



Efficacy Of Arogyavardhini Rasa And Tapyadi Loha On Haemoglobin In First Year Graduation Females

^{1*}Dr Gite Y. A., ²Dr Adhav P. R. ³Dr Bhagat S. S., Dr Jagtap R. S.

^{1*}M.D. (Ayu), M.B.A. (HSM), D.Y.T., Assistant Professor,
²M.D. (Ayu) A.V.P., Ph.D., Professor & Principal, ³P.G. Scholar ,

Dept of Kayachikitsa, SVNHT's Ayurved Mahavidyalaya,
 Rahuri Factory, Dist-Ahmednagar, Maharashtra, India.

***Corresponding Author**

Dr. Gite Yogeshkumar Anandrao

M.D.(Ayu), M.B.A.(HSM), D.Y.T.,

Assistant Professor & HOD

Dept of Kayachikitsa,

SVNHT's Ayurved Mahavidyalaya, Rahuri Factory, Ahmednagar, MS.

E-mail: dryogeshgite@gmail.com

ABSTRACT

Pandu and low haemoglobin level are very common conditions encountered in India. It is also observed that females during pregnancy and females in reproductive age are more prone to low haemoglobin level. First year graduation females were involved in this clinical study. Comparison between Ayurvedic compounds against well known modern science drug was made. Objective of study was to find which one is better and to compare them in account of side effects. 15 patients from Group A were treated with *Arogyavardhini Rasa* along with *Tapyadi Loha*, while 15 patients from Group B were treated with Cap Autrin each for 60 days. At the end it was found that Ayurvedic drug increased Hb gm% more than Cap Autrin. No side effects were observed in case of *Arogyavardhini Rasa* along with *Tapyadi Loha*. *Pitta prakriti, Mandagni, Krura Koshtha* and Poor socioeconomic status were found major factors for low haemoglobin level. Statistical analysis did not show significant difference. ($t=1.37$, $P=0.091$; i.e. $P>0.05$ but $P<0.10$)

Key words – *Pandu, Arogyavardhini Rasa, Tapyadi Loha, Haemoglobin, Cap Autrin.*

INTRODUCTION

Padnu is a common condition encountered in practice in our country. *Pandutvam*¹ (paleness) of body is the *Pratyanik lakshana* in *Pandu* as per Vagbhata while Charak termed it as *Vaivarnya*.² Although it is encountered in both sexes and all ages but it is more common in pregnant females, females in reproductive age and during phase of growth.³ Recently WHO estimated that over one third of the world population is anaemic.⁴ Sushruta described that *Pandu* is caused by *Raktadushti*.⁵ Charaka mentioned that there is *Rakta* and *Meda dhatu alpata*.² Vaghabhat also gave same opinion as Charaka.⁶ Haemoglobin is Iron containing oxygen transport metalloprotein in the RBC of all the vertebrates. 'Haemoglobin deficiency' (due to decreased amount of haemoglobin molecules) is one of the causes of Anaemia.⁷ Haemoglobin < 14gm% in adult male, < 12gm% in adult non pregnant female and < 11gm% in pregnant female and children should be considered as Anaemia.⁸

Due to changed lifestyle, increased stress-strain, inappropriate food habits incidence of *Pandu* is more now a days. In Indian females it is far more. It can be said that, *Pandu* is social problem of today's era. It is such disease, if not treated properly can cause major consequences to someone's health. Ayurveda in its vast literature gifted us many solutions for disease like *Pandu*. This study is aimed at finding such solution. As females are more prone in reproductive and growth age, first year graduation female students have been selected for this study. Here comparative clinical study among two drugs had been carried out in *Pandu* with special reference to Haemoglobin level and Pallor to observe prevalence, to compare efficacy and side effects.

MATERIALS AND METHODS

Study Design

This was comparative clinical study. The study was carried out in the Dept. of Kayachikitsa, SVNHT's Ayurved Mahavidyalaya and Rugnalaya. The study was cleared by Ethical Committee of the Institute. Written consent was taken from each and every patient participated. 30 patients were selected by simple randomized sampling technique among first year graduation female students of Arts, Science and Commerce College, Rahuri, from camp conducted in OPD of SVNHT's Ayurved Mahavidyalaya and Rugnalaya. They were randomly divided into two equal groups (15 each) named as Group A and Group B.

Criteria of Selection of patients

First year graduation females with age between 18-21 years and Hb between 7 gm% - 9 gm% were included, while those females with age below 18 yrs and above 21 years, Hb less than 7 gm% and above 9 gm% were excluded from the study. Patients having any major systemic disease and known case of Hemophilia, Thalassemia, Sickle cell anaemia, HIV, HbsAg etc were also excluded. Patients showing sign of Pallor and Hb between 7 gm% - 9 gm% were diagnosed as *Pandu* patients. Student's t test for unpaired data was used as a Test of Significance at the end.

Drug Review

*Arogya Vardhini Rasa*⁹ –

Contents - *Parada, Gandhaka, Loha Bhasma, Abhraka bhasma* 1 part each, *Haritaki, Bibhitaki, Amalaki* 2 part each, *Shilajita* 3 part, *Shuddha Guggulu* 4 part, *Chitrakamula churna* 4 parts, *Kutaki* equal quantity of all above. *Bhavana - Nimba Swarasa.*

*Tapyadi Loha*¹⁰ –

Contents - *Shilajita, Makshika, Raupya bhasma, Mandura bhasma* 5 part each, *Chitraka, Triphala, Trikatu, Vidanga* 1 part each, *Sharkara* 8 part, *Madhu* as per requirement.

Cap. Autrin¹¹ –

Contents - 'Vit.B12' 15 mcgm, Ferrous Fumarate 350 mg, Ascorbic Acid 150 mg, Folic Acid 2 mg. Pharmacy – WYETH¹²

Administration of the Drugs (Illustrated in Table 1)

Criteria of Assessment (Illustrated in Table 2)

Criteria of Relief and Effect of Therapy (Illustrated in Table 3)

MATERIALS AND METHODS

Table 1 Showing method of Administration of the Drugs

Subject	Group A	Group
Name of the Drug	Arogyavardhini Rasa + Tapyadi Loha	Cap. Autrin
Form of Drug	Vati (Tablet)	Capsule
Dose	250 mg + 250 mg x BD	1 x OD
Route of Administration	Oral	Oral
Aushadh Sevan Kala	Pashchatbhakta (pratah & Sayam)	After Lunch
Anupan	Koshna Jala	Jala
Duration	60 days	60 days
Follow up	every 15 days	every 15 days

Table 2 Showing Criteria of Assessment

Gradation	Subjective Parameter (Pallor)	Objective Parameter (Hb gm%)
Grade 0	Reddish Pink	Above 9.0 gm%
Grade 1	Whitish Pink	8.0 to 9.0 gm%
Grade 2	Pale	7.0 to 8.0 gm%

Table 3 Showing Criteria of Relief and Effect of Therapy

Gradation	Type of Relief	Criteria of Relief
Grade III	Excellent Improvement	Relief above 75%
Grade II	Good Improvement	Relief between 50% to 75%
Grade I	Moderate Improvement	Relief between 25% to 50%
Grade 0	Poor Improvement	Relief below 25%

RESULTS

Table 4 Distribution of patients according to Religion, Age, Branch of Education

Religion	No of Pts	%	Age	No of Pts	%	Branch	No of Pts	%
Hindu	29	97%	18-19	30	100%	FYBA	09	30%
Muslim	01	03%	19-20	00	00%	FYBSc	11	37%
Other	00	00%	20-21	00	00%	FYB Com	10	33%
Total	30	100%	Total	30	100%	Total	30	100%

Table 5 Distribution of patients according to Prakriti, Agni, Koshtha

Prakriti	No of Pts	%	Agni	No of Pts	%	Koshtha	No of Pts	%
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Vata	11	37%		Manda	19	63%		Mridu	07	23%
Pitta	13	43%		Tikshna	07	23%		Madhyama	11	37%
Kapha	06	20%		Vishama	04	14%		Krura	12	40%
Total	30	100%		Total	30	100%		Total	30	100%

Table 6 Distribution of patients according to Socioeconomic Status, Diet

Economy	No of Pts	%		Diet	No of Pts	%
Good	02	06%		Veg	12	40%
Moderate	08	27%		Nonveg	18	60%
Poor	20	67%		Total	30	100%
Total	30	100%		-	-	-

Table 7 Showing % change in Hb gm%

Sr No	GROUP A				Sr No	GROUP B			
	Change in Hb gm%					Change in Hb gm%			
	B.T.	A.T.	Increase	% Increase		B.T.	A.T.	Increase	% Increase
1	8.4	10.2	1.8	21.42%	1	7.2	9.0	1.8	25%
2	8.8	10.0	1.2	13.64%	2	8.0	10.1	2.1	26.25%
3	8.0	9.5	1.5	18.75%	3	8.5	9.5	1.0	11.76%
4	8.3	10.6	2.3	27.71%	4	7.5	9.0	1.5	20%
5	8.5	10.5	2.0	23.53%	5	8.5	9.0	0.5	5.88%
6	8.6	9.5	0.9	10.47%	6	8.2	9.0	0.8	9.76%
7	8.5	9.8	1.3	15.29%	7	7.9	9.2	1.3	16.46%
8	8.6	10.0	1.4	16.28%	8	8.0	8.1	0.1	1.25%
9	8.1	9.8	1.7	20.99%	9	8.6	10.0	1.4	16.28%
10	7.8	8.0	1.2	15.38%	10	7.0	9.0	2.0	28.57%
11	8.0	8.2	0.2	2.56%	11	8.0	8.2	0.2	2.5%
12	8.5	9.0	0.5	5.88%	12	8.8	9.7	0.9	10.23%
13	8.9	10.0	1.1	12.36%	13	8.5	8.9	0.4	4.71%
14	7.7	9.5	1.8	23.38%	14	8.1	8.8	0.7	8.64%
15	8.5	9.4	0.9	10.59%	15	8.6	9.2	0.6	6.98%
	Avarage		1.32	15.88%		Avarage		1.02	12.95%

Table 8 Showing effect of therapy according to Relief criteria in Pallor

Subject	Relief in Total Score of Pallor	
	Group A	Group B
B.T.	15	17
A.T.	02	04
Relief	13	13
% Relief	86.66%	76.47%

Table 9 Two-sample t test for **increase in Hb gm %** between Arogyavardhini Rasa along with Tapyadi Loha (Group A) vs Cap Autrin (Group B)

Group	N	Mean	SD	SE Mean
Group A	15	1.320	0.562	0.15
Group B	15	1.020	0.638	0.16
t - test of difference = 0 (vs >) : T-Value = 1.37, P-Value = 0.091, DF = 28				
[Difference = mu Group A – mu Group B, Estimate for difference: 0.300				
95% lower bound for difference = -0.074, Both use Pooled SD = 0.601]				

FIGURES with Legends

RESULTS

Figure 1 Showing increase in Hb gm % level observed at follow up (Group A)

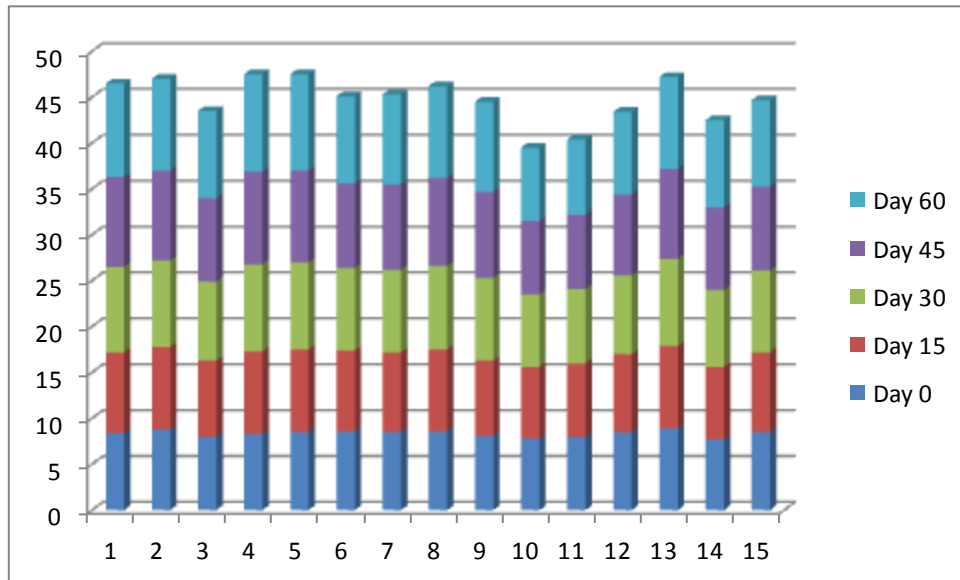
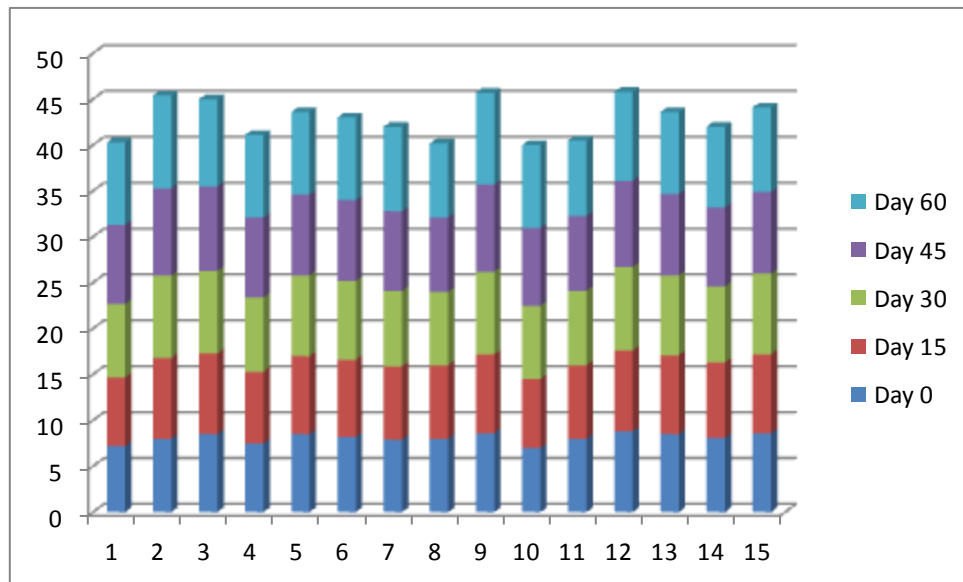


Figure 2 Showing increase in Hb gm % level observed at follow up (GroupB)

RESULTS

After detailed survey of data collected from 30 patients, we observed most Hindu females (97%) having low Hb gm%. Among the data observed highest frequency was as follows, 37% F.Y.B.Sc. females (Table 4), 43% *Pitta Prakruti* females, 63% females having *Mandagni*, 40% females having *Krura Koshtha* (Table 5), 60% non-vegetarian females, 67% females from poor socioeconomic status (Table 6).

Average increase in Hb gm% among 15 patients of Group A was 1.32 gm% & among 15 patients of Group B was 1.02 gm% while percent increase in Hb gm% among 15 patients of Group A was 15.88% & among 15 patients of Group B was 12.95%. (Table 7). It means the increase in Hb gm% in Group A was more than that in Group B. Hence it's clear that *Arogyavardhini Rasa* along with *Tapyadi Loha* increased Hb level better than Cap Autrin. Before and After treatment values of Hb gm% and average increase in both groups are compared in Table 7.

In case of Pallor relief score is 13 out of initial score 15 in Group A and relief score is 13 out of initial score 17 in Group B. Percent relief of score is 86.66% and 76.47% in Group A and Group B respectively. According to relief criteria patients of both groups got Excellent Relief i.e. Grade III relief, but more in Group A (Table 8). It means pallor is better relieved by *Arogyavardhini Rasa* along with *Tapyadi Loha* than Cap Autrin. Day wise increase in Hb gm% value at the time of follow up is plotted in Figure 1 and Figure 2 for Group A and Group B respectively. Progress is seen more in Group A than in Group B.

Since P is greater than 0.05, observed difference between both groups is not statistically significant at 95% confidence limit. But value of P is less than 0.10 it means that observed difference between both groups is significant at 90% confidence limit. (Table 9) It may be concluded that *Arogyavardhini Rasa* along with *Tapyadi Loha* is not so much efficient over Cap Autrin to increase Hb gm% level.

DISSCUSSION

Although statistical analysis showed that there is no significant difference in increase in Hb gm% level between both groups at 95% confidence limit, but data interpretation showed that *Arogyavardhini Rasa* along with *Tapyadi Loha* worked better to increase Hb gm% level than Cap Autrin. Hindu females found more i.e. 97% (Table 4) but it was by chance. Non vegetarian females observed more (60%) than vegetarian (Table 6), it was also by chance as commonly vegetarians are found most prone to low Hb levels because non-veg food like meat, fish, liver etc is rich source of iron. as compared to veg food.¹³ It was also observed that *Mandagni*, *Pitta Prakriti*, *Krura Koshta*, Poor socioeconomic status (Table 5 and 6) are major factors for *Pandu* and relatively for low Hb level. Science students were in maximum number i.e. 37%, it might be due to more stress of study, tight schedule, examinations etc.

Pandu is *Santarpanjanya Vyadhi*.¹⁴ In perspective from its *Chikitsa* only *Balya Chikitsa* will not be fruitful unless and until factors *Samata*, *Mandagni* etc were not ruled out. So it was decided that along with *Balya*, *Raktavardhaka* drug like *Tapyadi Loha*¹⁵ any of *Dipana*, *Pachana*, *Kshutpravartana*, *Malashuddhikara* drug like *Arogyavardhini Rasa*¹⁶ to be used for patients in Group A. *Arogyavardhini Rasa* is mentioned as indicated for all *vyadhies* in *Rasyoga Sagara*.¹⁶ *Tapyadi Loha* is described as *Raktadhatu vardhaka* and *Balya* in *Aushadhi Gunadharm Shastra* by Vaidya Gune.¹⁵ Cap Autrin is used in iron deficiency anaemia¹⁷ as well as vit. B12 and folic acid deficiency anaemia.¹⁸ Hence it was decided to give Cap Autrin to patients in Group B. No advice about Diet, Exercise and Yoga was suggested to patients from either group. Here *Arogyavardhini Rasa* along with *Tapyati Loha* worked little better than Cap Autrin. Patients taking Cap Autrin were noticed constipation but those taking Ayurvedic Drugs didn't. Constipation is common side effect of Iron. Drugs like Kutaki, Triphala, are ingredients of *Arogyavardhini Rasa* and *Tapyadi Loha* respectively, hence constipation wasn't there.

This clinical trial was carried out on small samples which were drawn from limited population i.e. female students from single college. There is further scope to attempt trial on large representative samples which could be drawn from large population.

CONCLUSION

One can properly cure the conditions like low Hb level and diseases like *Pandu* by proper Ayurvedic treatment. In accordance with *chikitsa* of any *vyadhi* Ayurveda is considering from base line i.e. *Agni*. It was observed in case of *Pandu* also. One thing also observed that in *Aushadhi Kalpa* study didn't show significant effects of *Arogyavardhini Rasa* along with *Tapyadi Loha* over Cap Autrin at 95% confidence limit, But average increase in Hb gm% was found more in patients who took Ayurvedic drugs. Side effects like constipation, metallic taste, and anorexia due to Iron compounds can be avoided by Ayurvedic medicines.

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