayaspandana* and *Rukshata* were shown better result in Group A.
- The busy life style, improper food habit, stress, tension, careless regarding health, poverty etc can contribute more in causing the *Pandu Roga*.

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