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AN ETIOPATHOLOGICAL STUDY OF PANDU ROGA W.S.R. TO IRON DEFICIENCY ANAEMIAALONG WITH EVALUATION OF THERAPEUTIC EFFECT (UPSHAYATMAK PARIKSHANA) OF VIBHEETAKADI VATAK BY ESTIMATION OF HB%

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ABSTRACT

Pandu is a disease characterized by pallor of skin which is strongly resembles with Anaemiaof modern science Acharya Charak described, peculiar skin colour of Pandu patient as- **पांडुस्तु पीतभागार्ध केतकी धूलि सन्निभः |(शब्दार्णव)** My present study is with Pandu Roga with special reference to Iron deficiency Anaemia (IDA). Pandu is a disease which is highly predominant from the ancient age to still now. Rakta has been considered as a key factor for the jeevana, dharana and poshana karma of the body. Oxygen along with other neutrients is supplied continuously by the circulating blood, with the heart at the centre of this system. Oxygen is required for all the metabolic functions ofthe cells and production of energy for these activities. In the developing countries like INDIA a large population suffer from malneutrition. On the other hand about 36.7% of the populations are below poverty line in our country Due to change in life style, its diet, habits are also changing very rapidly and they are neglecting their health. As a result of this, people suffer from various nutritional disorders like Anaemia, Obesity, Marasmus, Other metabolic disorders. Among these Anaemia is most common disease. Iron difficiency anaemia is most common type of Anaemia throughout world. The classical medicine Vibheetakadi vatak told by Acharya Shushrut, choosen for this study In this study, 40 patients are involved, there is 33.77% improvement in Heamoglobin percentage and the result on the Pradhan rupa of Pandu is highly significant.

KEYWORDS: Pandu roga, Anaemia, Vibheetakadi Vatak, IDA, Heamoglobin.

INTRODUCTION

Pandu is a symptoms as well as a disease charecterized by pallor. It is closely related with Anaemia of Modern science. Anaemia is usually defined as a decreased in the total amount ofred blood cells (RBCs) or haemoglobin in the blood. It can also be defined as a lowered abilityof the blood to carry oxygen. The most important element for blood production is iron which is stored in our body as haemoglobin in our bloodstream and myoglobin in muscle tissue. Ironis a mineral found in the bloodstream that is essential for growth, enzyme development and function, a healthy immune system, energy levels and muscle strength. The commonest typeof Anaemia that is met with in practice is Iron deficiency Anaemia. Children and adults (maleand female) suffer the most form of this deficiency

Asia has the highest rate of Anaemia in the world. About half of the world,s anaemic women lives in the INDIA and 88% of them develop anaemia during pregnancy. The situation in Asiahas not improved in recent years. Around 2 billion people (over 30% of the world,s populations.

Suffers from Iron deficiency anaemia (IDA). In INDIA, IDAaffects an estimated 50% of thepopulation.

Though, there is a common line of treatment of Pandu roga in our classical text but in present study work classical Vibheetakadi vatak has been chosen for the treatment of Pandu roga especially Iron deficiency Anaemia (IDA). In this study, 40 patients are involved, there is 33.77% improvement in Heamoglobin percentage and the result on the Pradhan rupa of Panduis highly significant.

MATERIAL AND METHODS

Selection of Patients

1. In present study work total 40 patients of established cases of Pandu (Iron Deficiency anemia) attended OPD/IPD of Rajkiya Ayurvedic Medical College chaukaghat, Varanasi UP (Sampoornanand Sanskrit University) have been selected on the basis of classical text sign and symptoms.
2. They will be also assesment of Pandu roga by necessary laboratory investigation for Hb%

Inclusion Criteria

1. Patients with classical symptoms of Pandu roga like Panduta (Pallor), Dourbalya (general weakness), Rukshata (Dryness), Ayasen Swasa (Exertional Dyspnoea), Pindiko- Dweshtana (leg cramps) , Sadana (fatigue), Jwara (fever), Gaurava (Heaviness), Aasya Vairasya, Parshva shiroruka, Nidraluta (excessive sleep) and Kopana taken for assessment.
2. Patient of age group between 10-50 yrs.
3. Sex – either sex.
4. Religion – Either religion.
5. Blood sample having Hb 6 gm % to 12(<12) gm %.
6. Marrital status – Married and unmarried both.

Exclusion Criteria

1. The following exclusion criteria have been strictly followed during selection of the patients: 1.Patient below 10 yrs and above 50 yrs.
2. Blood sample having Hb % less than 6 gm %.
3. Any heamorrhagic disorder / heriditory condition.
4. Patients suffering from any chronic disease like kidney Disease , Leukemia, D. M , Tuberculosis etc

Selection of Drug

Background of Drug Selection: In Pandu, drugs which have properties of Agni Deepana (carminative), Pachana (digestive), Balya (nutritive), Jwaraghna (pyrogenic) etc. play effective role in control and cure of Pandu. So Vibheetakadi Vatak is chosen for trial.

Drug: Vibheetakadi Vatak[3]

Reference: Shushrut Samhita Uttar tantra 44 Pandu roga pratishedham adhyay.

Content of VIBHEETAKADI VATAK

बिभीतकायोमलनागराणां चूर्ण तिलानां च गुडश्च मुख्यः |

तक्रानुपानो वटकः प्रयुक्तः क्षिणोति घोरानपि पाण्डुरोगान् || (सु०उ०44/27)

Sr. no	Drug	*Prayojya anga*	Latin name	Part
1.	*Vibheetak*	*Twak*	Terminalia bellirica	1
2.	*Mandur*	Bhasma	Ferrous	1
3.	*Shunthi*	*Dry Rhizome*	Zingiber Officinale	1
4.	*Krishna Til*	*Seed*	Sesamum indicum	1

All the above drugs were taken in equal parts and made in powder form. Then after, Guda wasadded to the powder in equal quantity to all 4 drugs and made tablets containing 250 mg each. As a Binding Agent, Guda was taken.

Drug is prepared in the Institutional pharmacy.

Schedule of treatment

Drug: Vibheetakadi Vatak

Dose: 2 Vatak each of 250 mg BD (as mentioned in Shushrut Samhita)[4]

Time: After the meal. Duration: 12 weeks Follow up: 15 days Anupana: Takra

Approval of institutional ethical committee

Institutional ethical committee's approval was taken for this prospective, randomized study.

Parameters have been studied

During the clinical study the following parameters have been under consideration

5. Response on Clinical sign & symptoms before and after treatment through the scoringsystem
6. Change of Hematological findings like Hb% at BT&AT
7. Other hematological finding TRBC, PCV, MCV, MCH, MCHC, ESR, S. Iron, TIBC etc.

Criteria for assessment

The assessments of the result were made on the basis of improvement in clinical findings as well as laboratory investigations (Hb%), MCV, MCH, MCHC which have been repeated afterthe completion of treatment also. The following scoring system have been follows over the sign & symptoms as noticed before & after treatment.

Subjective Parameters:- Improvement in the clinical signs and symptoms were assessed by the following scoring method.

Cardinal Symptoms

1. Twak (Skin) colour

As per *Samhita*, panduta is the characterstic feature of Pandu rog. On the basis of Panduta present in Twacha (Skin), Nakha (nail), Netra vatma (conjunctiva), Jihva (tongue) and Hastapadotala (palmar and footer surface). Score details (grade) as follows:-

Grading	Symptoms
0	Normal skin colour
1	Present in any 2 parts
2	Present in any 3 parts
3	Present in all parts

2. Daurbalya (general weakness)

0	No Daurbalya
1	Not able to perform strenuous activity
2	Not able to perform moderate activity
3	Even mild activities cannot be performed

3. Rukshata (dryness)

0	No line on scrubbing with nail
1	Faint line on scrubbing by nail
2	Lining & even words can be written by a nil
3	Dryness/roughness and crisscross visible cracking of skin

4. Ayasen Swasa (Exertional Dyspnoea)

0	No dyspnea
1	Moderate dyspnoea in doing routine work
2	Excessive dyspnoea in doing routine work
3	Excessive dyspnoea even in doing little work

5. Pindiko-Dweshtana (leg cramps)

0	Absent
1	Pandiko-Dweshtana occurs only during heavy-works like exercise, running, climbing,upstairs, lifting heavy objects etc.
2	During normal Routine light works like walking etc
3	During resting condition

6. Sadana (fatigue)

0	No fatigue
1	Moderate fatigue in doing routine work
2	Excessive fatigue in doing routine work
3	Excessive fatigue even in doing little work

7. Jwara (fever)

0	No
1	Occasional
2	Daily once
3	Constant

Associated Symptoms

1. Gaurava (*Heaviness)*

0	No heaviness
1	Occasionally feeling of heaviness only in hands and feet
2	Daily feeling of heaviness in hands and feet
3	Daily feeling of heaviness all over body

2. Aasya Vairasya

0	Normal taste of mouth
1	Occasional sensation of unpleasant taste
2	Continuous sensation of unpleasant taste but vanishes after eating something
3	Severe unpleasant taste throughout the day but not vanishes even after eating

3. *Parshva shiroruka*

0	No pain
1	Occasional mild pain 1 to 2 times / week
2	Pain more than 5 times / week
3	Continuous pain

4. Nidraluta (excessive sleep)

0	Normal sleep 6-8 h per day
1	More than 8 h/day
2	Sleep more than 8 h/day with Gaurava
3	Sleep more than 8 h/day with Gaurava and Tandra

5. *Kopana*

0	No anger even for reasonable cause
1	Gets angry only for reasonable cause
2	Gets angry even for unreasonable cause
3	Highly irritable for no cause, uncontrollable anger with body gestures

B. Laboratory Parameter

0	Blood sample having Hb >12%
1	Blood sample having Hb 9-12 gm%
2	Blood sample having Hb 7-9gm%
3	Blood sample having Hb 6-7gm %

Criteria for the assessment of overall effect of Therapy: A. Subjective Parameter
The total effect of the therapy was assessed as follows.

0.	**Complete remission (Cured):**	>75% relief in sign and symptoms wasconsidered as complete remission
1.	**Moderate improvement**	>50% relief in sign and symptoms wasconsidered as markedly improvement
2.	**Mild improvement**	25–50% relief in sign and symptoms wasconsidered as mild improvement
3.	**Unchanged**	Below 25% relief was considered as unchanged.

Laboratory Parameter

0	Complete improvement	Hb% increase >3gm%
1	Moderate improvement	Hb% increase 2-3 gm%
2	Mild improvement	Hb% increase 1-2 gm%
3	No change	Hb% increase 1gm% or less

Follow up Study: After the completion of above therapeutic procedures, all the patients were kept under observation for 12 weeks as follow up study.

Statistical Analysis
The obtained information was analyzed statistically in terms of mean score (x), Standard Deviation (S.D.), Standard Error (S.E.), Paired t test was carried out at the level of 0.05, 0.01,0.001 of p levels. The results were interpreted as:

P Value	Result
P>0.05	Insignificant Result
P<0.01	Significant improvement
P<0.001	Highly significant improvement

Presentation of Data
The data collected and compiled from this clinical trial were sorted out and processed further by subjection to varied statistical methods and presented withtabular form in the following sequence.

Section I: Observations
Section 1 incorporates the general observations viz. age, sex, religion, occupation, education etc.

Section II: Results
This section incorporates the effect of therapy. Results of therapy evaluated on the basis of improvement in symptomatology.

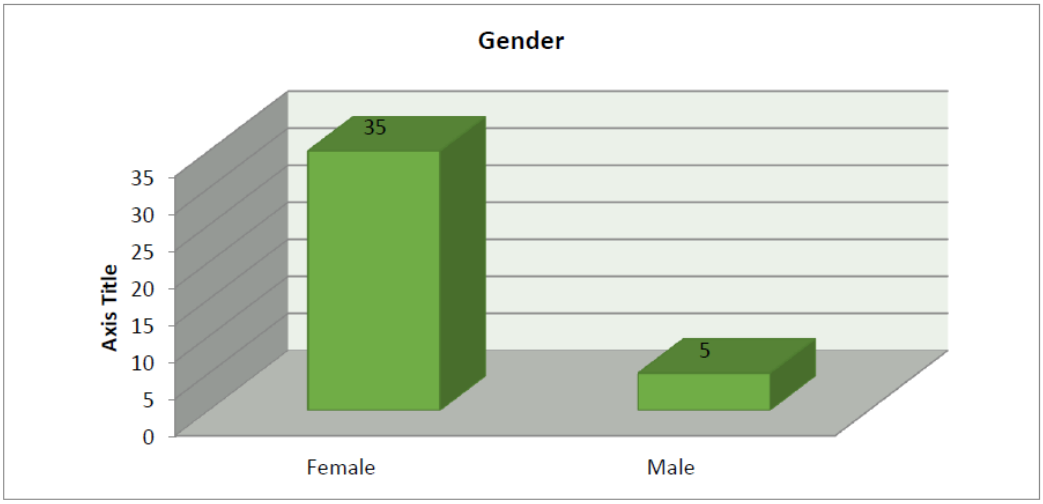
Observation
General Observations (Bio-Statistics) Table - 1: Status of 40 Patients of *Pandu Roga.*

Status	***Total***	***Percent***
Registered	40	100%
Completed	40	100%

Total 40 patients were registered and all 40 patients completed the treatment.

Table 2: Distribution of 40 patients of *Pandu* according to sex.

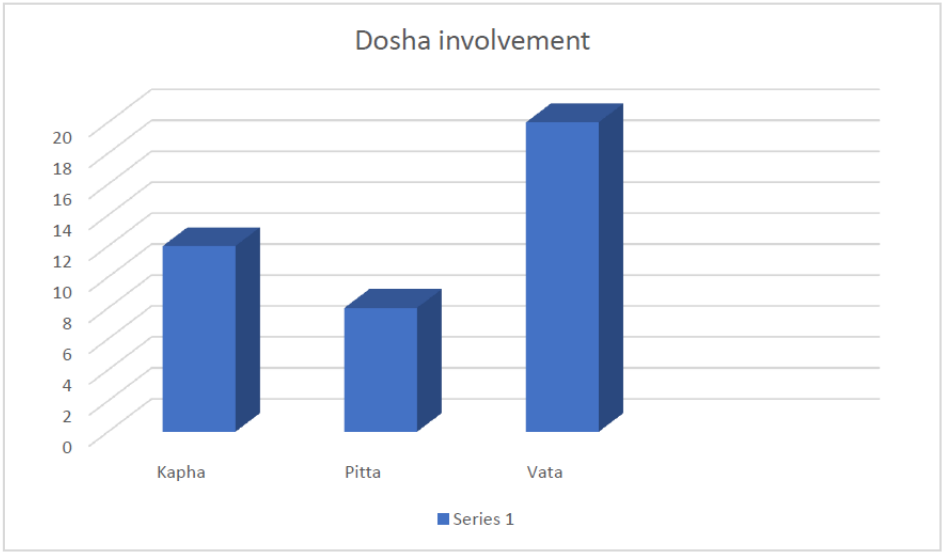
Gender	Frequency	Percent
Female	**35**	**87.5**
Male	**5**	**12.5**
Total	**40**	**100.0**



In this series, the majority of the patients were Female i.e. 87.5% while theremaining i.e. 12.5% were Male.

Table 3: Distribution of 40 patients of *Pandu* according to *Dosha* Involvement.

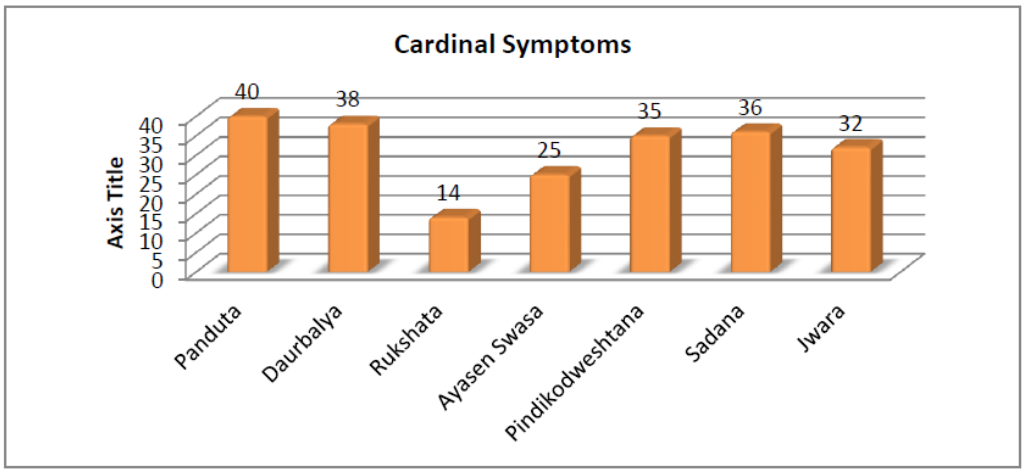
Dosha Involvement	Frequency	Percent
Kaphaj	12	30.0
Pittaj	8	20.0
Vaataj	20	50.0
Total	40	100.0



The above mentioned data shows that the majority of the patients i.e. 50% wereobserved *Vata Dosha* involvement, 30% were observed *Kapha Dosha* involvement, 20% were observed *Pitta Dosha* involvement.

Table 4: Distribution of 40 patients of *Pandu* according to Cardinal Symptoms.

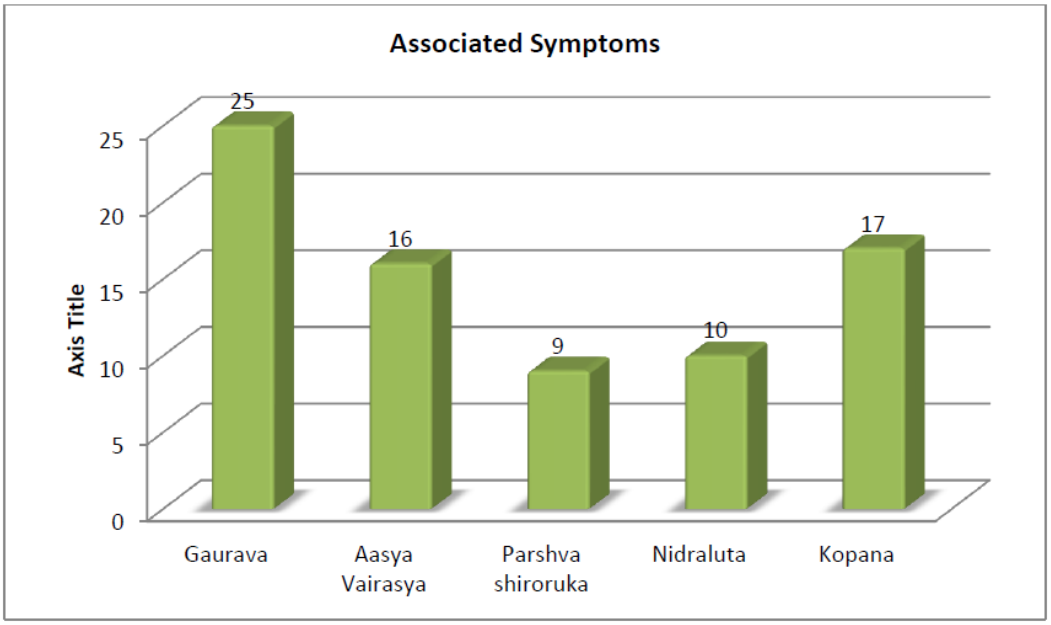
Cardinal Symptoms	Frequency	Percent
Panduta	40	100
Daurbalya	38	95
Rukshata	14	35
Ayasen Swasa	25	62.5
Pindikodweshtana	35	87.5
Sadana	36	90
Jwara	32	80



The above mentioned data, reveals that *Panduta* was observed in all the patients i.e. 100% followed by *Daurbalya* in 95%, Sadana in 90%, *Pindikodweshtana in* 87.50% patients, *Jwara* in 80%, *Aayasen Swasa* in 62.50%, and *Rukshata* in 35%.

Table 36: Distribution of 40 patients of *Pandu* according to Associated Symptoms.

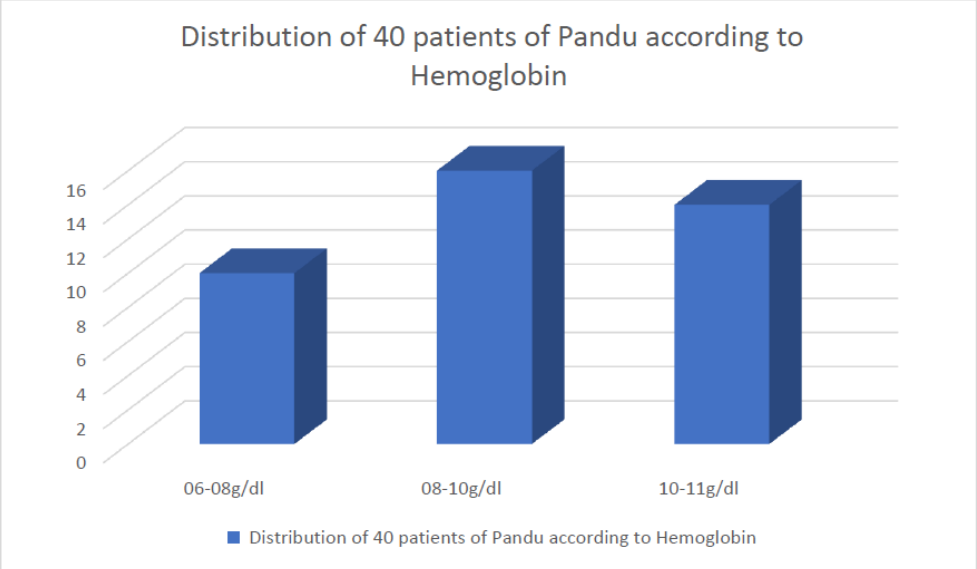
Associated Symptoms	Frequency	Percent
Gaurava	**25**	**62.5**
Aasya Vairasya	**16**	**40**
Parshva shiroruka	**9**	**22.5**
Nidraluta	**10**	**25**
Kopana	**17**	**42.5**



The above mentioned data shows that 62.5% were observed *Gaurava*, 42.5%*Kopana*, 40% *Aasya Vairasaya*, *25%Nidraluta*, and 22.5% *Parshva Shiro Ruka.*

Table 37: Distribution of 40 patients of *Pandu* according to Hemoglobin.

Hemoglobin(Hb)	Number of patients	Percent
06-08g/dl	10	25%
08-10g/dl	16	40%
10-12g/dl	14	35%



In this present study, data of above table shows that 25% of the patients had Hb between 06-08 g/dl, 40% patients Hb. were between 08-10 g/dl, 35% patients Hb were between 10-12 g/dl.

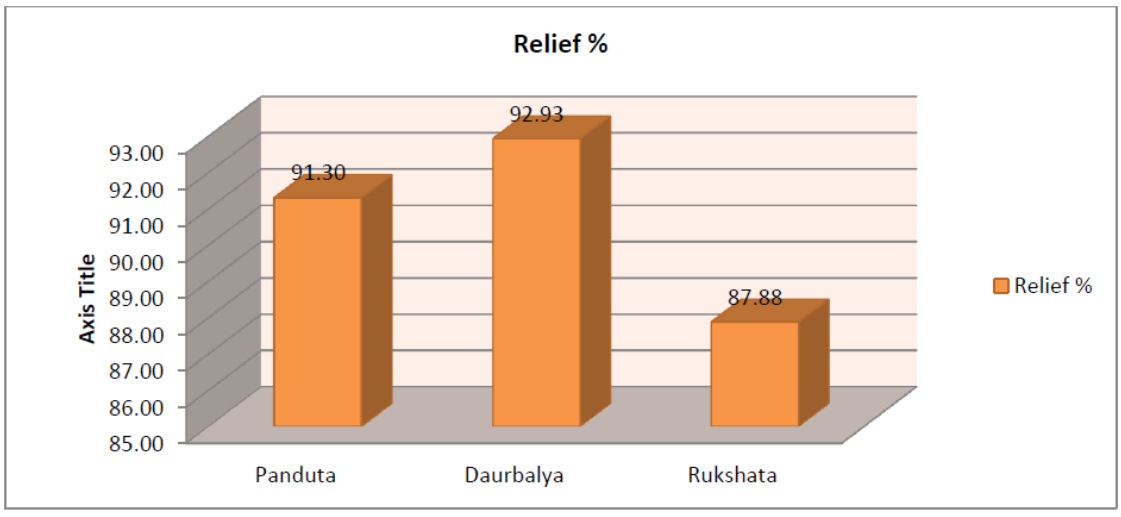
RESULTS

Effect of Therapy

Total 40 patients were registered for treatment, all completed whole course of treatment, and effect of therapy was assessed in all 40 patients.

Table 38: Effect of therapy on *Panduta Daurbalya, Rukshata.*

Assessment criteria	BT Meanscore	AT Mean score	Mean Difference	Relief %	Z	P	Significance
Panduta	**2.30**	**0.20**	**2.10**	**91.30**	**-5.82**	**<0.001**	**HS**
Daurbalya	**2.48**	**0.18**	**2.30**	**92.93**	**-5.53**	**<0.001**	**HS**
Rukshata	**0.83**	**0.10**	**0.73**	**87.88**	**-3.49**	**<0.001**	**HS**



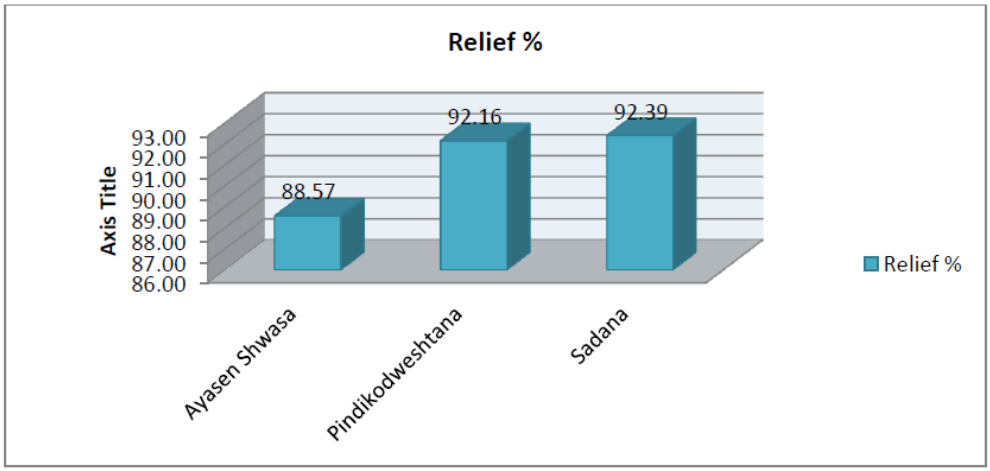
In this study *Panduta* was improved by 91.30% which is statistically highlysignificant (HS).

In this study *Daurbalya* was improved by 92.93% which is statistically highlysignificant (HS).

In this study *Rukshata* was improved by 87.88% which is statistically highlysignificant (HS).

Table 39: Effect of therapy on *Ayasen Shwasa, Pindikodweshtana, sadana.*

Assessmentcriteria	BT Mea n score	AT Mea n score	Mean Differenc e	Relief %	Z	P	Significance
Ayasen Shwasa	**1.75**	**0.20**	**1.55**	**88.57**	**-4.53**	**<0.001**	**HS**
Pindikodweshtana	**2.55**	**0.20**	**2.35**	**92.16**	**-5.47**	**<0.001**	**HS**
Sadana	**2.30**	**0.18**	**2.13**	**92.39**	**-5.42**	**<0.001**	**HS**



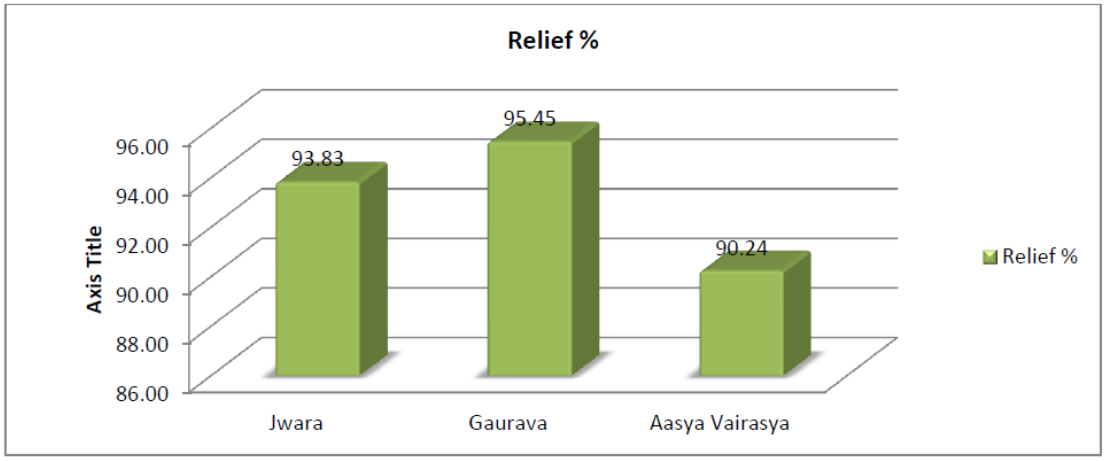
In this study *Ayasen Shwasa* was improved by 88.57% which is statisticallyhighly significant (HS).

In this study *Pindikodweshtana* was improved by 92.16% which is statisticallyhighly significant(HS).

In this study *Sadana* was improved by 92.39% which is statistically highlysignificant (HS).

Table 40: Effect of therapy on Jwara, Gaurava, Aasya vairasya.

Assessment criteria	BT Mean score	AT Mean score	Mean Difference	Relief %	Z	P	Significance
Jwara	**2.03**	**0.13**	**1.90**	**93.83**	**-5.20**	**<0.001**	**HS**
Gaurava	**1.65**	**0.08**	**1.58**	**95.45**	**-4.50**	**<0.001**	**HS**
Aasya Vairasya	**1.03**	**0.10**	**0.93**	**90.24**	**-3.86**	**<0.001**	**HS**



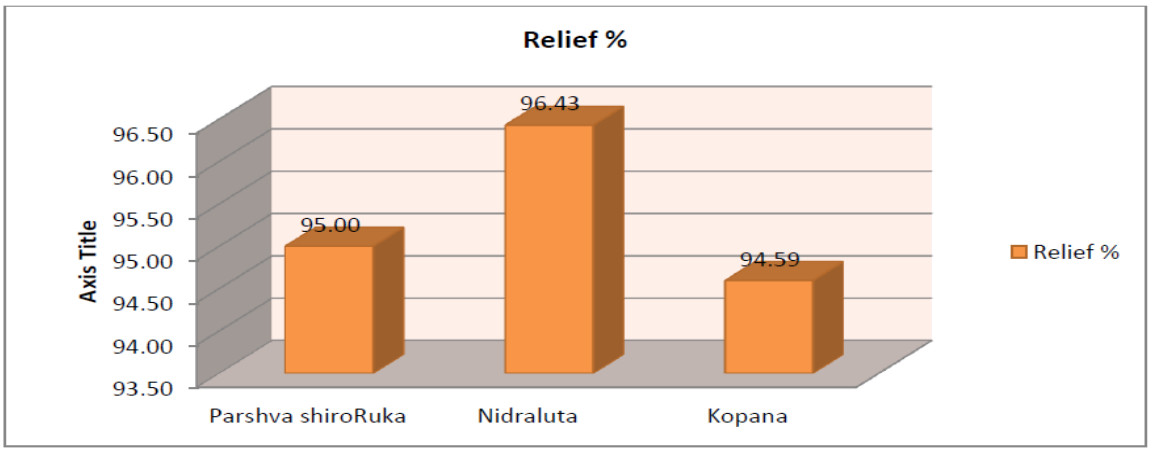
In this study *Jwara* was improved by 93.83% which is statistically highlysignificant (HS).

In this study *Gaurava* was improved by 95.45% which is statistically highlysignificant (HS).

In this study *AasyaVairasya* was improved by 90.24% which is statisticallyhighly significant (HS).

Table 41: Effect of therapy on *Parshva shiroRuka,Nidraluta,Kopana.*

Assessment criteria	BT Meanscore	AT Mean score	Mean Differenc e	Relief %	Z	P	Significance
Parshva shiro Ruka	0.50	0.03	0.48	95.00	-2.60	0.009	S
Nidraluta	0.70	0.03	0.68	96.43	-3.00	0.003	S
Kopana	0.93	0.05	0.88	94.59	-3.56	<0.001	HS



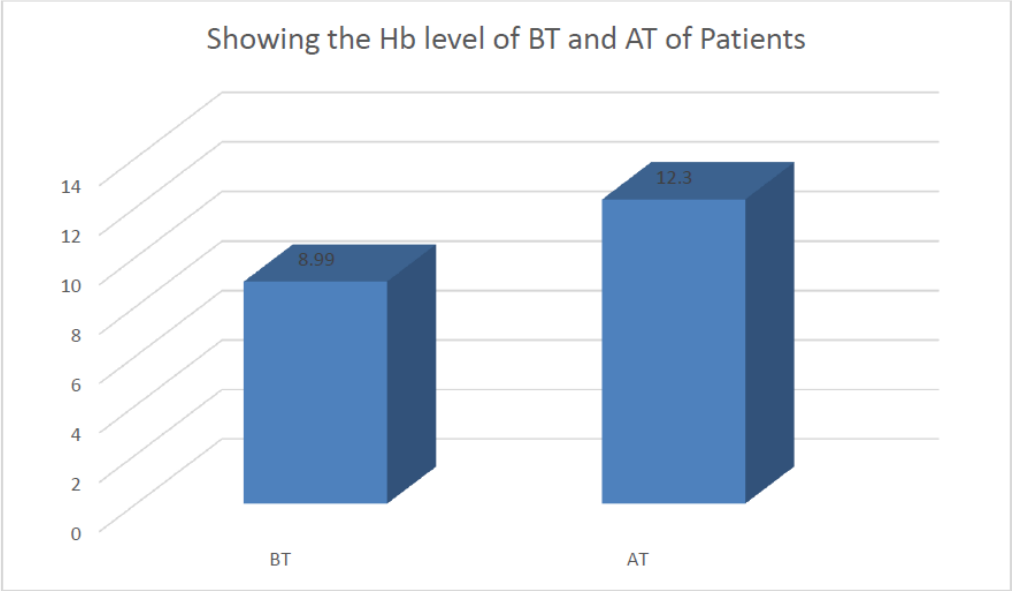
In this study *Parshvashiroruka* was improved by 95% which is statistically significant. In this study *Nidraluta* was improved by 96.43% which is statistically significant.

In this study *Kopana* was improved by 94.59% which is statistically highly significant.

Table 42: Effect of therapy on Hematological Investigation (Hb).

		Mean	N	Std. Deviation	% Relief	t	df	P	Significance
HB	BT	8.99	40	1.45	36.77	-17.61	39	<0.001	HS
	AT	12.30	40	1.21					

Haemoglobin: Mean score of Hb % before treatment was 8.99 and after treatment it was 12.30 with 36.77% relief, which was statistically highly significant (P<0.001).



DISCUSSION

In context of sex in this study sample, it is observed that most of the patients were female (87.5%). As we know that this disease is more prevalent in females. Miserable fact is that one among five women are Iron deficient all over word and IDA is the 8th leading cause of diseases in

Girls and Women in developing country. Reason behind this may be firstly of dietetic, as ladies are mostly found inclined towards spicy, sour, and bitter ahara rather than a balanced diet. Secondly, regular loss of blood due to menstruation makes them more prone to develop Anemia. Moreover following menarche, females often do not consume sufficient iron to offsetmenstrual losses. As a result, a peak in the prevalence of iron deficiency frequently occurs among females.

Religion wise distribution shows that maximum number of patients i.e.77.5% were *Hindus*, and 22.5% patients were *Muslims.* This may reflect demographic pattern of religion. The reason behind this might be that *Hindus* are vegetarians and now-a-days due to rising prices of food stuffs a person from lower income group is unable to afford the total ingredients of a balanced diet and that diet is limited to carbohydrates and this deficient diet in long run give rise to *Pandu*. *Muslims* on the other hand got all their nutrition in their non-vegetarian diet.

It was found that maximum number of patients i.e. 72.5 % were married, While 27.5% patients were Unmarried. Most of the patients in this study were married. Stress of the family life may lead to Vata vitiation.

कामचिन्ताभयक्रोधशोकोपहतचेतसः| (च०चि०16/9)

But marital status does not have any direct relationship with the disease.

On considering the nature of occupation, it was found that maximum i.e. 55% of patients were housewives, while 2.50% were in service, 2.50% were Labour,10% of patients were pvt. Jobs, 2.50% of patients were Business, whereas 27.50% patients are students.

Most of the patients were housewives. Housewives are having family stress, they are least concern about their diet. Due to which they are not getting balanced diet which causes *Pandu*.

Amongst 40 patients, 7.50% were Uneducated, 10% patients were Primary passed, 7.50% patients were Secondary passed, 42.50% Higher Secondary passed and 27.50% were Graduate and only 05% patients were Post Graduate respectively.

Uneducated people are less conscious about their nutritional requirements and graduate people are mostly busy in their study or job. This type of life style leads to *Vegvidharana* in them because they are indulge in their work and not concern even for nature call. Not only this they do not have time for taking diet, they mostly indulge in fast foods, which disturb their nutritional quality.

The observation reveals that the maximum i.e. 52.50% of patients were belonging to middle class of society, 25% were of poor class, and 22.50% belonging to Upper middle class.

Housewives of middle class are more prone to this disease due to poor pre and post natal care. As well as they are careless towards their own care and always worrying for the family responsibilities, this leads to mental tension. Patients from poor and lower middle class can"t afford expensive food, vegetables as well as medicines for this disease, Moreover, poor people are unable to afford the proper diet and hence they suffer from this disease.

In this study among the 40 patients 82.50% Patients were having *Katu Rasa Pradhana Ahara*. 57.50% were having *Lavana Rasa Pradhana Ahara*, 55.00%patients loved to have *Amla Rasa Pradhana Ahara*, 50.00% were having *Madhur Rasa Pradhana Ahara*, and 35.00% were having *Tikta Rasa PradhanaAhara*.

Lavana Rasa had been called *Kledakara. Acharya Charaka* has said *Kleda* oneof the *Ahara Parinamakara Bhava* (*Ch.Sh.*6/14) but in sufficient quantity. If it increases then *Mandagni* occurs due to the *Apa Vriddhi*. *Mandagni* is the root cause of all the disease (*A.H.*12/1). Katu rasa is pitta vridhhikara. Pandu is pitta Pradhan vyadhi. Due to pitta vitiation Rakta dhatu gets vitiated and pandu roga occurs.

पितलस्याचितं पितं यथोक्तैः स्वैः प्रकोपणैः|

दूषयित्वा तु रक्तादीन् पाण्डुरोगाय कल्पते||(च०चि०16/19)

In this study 62.50% patients were having *Manda agni and* 65% patients were having *Madhyam Kostha*. 40.0 % patients had regular bowel habits whereas 22.50% patients had irregular bowel habits,were 30% having satisfactory bowelhabit.

Due to Manda *Agni* digestion will not be proper which produces *Ama. Ama* will hinder nutritive part of the food which will not be absorbed properly. *Madhyama Koshtha* shows the involvement of *Kapha Dosha*, which might do *Srotorodha* and will not allow the *Annarasa* to absorb in body.

In present study among the 40 patients, 75.00% were not doing *Vyayama*, which is root cause of pandu roga.

In this study statistical data of *Nidra shows* that Among 40 patients, 55.00% were having *Samyaka Nidra;* while 45.00% patients were having *Alpa Nidra.*

That may be due to *Vataprakopa* and unstable mind in anaemia. *Anindra* leads to indigestion which leads to *Mandagni* and *Amotapatti*. Therefore, *Rasa* was not properly converted to *Rakta*, and disease is develops.

Maximum patients were having physical work. This working pattern requires more energy, and nutrition supplement. If nutrition supplement is not taken it leads to *Pandu*.

30% patients were doing mental work which creates stress and leading to *Mandagni*. Due to *Mandagni* food will not digest properly. Also stress is one ofthe reasons of *Pandu*.

Maximum number of patients i,e 30% were found to be addicted to tea/ coffee while 7.5% were found to be addicted to tobacco/ paan . These are mainly *Kashaya Rasa* predominance which vitiates *Vata* and *Pitta Dosha*, they destroy*Dhatuposhana Kriya*, leading to Anaemia.

Manasika Bhava of 40 patients can be seen. This shows that maximum patients were affected with *Chinta* i.e.70.00%, while 67.50% patient were affected with *Krodha*, 7.50% were affected with *Bhaya* , 47.50 % were affected with *Shoka*.This shows that Anaemia affects the mental state of the patient.

रसवहानां स्रोतसां हृदयं मूलं दश च धमन्यः| (च०वि०5/13)

The disease is of *Rasavaha Stroats*, its root is *Hriday*[25], It is *Adhisthan* of *Mana*, so mental status of the patient affects.

रसवाहीनि दुष्यन्ति चिन्त्यानां चातिचिन्तनात् ||(च०वि०5/13)

Also in *Rasavaha Srotas Dushti*, a reason has been given as "*Chintyanam ChaAtichintanat*".

In this study, among the 40 patients, 52.50% patients were of *VP Prakriti*, and 20.00% VK were *Prakriti, 27.50% were PK Prakriti*, 55.0% *Rajas Prakriti and* 45.0% *Tamas Prakriti. Pitta Dosha* is responsible for the occurrence of this disease.

In this study ,It was observed that 30% patients were having *Kapha Dosha* involvement in the disease with the symptoms of *Gaurava*, *Ayasen Swash,Sadan* . That means 30% of the patients were having *Kaphaj Pandu*. 50% patients were having *Vataaj Pandu* with the symptoms of *Assyavairasya,Parshva-Shiro Ruja* etc.

अङ्गमर्द रुजं तोदं कम्पं पार्श्वशिरोरुजम्|

वर्चःशोषास्यवैरस्यशोफानाहबलक्षयान्|| च०वि०5/18)

About Srotas Involvement it can be said that *Rasavaha Srotas Dushti* was found in 100% of patients. In *Charak Samhita Sutra Sthana* 28 it is mentionedthat.

पाण्डुत्वं स्रोतसां रोधः.....

रसप्रदोषजा रोगा,...|(च०सू०28/11)

This *Shloka* clears that *Rasavaha Srotas Dushti* is the reason for *Pandu* roga.

As Panduta is the most important sign as well as symptoms of Pandu it is present in almost all patients. Rakta dhatu, Pitta dosha and Oja are responsible for the Varna and Prabha. So whenrakta and pitta dusti occurs, oja also gets affected simultaneously and the Varna(complexion) and Prabha (lusture) get affected and Panduta occurs.

Daurbalyata is most prominent in Pandu rogi. The reason for this is Raktalpta and Ojakshaya which causes the disability to do anything. In modern point of view, as blood cells are responsible for the oxygen supply to the all body tissues, so in anemia the metabolic activities hamper & when this condition persists for a long period, debility appears.

Maximum no of patients of Pandu have dourvalyata due to specific reason,and bhrama happensin Pandu mainly due to Dourvalyata and low oxygen supply to brain.

Pitta Dosha, Rakta dhatu and Oja are responsible for varna and prabha. In Pandu all get disturbed so patient become Hataprabha (lusterless) and Ruksata appears.

Dyspnoea on exertion or Swasha 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 Swasha.

Due to decrease Ranjak Pitta skin colour becomes paler & increase Drava guna of Pitta, Aruchi occurs.In other words, Due to Aruchi, Malnutrition happen consecutively and then Panduta occurs. Vaigunya prapta pitta goes to the mamsa dhatu,which causes Pindikodwestana. In Modern point of view, due to decrease oxygen suplly to the muscle, so cramps is seen in anemia. Among the associated symptoms *Sadana* and *Aasya Vairasya* was found in most of the cases. Then *Nindraluta* and *Gaurava* were found in some cases. *Kopana, Bhrama, Trishna*and *Jwara* were found in least cases.

In this study *Panduta* was improved by 91.30% which is statistically highly significant(HS), *Daurbalya* was improved by 92.93% which is statistically highly significant (HS), *Rukshata* was improved by 87.88% which is statistically highly significant(HS), *Ayasen Shwasa* was improved by 88.57% which is statistically highly significant(HS), *Pindikodweshtana* was improved by 92.16% which is statistically highly significant(HS), *Sadana* was improved by 92.39% which is statistically highly significant(HS), *Jwara* was improved by 93.83% which is statistically highly significant (HS), *Gaurava* was improved by 95.45% which is statistically highly significant (HS), *Aasya Vairasya* was improved by 90.24% which is statistically highly significant (HS), *Parshvashiroruka* was improved by 95% which is statistically significant, *Nidraluta* was improved by 96.43% which is statistically significant and *Kopana* was

improved by 94.59% which is statistically highly significant.

Haemoglobin: Mean score of Hb % before treatment was 8.99 and after treatment it was 12.30 with 36.77% relief, which was statistically highly significant. (P<0.001).

Patients who are treated with Vibheetakadi Vatak shows 'Moderate' effect probably due to the presence of Vibheetak, Shunthi, Mandur bhasma ,Tila and Guda etc which stimulates the gastric mucosa & produces maximum level of pachakagni which supports the intrinsic factor& as a result absorption became enhanced.

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SUMMARY AND CONCLUSION
The present work entitled "An Etiopathological Study Of Pandu Roga w.s.r. to Iron Deficiency Anaemia Along with Evaluation of Therapeutic Effect Of Vibheetakadi Vatak by Estimation of Hb% " could be concluded into the following points.

Pandu roga, where the colour of the patient is like the flower "Ketaki dhuli" which is similarto the combination colour of white and yellow in a particular proportion, is more similar to the anemia with special reference to Iron Deficiency Anemia (IDA) of modern science on thebasis of etiological factors & clinical correlation.

Vibheetakadi Vatak have been sujected to clinical study of Pandu roga (Iron deficiency Anaemia). Vibheetakadi vatak itself contains Mandur bhasma and herbal dravya. Hematinic action of Vibheetakadi vatak is due to Mandura bhasma and Guda which contains iron in it Harbal dravya which is present in this vatak may increase bio-availability of iron . The presentclinical study of this herbomineral drugs indicates effectiveness on pandu roga and clinicallysafe.

Vibheetakadi Vatak itself in a dose of 2 Vatak each of 250gm BD with TAKRA as anupana may reduce the symptoms like Panduta, Daurbalya, , Rukshata, *Ayasen Shwasa*, Pindikodwestana, sadana, jwara, and associated symptoms like Gaurava, Aasya Vairasya respectively .

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