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A Comparative Clinical Study to evaluate the effect of *Haritaki Churna* and *Amalaki Churna* in *Pandu* (Iron Deficiency Anemia)

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ABSTRACT

Pandu is a *Pitta Pradhana Tridoshaja Vyadhi* producing *Pandutva* or *Pandu Varna* in *Mukha*, *Nayana*, *Asya* and *Mutra*. *Alpa Rakthata*, *Vaivarnaya*, *Agni Mandhya*, *Ojokshaya* and *Balahani* are other symptoms. It affects people of all ages irrespective of sex. *Haritaki Churna* and *Amalaki Churna* are having *Deepana*, *Pachana*, *Varnya*, *Tridosha Shamaka*, *Raktha Vardhaka*, *Rasayana* and *Ojovardhaka* properties which helps in *Samprapti Vighatana* of *Pandu Roga*. This study is an attempt to clinically analyze the independent effect of *Haritaki Churna* and *Amalaki Churna* in *Pandu Roga*. This study is a single blind comparative clinical study conducted on 60 subjects divided randomly in two groups. They were reviewed at an interval of 15 days for 1 month. *Haritaki Churna* was given at a dose of 1.5g. twice a day with *Madhu* before food. *Amalaki Churna* was given at a dose of 1.5g. twice a day with *Madhu* before food. The Patients were assessed with severity of symptoms subjectively and objectively before and after treatment. Data from each group were statistically analyzed and compared. Both the group showed marked results but *Amalaki Churna* is slightly significant then the *Haritaki Churna* in the management of *Pandu* (IDA). The study shows that both *Haritaki Churna* and *Amalaki Churna* are effective in relieving the symptoms of *Pandu Roga*. *Haritaki Churna* was effective in subjective parameter like *Pandutva*, *Arohanayasa*, *Shrama*, *Aruchi*, *Bhrama*, *Daurbalya*, Hairfall, Bodyache, Glossitis, Hb%, RBC, and Sr.Ferritin. *Amalaki Churna* was effective in conditions like *Pandutva*, *Arohanayasa*, *Aruchi*, *Shrama*, *Karna Ksweda*, *Daurbalya*, Hairfall, Bodyache, Hb% PCV, Sr.Iron and TIBC.

Key words: *Pandu Roga*, *Haritaki Churna*, *Amalaki Churna*, *Iron Deficiency Anemia*.

INTRODUCTION

Ayurveda is the only medical science which teaches the understanding of life. what exactly is life? what do

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we expect from life? And what is the art of living ? Ayurveda is a preventive medical science and has curative property too.

In India majority of people suffers from malnutrition, many nutritional deficiency diseases like anaemia which is described in Ayurveda as *Pandu Roga* are caused due to poverty, illiteracy and lack of health service. Majority of people have their haemoglobin percentage lower than normal and due to this their immunity also decreases. In Ayurveda we can describe this as "*Rakta Dhatu Kshaya*."

Nutritional anaemia is a major public health problem in India and is primarily due to iron deficiency. Low dietary intake, poor availability of iron, chronic blood loss due to hook worm infestation and malaria are causes for this.^[1]

The WHO Global Database Prevalence on Anaemia for 1990-2012, covering almost half the world's population, estimated the prevalence of anaemia worldwide at 32%. Although the prevalence of anaemia is estimated as included 257 surveys conducted of which 232 (90%) were nationally representative sources. 205 sources (80%) had data on women and 224 (87%) had data on children of the WHO.^[2]

Iron Deficiency Anaemia in India is rampant among children below the age of 3 years (78.9%) and women (55%), men follow at 24% according to National Family Health Survey (NFHS). The basic symptoms of this anaemia are fatigue, weakness, lethargy, shortness of breath and decreased concentration.^[3]

Pandu Roga is a *Santarpanotha Vyadhi* with *Pandu Varna* or *Pandu Bhava*.^[4] *Acharya Charaka* mentioned it as one among the *Rasavaha Sroto Vikaras* while *Acharya Susruta* mentioned it as *Raktavaha Sroto Vikara*.^[5] It is a *Pitta Pradhana Tridosha Vyadhi* which vitiates *Rasadi Dhatus*. *Prakupita Pitta* resides in *Tvak* and *Mamsa* and causes *Vata, Kapha, Asrik, Tvak* and *Mamsa Dushti*. This results in *Pandu Lakshanas* like *Vaivarnya, Hrid Dravata, Tandra, Bhrama* and *Shrama*. On *Anupakrama* it causes *Upadravas* like *Aruchi, Pipasa, Chardi, Jwara* and may result in *Asadhya Lakshanas*. The word *Pandu* is a *Pum Linga Shabda* formed from the *Dhatu 'Padi Gatou'*. *Padi* means *Gati* i.e. transformation.^[6] The word '*Padi Gatao*' signifies the formation of *Rasa, Rakta* and other *Dhatus*. If the transformation process of *Dhatu* is not proper or hindered, then it leads to *Pandu Roga*.^[7] *Pandu Roga* is a disease named on the basis of *Varna, Pandu Varna* is a combination of *Shweta* and *Peeta Varna* in equal Proportions, similar to pollen grains of *Ketaki*.^[8] *Pandu Varna* is the combination of *Shukla* and *Peeta*.^[9] The disease is named *Pandu Roga* where in *Pandu, Harita* and *Haridra Varnas* are seen.^[10] Disease where in *Akshi, Nakha* and *Vakthra* are *Shweta Varna* is called as *Pandu Roga*.^[11] *Charaka* includes *Haridra* and *Harita Varnas* under *Pandu*.^[12] *Acharya Charaka* mentioned the *Poorvaroopa* as *Hrudaya Spandadhikya, Roukshya, Sweda Abhava* and *Shrama*.^[13]

Origin of the word Anemia is derived from the Greek word 'anemia' which means lack of blood. The word Anemia describes the condition in which the individual experiences a reduced quantity of red blood cells or hemoglobin which, in turn, causes pale skin.

Anemia refers to a state in which the level of hemoglobin in the blood is below the normal range appropriate for age and sex.^[14]

Anemia is defined as reduction in the total circulating red cell mass below normal limits. Anemia reduces the oxygen carrying capacity of the blood, leading to tissue hypoxia.^[15]

Anemia means deficiency of hemoglobin in the blood, which can be caused by either too few red blood cells or too little hemoglobin in the cells.^[16]

Anemia in moderate form, presents itself with symptoms like fatigue, loss of appetite, weakness, breathlessness and palpitation, particularly with physical exertion and pallor of the skin and the mucous membrane.^[17]

Anemia can translate into significant morbidities for affected individuals and consequent socio-economic losses for the country. The conventional iron therapy for Anemia is only palliative and associated with less patient compliance and side effects on long term use. Patients complaints of metallic taste, nausea, abdominal discomfort and giddiness by iron tablets. Owing to the need of the situation two drugs namely *Haritaki Churna*^[18] and *Amalaki Churna*^[19] with *Madhu*^[20] as *Sahapana*. In the study an attempt is made to evaluate the efficacy of each drug on *Pandu* and their efficacies are mutually compared.

OBJECTIVES OF THE STUDY

A comparative clinical study to evaluate the effect of *Haritaki Churna* and *Amalaki Churna* in *Pandu* (Iron deficiency anemia).

MATERIALS AND METHODS

60 Patients of *Pandu* (IDA) within the age group of 16-60 yrs were selected randomly from OPD and IPD of BLDEA's AVS Ayurveda Mahavidyalaya Hospital and Research Centre, Vijayapura and Camps conducted in

the city (Vijayapura) by the Institute, irrespective of sex, occupation and socio-economic status.

1. Diagnostic criteria

Patients presenting with clinical features of *Pandu* (IDA) - *Pandutha, Arohanaayasa, Shrama, Bhrama*.

2. Inclusive criteria

- Patients with Hb% within the range of 7 to 11 gm/dl
- Patients of either sex.
- Patients of 16 - 60 years of age

3. Exclusive criteria

- Patients with history of other systemic diseases like Diabetes mellitus and Hypertension.
- Patients with history of Sickle cell anemia, Leukemia, Hemophilia
- Patients suffering with any infectious diseases like Malaria
- Patients suffering from disorders associated with gastro intestinal bleeding Pregnancy.

4. Intervention

While making group simple random sampling procedure was adopted.

Group A:

30 patients were administered *Haritaki Churna* - 1.5gm twice daily with Madhu, before food for 1 month.

Group B:

30 patients were administered *Amalaki Churna* - 1.5gm twice daily with Madhu, before food for 1 month.

Assessment criteria

A detailed proforma was prepared for the assessment of Subjective and Objective parameters by grading them. The data obtained was recorded statistically.

Subjective criteria

- *Pandutha*
- *Arohanaayasa*
- *Shrama*
- *Bhrama*
- *Aruchi*

- *Daurbalya*
- *Swasa*
- Hairfall
- Bodyache
- Dysphagia

Objective criteria

- Haemoglobin percentage
- Packed cell volume
- TC
- DC
- RBC
- Peripheral blood smear
- TIBC
- Serum Iron
- Serum Ferritin

OBSERVATIONS AND RESULTS

Figure 1: Demographic data of 60 patients of *Pandu*.

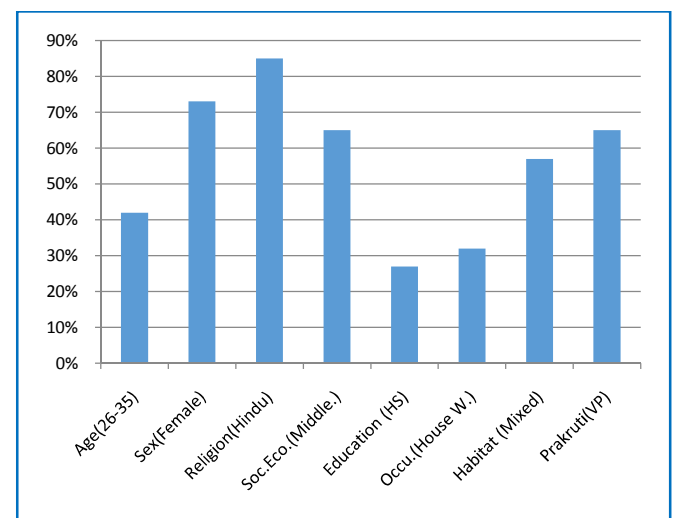


Table 1: Effect of therapy on subjective parameters in Group A (*Haritaki Churna*)

S N	Signs and Sympt oms	Mean		N	X	%	S D	SE	t	p
		B T	A T							
1	<i>Pandut ava</i>	1. 46	0. 36	3 0	1	68. 18	0. 52	0.0 9	10. 42	<0. 05
2	<i>Arohan ayasa</i>	1. 53	0. 66	3 0	0. 8	52. 17	0. 40	0.0 74	10. 77	<0. 05

3	<i>Shrama</i>	1.63	0.43	30	1.02	73.46	0.48	0.08	13.57	<0.05
4	<i>Bhrama</i>	0.05	0.03	30	0.47	87.5	0.50	0.09	5.03	<0.05
5	<i>Aruchi</i>	1.03	0.33	30	0.07	67.74	0.53	0.09	7.16	<0.05
6	<i>Daurbalya</i>	1.76	0.73	30	1.03	58.49	0.41	0.07	13.67	<0.05
7	<i>Swasa</i>	0.56	0.1	30	0.46	82.35	0.50	0.09	5.03	<0.05
8	<i>Hairfall</i>	1.36	0.73	30	0.63	46.31	0.49	0.08	7.07	<0.05
9	<i>Bodyache</i>	1.56	0.63	30	0.93	59.57	0.36	0.06	12.05	<0.05
10	<i>Dysphagia</i>	0.33	0.03	30	0.3	90	0.46	0.08	3.52	<0.05

The mean score of *Pandutava* was 1.46 before treatment which reduced up to 0.36 after treatment with 68.18% relief, which is statistically significant ($P<0.05$).

It was reported that initial mean score of *Arohanayasa* in this group was 1.53 and after treatment it reduced up to 0.66. This 52.17% relief was statistically significant ($P<0.05$).

It was found that the mean score of *Shrama* was 1.63 before treatment and after the completion of the course it was reduced up to 0.43. This 73.46% relief was statistically significant ($P<0.05$).

It was observed that the mean score of *Bhrama* was 0.5 before treatment and after treatment it was reduced up to 0.03. So here 87.5% relief was found which was statistically significant ($P>0.05$).

The mean score of *Aruchi* before treatment was 1.03 which was reduced to 0.33 after treatment with 67.74.% relief but it was statistically significant ($P<0.05$).

Before treatment mean score of *Daurbalya* was 1.76 which was reduced up to 0.73 after treatment, this way treatment provided 58.43% relief, which was statistically significant ($P<0.05$).

The mean score of *Swasa* before treatment was 0.56 which reduced up to 0.1 after treatment and thus 82.35% relief was found which was statistically significant ($P<0.05$).

Before treatment mean score of *Hairfall* was 1.36 which was reduced up to 0.73 after treatment, this way treatment provided 46.31% relief, which was statistically significant ($P<0.05$).

It was observed that the mean score of *Bodyache* was 1.56 before treatment and after treatment it was reduced up to 0.63. So here 59.57% relief was found which was statistically significant ($P>0.05$).

It was found that the mean score of *Dysphagia* was 0.33 before treatment and after the completion of the course it was reduced up to 0.03. This 90% relief was statistically significant ($P<0.05$).

Table 2: Effect of therapy on Objective parameters in Group A (Haritaki Churna)

S N	Variable	Mean		N	%	SD	t	p
		BT	AT					
1	Hb%	10.02	10.75	30	6.84	0.48	8.31	<0.05
2	PCV	29.9	32.88	30	9.05	3.17	5.31	<0.05
3	R.B.C	3.7	3.97	30	4.64	0.18	5.61	<0.05
4	PBs	2.23	2.56	30	12.98	0.71	2.56	<0.05
5	Sr.Ferri tin	40.07	59.92	30	33.1	26.69	4.07	<0.05
6	Sr.Iron	40.7	58.5	30	30.46	13.6	7.17	<0.05
7	TIBC	454.7	373.1	30	17.93	58.4	7.64	<0.05

The mean score of Hb % before treatment was 10.02 and after treatment it was 10.75 which was statistically significant. ($P<0.05$).

The mean score of PCV before treatment was 29.9 and after treatment it was 32.88 which was statistically significant. ($P<0.05$).

The mean score of RBC before treatment was 3.7 and after treatment it was 3.97 which was statistically significant. (P<0.05).

The mean score of PBs before treatment was 2.23 and after treatment it was 2.56 which was statistically significant. (P<0.05).

The mean score of Sr.Ferritin before treatment was 40.07 and after treatment it was 59.92 which was statistically significant. (P<0.05).

The mean score of Sr.Iron before treatment was 40.7 and after treatment it was 58.5 which was statistically significant. (P<0.05).

The mean score of TIBC before treatment was 454.7 and after treatment it was 373.1 which was statistically significant. (P<0.05).

Table 3: Effect of therapy on subjective parameters in Group B (Amalaki Churna)

S N	Signs and Sympt oms	Mean		N	X	%	S D	SE	t	P
		B T	A T							
1	Pandut ava	1. 3	0. 3	3 0	1	76. 92	0. 37	0.0 6	14. 74	<0. 05
2	Arohan ayasa	1. 1	0. 06	3 0	1. 04	93. 93	0. 61	0.1 1	9.2 0	<0. 05
3	Shram a	1. 73	0. 3	3 0	1. 43	82. 64	0. 50	0.9 2	15. 57	<0. 05
4	Bhram a	0. 6	0. 1	3 0	0. 5	83. 33	0. 50	0.0 92	5.3 8	<0. 05
5	Aruchi	0. 8	0. 13	3 0	0. 67	79. 16	0. 71	0.1 3	4.8 2	<0. 05
6	Daurba lya	1. 86	0. 3	3 0	1. 56	83. 92	0. 50	0.0 9	17. 02	<0. 05
7	Swasa	0. 3	0. 03	3 0	0. 27	88. 8	0. 52	0.0 9	2.8 0	<0. 05
8	Hairfall	1.	0.	3	0.	63.	0.	0.1	7.1	<0.

		26	5	0	8	15	61	1	8	05
9	Bodyac he	1. 56	0. 1	3 0	1. 46	93. 61	0. 50	0.0 9	15. 83	<0. 05
10	Dyspha gia	0. 36	0. 03	3 0	0. 33	72. 72	0. 44	0.0 8	3.2 4	<0. 05

The mean score of *Pandutava* was 1.3 before treatment which reduced up to 0.3 after treatment with 76.92% relief, which statistically significant (P<0.05).

It was reported that initial mean score of *Arohanayasa* in this group was 1.31 and after treatment it reduced up to 0.06. This 93.93% relief was statistically significant (P<0.05).

It was found that the mean score of *Shrama* was 1.73 before treatment and after the completion of the course it was reduced up to 0.3. This 82.64% relief was statistically significant (P<0.05).

It was observed that the mean score of *Bhrama* was 0.6 before treatment and after treatment it was reduced up to 0.1. So here 83.33% relief was found which was statistically significant (P>0.05).

The mean score of *Aruchi* before treatment was 0.8 which was reduced to 0.13 after treatment with 79.16.% relief but it was statistically significant (P<0.05).

Before treatment mean score of *Daurbalya* was 1.86 which was reduced up to 0.3 after treatment, this way treatment provided 83.92% relief, which was statistically significant (P<0.05).

The mean score of *Swasa* before treatment was 0.3 which reduced up to 0.03 after treatment and thus 88.8% relief was found which was statistically significant (P<0.05).

Before treatment mean score of *Hairfall* was 1.26 which was reduced up to 0.5 after treatment, this way treatment provided 63.15% relief, which was statistically significant (P<0.05).

It was observed that the mean score of *Bodyache* was 1.56 before treatment and after treatment it was

reduced up to 0.1. So here 93.61% relief was found which was statistically significant ($P>0.05$).

It was found that the mean score of Dysphagia was 0.36 before treatment and after the completion of the course it was reduced up to 0.03. This 72.72% relief was statistically significant ($P<0.05$).

Table 4: Effect of therapy on Objective parameters in Group B (Amalaki Churna)

S N	Variable	Mean		N	%	SD	t	p
		BT	AT					
1	Hb%	10.20	11.19	30	88.4	0.46	11.62	<0.05
2	PCV	30.40	34.20	30	11.12	3.49	5.96	<0.05
3	R.B.C	3.83	4.08	30	62.6	0.29	4.76	<0.05
4	PBs	2.1	2.6	30	19.23	0.77	3.52	<0.05
5	Sr.Ferritin	45.91	65.85	30	30.2	15.21	7.17	<0.05
6	Sr.Iron	41.62	75.57	30	44.92	19.34	9.61	<0.05
7	TIBC	436.36	338.83	30	22.35	52.28	10.2	<0.05

The mean score of Hb % before treatment was 10.20 and after treatment it was 11.19 which was statistically significant. ($P<0.05$).

The mean score of PCV before treatment was 30.4 and after treatment it was 34.20 which was statistically significant. ($P<0.05$).

The mean score of RBC before treatment was 3.83 and after treatment it was 4.08 which was statistically significant. ($P<0.05$).

The mean score of PBs before treatment was 2.1 and after treatment it was 2.6 which was statistically significant. ($P<0.05$).

The mean score of Sr.Ferritin before treatment was 45.91 and after treatment it was 65.85 which was statistically significant. ($P<0.05$).

The mean score of Sr.Iron before treatment was 41.62 and after treatment it was 75.57 which was statistically significant. ($P<0.05$).

The mean score of TIBC before treatment was 436.36 and after treatment it was 338.83 which was statistically significant. ($P<0.05$).

Table 5: Overall effect of the therapy.

% Relief	Effect	Group A		Group B	
		No.of Pts	%	No.of Pts	%
100	Cured	0	0	0	0
>75	Markedly Improved	6	20%	11	37%
75-51	Moderately Improved	22	73%	18	60%
50-25	Improved	2	7%	1	3%
<25	Unchanged	0	0	0	0

Group A: In this group, 6 patients were Markedly improved i.e. (20%), 22 patients were Moderately improved i.e. (73%) and 2 patients were showing improved i.e. (7%).

Group B: In this group, 11 patients were showing Markedly improved i.e. (37%), while 18 patients showing Moderately improved i.e. (60%) and 1 patients were showing improved i.e. (3%).

DISCUSSION

The word *Pandu* means yellowish white or white. The disease having *Panduthva* or *Pandu Bhava* is known as *Pandu Roga*. In all the varieties of *Pandu Roga*, *Pandu Varna* is a predominant feature. Here *Pandutva* is seen in *Akshi*, *Nakha*, *Mukha* and *Anana*.

The details of *Pandu Roga* are available in the books of *Brihatrayees*, *Laghutrayees* and other *Samhitas* like

Bhela, Harita, Yoga Ratnakara, Vangasena etc. In all these books *Pandu* and *Kamala* are described together. *Susruta* describes *Kamala* as a synonym of *Pandu* being a different stage of *Pandu*. *Kamala* differs from *Pandu* in symptoms and thus way of management and hence described with separate heading under *Pandu* by *Acharya Charaka* and *Acharya Vagbhata*. These two conditions have same *Nidanas* so discussed in same chapter.

In this study, 15% belonged to age group of 16-25 yrs, 42% belonged to 26-35 yrs age group, 28% belonged to 36-45 yrs age group, 8% belonged to 45-55 yrs age group and 7% belonged to 56-60 group. This shows increased prevalence of *Pandu* in the age group 26-35, where in *Pitta* is predominant. There is prevalence of *Pittaja vyadhis* in this age. This may be supported by factors vitiating *Vata* and *Pitta* and may lead to occurrence of *Pandu Roga*. In this study 73% subjects were female and 16% subjects of male. Here out of 60 cases, 16 males and 44 females are affected and incidence was maximum in female i.e. 73%. In this study, 85% were Hindus, 7% were Muslim, and 2% were Jain. This shows prevalence of *Pandu* in Hindus, this may be only due to the dominancy of Hindus in the area from where the patients were selected. 10% are Poor, 65% are middle class, and 25% are upper middle class. there is a good chance that all different classes of people may suffer with *Pandu* for different reasons. In poor it may be due to low affordability. In affordable classes eating junk food may be the reason. 24% were undergraduate, 3% completed intermediate, 10% post graduate, 27% completed high school, 18% completed primary school and 2% illiterate. Though educated people are placed in responsible jobs, they may suffer with stress and irregular food timings. With low or uneducated people lack of awareness or low affordability may be the cause. In this study 13% student, 32% house wife, 2% agriculture, 6% professional, 25% unskilled worker and 22% skilled worker. In students, mental stress and negligence to take food at appropriate time may be the reason. Improper timing of food due to busy work schedule may be the cause in other occupations. Among all, 57% were of mixed food habits and 43% of

pure vegetarian. *Ati Mamsa Sevana* is a cause for *Santarpana Janya Vyadhi*. Also frequent non-veg intake will cause *Agnidushti* and *Dhatudusti*. In this study 65% subjects were of *Vata-Pitta Prakruti*, 20% subjects were of *Vata-Kapha Prakruti* and 15% subjects were of *Kapha-Pitta Prakruti*. In this study the *Pandu* was found to be affecting more subjects with *Vata Pitta Prakriti*.

In this study 73%, subjects were taking food with *Amla Rasa* predominance, 77% subjects were taking food with *Lavana Rasa* predominance and 73% of subjects were taking food with *Katu Rasa* predominance. Intake of *Katu, Amla* and *Lavana Rasa* leads to *Pitta Dushti* and also *Raktadushti*, causing *Pandu Roga*.

57% of subjects were practicing *Ratri Jagarana* and 57% were practicing *Divaswapna, Ratri Jagarana* being a *Vata Prakopaka Nidana* and *Diwaswapna* being a *Kapha Prakopaka Nidana* may have resulted in *Vata* and *Kapha Prakopa* leading to *Rasa Dhatu Dushti*.

Manasika Nidana in 27% subjects was found to be *Krodha* and in 55% it was found to be *Chinta*. These *Nidanas* are capable of causing *Pitta* and *Vata Prakopa* leading to *Rasa Dhatu Dushti*.

PROBABLE MODE OF ACTION

Haritaki Churna and *Amalaki Churna* are the *Rasayana Dravyas* which increases the *Dhatu*s and also act as iron supplement. *Amla Rasa* of *Amalaki* and *Haritaki* helps in the absorption of iron in the intestine. The properties of other ingredients like *Deepana* and *Pachana* act on *Jataragni* by improving the *Agni*, relieving symptoms like *Agnimandya* and *Aruchi*. By *Srotoshodana* they act at *Dhatwagni* level helping in absorption. The *Srotoshodana* property along with *Varnya, Twachya Guna* reduces *Pandutva*. By correcting *Dhatwagnis* proper *Poshana* and formation of *Dhatu*s occurs. This helps in correcting *Arohanayasa, Srama, Daurbalya, Ojo Kshaya*. The *Tridosha Samaka*, particularly *Pitta Samaka* property helps in controlling the enzymatic activity in the gut thus improving the iron absorption.

Sheeta Virya and *Madhura Vipaka* in both formulations help in *Pitta Samana* and does *Tarpana* of *Rasa Dhatu* and helps in controlling *Kesa Patana*, *Bhrama*, *Karna Ksweda*.

Madhura Vipaka and *Rasa Dhatu Pushti* helps in relieving *Vata Prakopa*. *Shareera Vedana* is a lakshana caused by *Vata Prakopa*. hence with *Vata Prasamana Sareera Vedana* also reduces.

Madhu as a *Sahapana* is having *Lekhana Karma* by this calculus disintegration takes place and acts as *Kaphahara*. *Picchila*, *Madhura*, *Kashaya Guna* are reason for *Vata-pittashamaka*. *Madhu* it consists of fructose (40-50%), glucose (30-40%) and sucrose (0.1-10%). In addition of these traces of enzymes, vitamins, proteins, amino acids, are also present, as it contain sugar are quickly absorbed by our digestive system and converted into energy. This is one of best *Yogavahi*. The improvement with Hb% and ESR in both groups of *Haritaki Churna* and *Amalaki Churna* was observed. This change in the objective parameters gives evidence about the *Raktha Vardhaka* and *Raktha Shodaka* properties of the drug present in both the groups.

Significant change in RBC, Sr.Ferritin and Sr.Iron was observed with *Amalaki Churna*, while with *Haritaki Churna*. This difference may be probably because the a good source of vitamin C, D-glucose, D-fructose, bioflavonoids, flavones, polyphenols and carotenoids. Pharmacological activities like antioxidant, immunomodulatory which are able to act in a better way with in the pathogenesis of IDA.

However on objective parameters significance increase was found in Sr.Iron and TIBC in *Amalaki Churna*. It was also observed that with *Haritaki Churna* group 1 peripheral smear of microcytic hypochromic picture changed to normocytic normochromic picture 1 peripheral smear of microcytic hypochromic picture changed to normocytic hypochromic picture.2 peripheral smear of normocytic hypochromic picture changed to normocytic normochromic picture.In *Amalaki Churna* group 1 peripheral smear of microcytic hypochromic picture changed to normocytic hypochromic picture. 3

peripheral smear of normocytic hypochromic picture changed to normocytic normochromic picture. Though the improvement with blood picture was seen in only limited samples , this observation may be indicating about the efficacy of both the formulations regarding the improvement with blood picture.

The data collected were graded where no change in patients i.e., remain clinically stable, slight reduction i.e. 50% reduction of the symptom and complete reduction of the symptom.

By the observations and results of both groups, reduction in percentage of variable symptom is more significant in Group-B than in Group-A. We can say that the both the groups showed significant results with their respective procedures but Group B had more progressively positive changes in the individual symptom than Group A.

CONCLUSION

The study shows that both *Haritaki Churna* and *Amalaki Churna* are effective in relieving the symptoms of *Pandu Roga*. *Haritaki Churna* was effective with subjective parameters like *Panduthva*, *Arohanayasa*, *Srama*, *Aruchi*, *Bhrama*, *Bodyache* and objective parameters like Hb%, RBC, and Sr.Ferritin. *Amalaki Churna* was effective with subjective parameters like *Panduthva*, *Arohanayasa*, *Aruchi*, *Srama*, *Bhrama*, *Daurbalya*, *Hairfall*, *Body ache* and objective parameters like Hb%, PCV, Sr.Iron and TIBC. Here it is observed that Group B is slightly significant than the Group A.

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