

CLINICAL EFFICACY OF *NISHA LAUHA VATI* AFTER *VIRECHANA KARMA* IN *PANDU ROGA* W.S.R TO IRON DEFICIENCY ANEMIA**Vishal Saxena^{*1}, Neetu Lata Bhatt² and Sanjay Tripathi³**

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ABSTRACT

Anemia is a global public health problem affecting both developing and developed countries with major consequences for human health as well as social and economic development. It occurs at all stages of the life cycle, but is more prevalent in pregnant women and young children. India continues to be one of the countries with highest prevalence of iron deficiency anemia. National family health survey reveals the prevalence of anemia to be 70-80% in children, 70% in pregnant women & 24% in adult men. Therefore to identify an alternative, safer and permanent cure; the study entitled "CLINICAL EFFICACY OF *NISHA LAUHA VATI* AFTER *VIRECHANA KARMA* IN *PANDU ROGA* W.S.R TO IRON

DEFICIENCY ANEMIA" was undertaken in 60 patients. All selected patients were randomly assigned to three treatment groups, Group I (*Nisha Lauha Vati*), Group II (*Nisha Lauha Vati* after *Virechana Karma*) & Group III (Iron tablet). Total duration of study was 60 days along with a follow up period of 15 days. Assessment was done on the basis of subjective and objective parameters. All the interventions were found to be significantly effective, but Group II showed maximum improvement. The overall effect of Group II was better than Group I & Group III. In Group II, excellent improvement was seen in 16.6% of patients and 66.6% patients shows marked improvement. Thus, *Ayurvedic* treatment proved quite effective in managing the patients of Anemia by breaking the pathogenesis. However,

study should be repeated by taking larger sample with longer duration to see the effectiveness of drug in managing the disease.

KEYWORDS: Anemia, *Pandu*, *Nisha Lauha Vati*, Iron Deficiency Anemia.

INTRODUCTION

In today's changing world, while the poor are not able to afford a good diet, & the rich due to their fondness for junk food, do not eat a balanced diet. Thus malnutrition either due to inadequate dietary intake or lack of balanced diet & population explosion has led to the development of various diseases & *Pandu Roga* is one such disease. In Sanskrit *Pandu* word means pale or *swetapeetvarna*.^[1] So the disease in which, due to *Raktaalpa* (deficiency of blood) whole body become pale (skin, nail, eyes) is called *Pandu roga*. It is Pitta dominant *Tridoshajavyadhi*.^[2] Anemia is a chronic disease marked by decreased hemoglobin concentration. Hb is Iron bearing Protein in Red Blood Cells, which delivers oxygen to tissues throughout the Body. Iron is a mineral that is essential for proper growth & for performing various vital function of the body. Anemia is a global public health problem affecting both developing and developed countries with major consequences for human health as well as social and economic development. It occurs at all stages of the life cycle, but is more prevalent in pregnant women and young children. According to WHO, 50% of children & women and 25% of men in developing countries like India are suffering from Iron Deficiency Anemia. It reduces the work capacity of individuals & bring serious economic consequences and obstacles to the National Development. Dyspnoea, anorexia, fatigue, palpitations, headache, pallor of skin etc are the various signs & symptoms of Anemia.^[3] According to *Ayurveda*, body comprises of 7 *Dhatus* which are responsible for the sustenance of the being. Amongst them the first *Dhatu Rasa* has given more importance as mentioned:

रसजं पुरुषं विद्यात्.....!^[4]

Any imbalance in this *Dhatu* will lead to imbalance in further *Dhatus*. Its own functioning depends on the *Agni* which if vitiated will lead to its vitiation too. *Rakta* has been considered as a key factor for the *Jeevana*, *Dharana* and *Poshana Karma* of the body. Blood is the very essence of life and nature has devised a very ingenious method to continuously supply blood to every part of the body, in fact every cell of the body. Oxygen along with other nutrients is supplied continuously by the circulating blood, with the heart at the centre of this system. Oxygen is required for all metabolic functions of the cells and production of energy for these

activities. In *Charaka Samhita*, after the description of the concept of *Agni*, *Ajirna*, *Aama* etc. in *Grahani* chapter, the disease *Pandu* has been described which is a *Rasapradoshaja Vikara*. The symptoms of *Pandu*.

सोऽल्परक्तोऽल्पमेदस्को निःसारः शिथिलेन्द्रियः। वैवर्ण्यं भजते तस्य हेतुं शृणु सलक्षणं॥

correlates with that of ANEMIA. *Srotas* are one of the major doctrines described in classics equivalent to Bio-membrane system. *Samshodhana* or bio-purification is a unique concept which clears the *Srotas* of impurities thus helping in reversal of pathogenesis. It aims at purification up to membrane level so that the bio-availability of nutrients get increased. The process of *Dhatu Poshana* and *Dhatu Parinam* is accelerated, the medication also acts effectively sometimes even at lower dosage. *Langhana* is advocated as the best treatment for *Rasaja Vikara* as prescribed by *Acharya Charaka*.^[5] (Ch.Su.28/25). As mentioned in *Charaka Sutrasthana* it is of 10 types including 4 types of *Samshuddhi* (*Vamana*, *Virechana*, *Niruha*, *Nasya*.) (Ch. Su. 22 / 18)^[6] Apart from this, while describing the management of *Pandu*, *Acharya Charaka* gives due emphasis on *Urdhava* and *Adhoshodhana*.^[7]

“तत्र पाण्ड्वामयी स्निग्धस्तीक्ष्णैरूर्ध्वानुलोमिकैः।

संशोध्यो.....”

Pandu is described as *Pitta* dominant disorder in classics. Considering the *Dushya Vishesh* i.e. involvement of *Rasavaha Srotas*, preponderance of *Kapha* dominant symptoms. In *Pandu* (IDA) *Vaman* & *Virechana* can be considered as a treatment but chances of majority of complication of *Vaman Karma* as compare to *Virechana Karma*. So thus going hand in hand with the classical treatment protocol *Virechana Karma* was selected for the present study which is the best treatment protocol for *Pittaj* disorders and also improve the absorption of Iron level in our *Sharira* due to *Sodhana Karma*. For the palliative treatment *Nisha Lauha Vati* was selected. The main content is *Triphala*, *Katuki* & *Lauha Bhasma* in which *Triphala* has a property of *Tridoshahara*, *Anulomana* and has anti-oxidative effect. *Katuki* has property of *Pitta Virechaka* and *Lauha Bhasma* has property of increase concentration of Hemoglobin in blood.

AIMS AND OBJECTIVES

1. To evaluate the effect of *Nisha Lauha Vati* in the management of *Pandu Roga*.
2. To evaluate the effect of *Virechana Karma* in the management of *Pandu Roga*.

3. To provide the reliable, effective & low cost *Ayurvedic* treatment for *Pandu Roga*.

MATERIALS AND METHOD

SELECTION OF THE PATIENTS

60 diagnosed patients of *Pandu* with female- 6-10 gm% & male- 6-12 gm% Hb will be selected for study from O.P.D & I.P.D unit of P.G department of *Kayachikitsa* as well as *Panchkarma* department, Rishikul Campus, Haridwar with informed consent. The study will be conducted on patient randomly divided into 3 groups of 20 patients each on the basis of inclusion and exclusion criteria depending on hemoglobin level detailed clinical history, physical examination and other necessary desired investigation.

SELECTION OF SAMPLE: Open Randomized Sampling.

TYPE OF STUDY: Single Blind.

SELECTION OF DRUG

The two drug formulations were selected for the present study:

- a. *Nisha Lauha Vati*
- b. *Nisha Lauha Vati* after *Virechna Karma*

DRUG DOSAGES

- 1) *Nisha Lauha Vati*- two tablets each of 250mg twice daily with luke warm water.
- 2) *Virechna karma* after *Samayaka Snehna* & *Swedana*.

DURATION OF STUDY: 60 days

ASSESSMENT & FOLLOW UP: Assessment of the patients was done at an interval of **15 days** & follow up was done **one month** after completion of trial.

DRUG TRIAL SCHEDULE

The selected patients for trial were randomly divided into following 3 groups.

Group 1- patients (N-20) will be treated with *Nisha Lauha Vati*- 2 tablets B.D with luke warm water after meal.

Group 2- patients (N- 20) will be treated with *Nisha Lauha Vati* after *Virechna Karma*.

Group 3- patient (N-20) will be treated with ferrous sulfate (tab. Iron) 100 mg BD.

INCLUSION CRITERIA

Diagnosed patients without any complication will be included.

Patients having Hb% as follows-

- For female- 6-10 gm%
- For male- 6-12 gm%

Patient between the age group of 15 to 60 years will be taken.

Primary- the patients will be selected on the basis of the presence of classical symptomatology along with some laboratory parameters of *Pandu Roga*.

EXCLUSION CRITERIA

- ✓ Patients suffering from AIDS, cancer, tuberculosis, Diabetes Mellitus and other severe disease
- ✓ Age below 15 years and more than 60 years.
- ✓ Hb <6gm%
- ✓ Anemia due to causes other than iron deficiency.
- ✓ Pregnancy
- ✓ IBS

CRITERIA FOR WITHDRAWAL

1. Personal matter
2. Aggravation of complaints
3. Intercurrent illness
4. Any other difficulties
5. LAMA (patient leave against medical advice)

INVESTIGATIONS

The following investigations were conducted to exclude other pathologies as well as to assess the condition of the patient.

- Hematological
- Hb%,
- TLC,
- DLC,
- ESR
- PCV Blood indices: MCV, MCH, MCHC
- Stool test (If Required)
- GBP

- Serum iron level
- Serum ferritin level (if require)

These investigations were done in all the patients before and after completion of treatment to rule out any other pathological condition.

Assessment Criteria

Its efficacy was assessed with the sign and symptoms like pallor, reduced exercise capacity, fatigue, breathlessness, palpitation, dizziness, headache, irritability, anorexia, weakness & on the basis of change in relevant laboratory investigative parameters by giving different grades for its severity.

Statistical analysis: Wilcoxon's signed rank test.

SIGNS & SYMPTOMS OF 60 PATIENTS OF PANDU

TABLE NO. 1

SING & SYMPTOMS	Group I	Group II	GROUP III	Total	Percentage
Pallor	13	17	15	45	75
Reduced exercise capacity	11	14	9	34	56.6
Fatigue	10	13	15	38	63.4
Breathlessness	14	16	11	41	61.4
Palpitation	12	16	14	42	70
Dizziness	11	13	10	34	56.6
Headache	9	11	7	24	45
Irritability	10	13	11	34	56.6
Anorexia	16	18	13	47	78.4
Weakness	15	17	11	43	71.6

ASSESSMENT OF RESULT IN SYMPTOMS OF PANDU IN GROUP I

TABLE NO. 2

GROUP I	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Pallor	3	2	-4.756 ^a	0.000	60.4	Significant
Reduced Exercise Capacity	2	1	-4.480 ^a	0.000	55.4	Significant
Fatigue	3	1	-4.720 ^a	0.000	58.7	Significant
Breathlessness	3	2	-4.560 ^a	0.000	59.4	Significant
Palpitation	2	1	-4.602 ^a	0.000	64.7	Significant
Dizziness	3	2	-4.942 ^a	0.000	59.2	Significant
Headache	2	1	-4.388 ^a	0.000	55.2	Significant
Irritability	3	1	-4.949 ^a	0.000	55.6	Significant
Anorexia	3	1	-4.966 ^a	0.000	62.6	Significant
Weakness	3	1	-4.720 ^a	0.000	57.5	Significant

ASSESSMENT OF RESULT IN SYMPTOMS OF PANDU IN GROUP II

TABLE NO. 3

GROUP II	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Pallor	3	1	-5.063 ^a	0.001	75.5	HS
Reduced Exercise Capacity	4	1	-5.028 ^a	0.001	75.9	HS
Fatigue	2	0	-4.460 ^a	0.000	70.4	Significant
Breathlessness	3	1	-4.710 ^a	0.001	78.9	HS
Palpitation	3	0	-4.968 ^a	0.001	75.0	HS
Dizziness	3	0	-4.976 ^a	0.000	72.8	Significant
Headache	3	1	-4.966 ^a	0.000	74.5	Significant
Irritability	3	1	-5.064 ^a	0.000	73.7	Significant
Anorexia	2	0	-4.400 ^a	0.000	73.2	Significant
Weakness	3	1	-4.420 ^a	0.001	79.9	HS

ASSESSMENT OF RESULT IN SYMPTOMS OF PANDU IN GROUP III

TABLE NO. 4

GROUP III	Median		Wilcoxon Signed Rank W	P-Value	% Effect	Result
	BT	AT				
Pallor	2	1	-4.564 ^a	0.000	62.9	Significant
Reduced Exercise Capacity	2	1	-3.638 ^a	0.000	63.3	Significant
Fatigue	3	1	-4.667 ^a	0.000	58.6	Significant
Breathlessness	3	2	-5.038 ^a	0.000	60.6	Significant
Palpitation	2	1	-5.135 ^a	0.000	62.4	Significant
Dizziness	3	1	-4.817 ^a	0.000	62.2	Significant
Headache	2	1	-4.264 ^a	0.000	61.9	Significant
Irritability	3	1	-4.523 ^a	0.000	58.6	Significant
Anorexia	3	1	-4.811 ^a	0.000	63.1	Significant
Weakness	3	1	-4.524 ^a	0.000	61.0	Significant

INTERGROUP IIIOMPARISSON OF SUBJECTIVE PARAMETERS

TABLE NO. 5

SIGNS & SYMPTOMS	Group	N	Mean Rank	Kruskall Wallis	P-Value	Result
Pallor	GROUP I	18	12.45	17.304	0.000	SIG
	GROUP II	18	21.24			
	GROUP III	19	16.05			
	Total	55				
Reduced Exercise Capacity	GROUP I	18	11.35	14.434	0.001	SIG
	GROUP II	18	21.00			
	GROUP III	19	17.15			
	Total	55				
Fatigue	GROUP I	18	14.25	18.705	0.000	SIG
	GROUP II	18	26.12			

Breathlessness	GROUP III	19	17.55	17.645	0.000	SIG
	Total	55				
	GROUP I	18	12.65			
	GROUP II	18	22.57			
	GROUP III	19	17.90			
Palpitation	Total	55		12.891	0.000	SIG
	GROUP I	18	10.43			
	GROUP II	18	20.13			
	GROUP III	19	14.70			
	Total	55				
Dizziness	GROUP I	18	11.79	11.213	0.001	SIG
	GROUP II	18	21.45			
	GROUP III	19	14.10			
	Total	55				
	GROUP I	18	12.76	16.333	0.000	SIG
Headache	GROUP II	18	18.10			
	GROUP III	19	12.24			
	Total	55				
	GROUP I	18	10.43	12.891	0.000	SIG
Irritability	GROUP II	18	19.80			
	GROUP III	19	14.70			
	Total	55				
	GROUP I	18	11.79	11.213	0.001	SIG
Anorexia	GROUP II	18	20.45			
	GROUP III	19	14.10			
	Total	55				
	GROUP I	18	13.26	16.333	0.000	SIG
Weakness	GROUP II	18	21.10			
	GROUP III	19	13.75			
	Total	55				
	GROUP I	18	17.55			
	Total	55				

EFFICACY STUDY IN GROUP I OBJECTIVE CRITERIA

TABLE NO. 6

GROUP I		Mean	N	SD	SE	t-Value	P-Value	% Change	Result
HB	BT	9.53	18	0.59	0.14	-14.074	0.000	20.0	Sig
	AT	11.43	18	0.74	0.17				
TLC	BT	6577.78	18	1100.03	259.28	0.166	0.870	0.5	NS
	AT	6544.44	18	1099.32	259.11				
POLY	BT	58.39	18	10.51	2.48	2.629	0.018	12.0	Sig
	AT	51.39	18	7.28	1.72				
LYMPHO	BT	33.33	18	9.71	2.29	3.163	0.006	17.2	Sig
	AT	27.61	18	6.58	1.55				
EOSINO	BT	2.28	18	1.56	0.37	3.887	0.001	58.5	Sig
	AT	0.94	18	0.80	0.19				
MONO	BT	4.67	18	2.28	0.54	0.670	0.512	11.9	NS
	AT	4.11	18	2.65	0.63				

BASO	BT	0.72	18	0.83	0.19	1.441	0.168	53.8	NS
	AT	0.33	18	0.59	0.14				
ESR	BT	31.33	18	13.69	3.23	4.886	0.000	20.6	Sig
	AT	24.89	18	12.67	2.99				
MCV	BT	73.33	18	5.59	1.32	-7.514	0.000	20.2	Sig
	AT	88.13	18	7.01	1.65				
MCH	BT	24.45	18	2.18	0.51	-9.682	0.000	19.3	Sig
	AT	29.18	18	1.26	0.30				
MCHC	BT	28.32	18	3.36	0.79	-9.874	0.000	19.1	Sig
	AT	33.74	18	1.46	0.34				
SERUM IRON LEVEL	BT	49.21	18	4.64	1.09	-13.158	0.000	58.5	Sig
	AT	77.99	18	8.92	2.10				

EFFICACY STUDY IN GROUP II OBJECTIVE CRITERIA

TABLE NO. 7

GROUP II		Mean	N	SD	SE	t-Value	P-Value	% Change	Result
HB	BT	9.74	18	0.84	0.20	-29.492	0.000	28.0	Sig
	AT	12.47	18	0.70	0.16				
TLC	BT	6511.11	18	867.65	204.51	-0.749	0.464	2.2	NS
	AT	6655.56	18	772.48	182.08				
POLY	BT	64.61	18	9.17	2.16	2.415	0.027	10.3	Sig
	AT	57.94	18	8.99	2.12				
LYMPHO	BT	34.56	18	8.94	2.11	2.242	0.039	13.0	Sig
	AT	30.06	18	7.75	1.83				
EOSINO	BT	1.22	18	1.11	0.26	2.830	0.012	63.6	Sig
	AT	0.44	18	0.51	0.12				
MONO	BT	4.39	18	2.50	0.59	4.123	0.001	45.6	Sig
	AT	2.39	18	1.75	0.41				
BASO	BT	0.28	18	0.46	0.11	0.369	0.717	20.0	NS
	AT	0.22	18	0.43	0.10				
ESR	BT	30.78	18	14.67	3.46	5.275	0.000	27.6	Sig
	AT	22.28	18	10.88	2.56				
MCV	BT	74.05	18	9.83	2.32	-3.383	0.004	14.4	Sig
	AT	84.68	18	7.88	1.86				
MCH	BT	24.86	18	2.19	0.52	-6.234	0.000	19.1	Sig
	AT	29.61	18	1.87	0.44				
MCHC	BT	28.58	18	3.49	0.82	-6.014	0.000	19.7	Sig
	AT	34.21	18	2.54	0.60				
SERUM IRON LEVEL	BT	46.51	18	7.12	1.68	-12.713	0.000	89.3	Sig
	AT	88.06	18	13.86	3.27				

EFFICACY STUDY IN GROUP III OBJECTIVE CRITERIA

TABLE NO. 8

GROUP III		Mean	N	SD	SE	t-Value	P-Value	% Change	Result
HB	BT	9.29	19	1.04	0.24	-17.274	0.000	22.5	Sig
	AT	11.38	19	1.09	0.25				
TLC	BT	6200.00	19	1313.18	301.26	-0.274	0.787	0.9	NS
	AT	6257.89	19	1133.00	259.93				
POLY	BT	61.58	19	9.59	2.20	1.887	0.075	9.0	NS
	AT	56.05	19	10.68	2.45				
LYMPHO	BT	33.53	19	7.62	1.75	2.353	0.030	14.1	Sig
	AT	28.79	19	7.47	1.71				
EOSINO	BT	1.47	19	1.22	0.28	4.472	0.000	71.4	Sig
	AT	0.42	19	0.61	0.14				
MONO	BT	4.00	19	2.24	0.51	3.073	0.007	40.8	Sig
	AT	2.37	19	2.29	0.53				
BASO	BT	0.47	19	0.51	0.12	1.000	0.331	33.3	NS
	AT	0.32	19	0.48	0.11				
ESR	BT	29.21	19	10.18	2.34	4.099	0.001	24.9	Sig
	AT	21.95	19	9.61	2.21				
MCV	BT	70.14	19	7.20	1.65	-9.183	0.000	18.3	Sig
	AT	82.99	19	7.62	1.75				
MCH	BT	24.72	19	1.75	0.40	-9.724	0.000	19.0	Sig
	AT	29.42	19	1.71	0.39				
MCHC	BT	24.54	19	1.81	0.42	-20.398	0.000	34.6	Sig
	AT	33.02	19	2.86	0.66				
SERUM IRON LEVEL	BT	45.14	19	6.79	1.56	-20.333	0.000	79.7	Sig
	AT	81.14	19	11.54	2.65				

Comparison among GROUP I, GROUP II and GROUP III

TABLE NO. 9

		N	Mean	SD	SE	F-Value	P-Value	Result
HB	GROUP I	18	1.91	0.57	0.14	13.116	0.000	Sig
	GROUP II	18	2.73	0.39	0.09			
	GROUP III	19	2.09	0.53	0.12			
TLC	GROUP I	18	700.00	452.44	106.64	0.026	0.974	NS
	GROUP II	18	666.67	470.29	110.85			
	GROUP III	19	700.00	580.23	133.11			
POLY	GROUP I	18	10.44	8.00	1.89	0.014	0.986	NS
	GROUP II	18	10.67	7.99	1.88			
	GROUP III	19	10.89	8.36	1.92			
LYMPHO	GROUP I	18	8.28	4.59	1.08	0.026	0.974	NS
	GROUP II	18	8.06	5.02	1.18			
	GROUP III	19	8.42	5.08	1.17			
EOSINO	GROUP I	18	1.67	1.03	0.24	2.348	0.106	NS
	GROUP II	18	1.00	0.97	0.23			

	GROUP III	19	1.16	0.90	0.21			
MONO	GROUP I	18	3.00	1.78	0.42	1.002	0.374	NS
	GROUP II	18	2.44	1.46	0.35			
	GROUP III	19	2.26	1.66	0.38			
BASO	GROUP I	18	0.83	0.86	0.20	2.432	0.098	NS
	GROUP II	18	0.39	0.50	0.12			
	GROUP III	19	0.47	0.51	0.12			
ESR	GROUP I	18	7.11	4.66	1.10	0.957	0.391	NS
	GROUP II	18	9.39	5.47	1.29			
	GROUP III	19	8.95	5.55	1.27			
MCV	GROUP I	18	14.80	8.36	1.97	0.551	0.580	NS
	GROUP II	18	15.18	7.29	1.72			
	GROUP III	19	12.85	6.10	1.40			
MCH	GROUP I	18	4.73	2.07	0.49	0.894	0.415	NS
	GROUP II	18	5.47	1.67	0.39			
	GROUP III	19	4.70	2.11	0.48			
MCHC	GROUP I	18	5.42	2.33	0.55	9.419	0.000	Sig
	GROUP II	18	6.41	2.42	0.57			
	GROUP III	19	8.48	1.81	0.42			
SERUM IRON LEVEL	GROUP I	18	28.78	9.28	2.19	6.609	0.003	Sig
	GROUP II	18	41.55	13.87	3.27			
	GROUP III	19	36.00	7.72	1.77			

COMPARATIVE ASSESSMENT OF % RELIEF IN SYMPTOMS

TABLE NO. 10

SYMPTOMS	% Group I	% Group II	% GROUP III
Pallor	60.4	75.5	62.9
Reduced exercise capacity	55.4	75.9	63.3
Fatigue	58.7	70.4	58.6
Breathlessness	59.4	78.9	60.6
Palpitation	64.7	75.0	62.4
Dizziness	59.2	72.8	62.2
Headache	55.2	74.5	61.9
Irritability	55.6	73.7	58.6
Anorexia	62.6	73.2	63.1
Weakness	57.5	79.9	61.0

ESTIMATION OF OVERALL RESPONSE IN EACH GROUP

TABLE NO. 11

STATUS	GROUP I (N=18)		GROUP II (N=18)		GROUP III (N= 19)	
	No.	%	No.	%	No.	%
Excellent (>75%)	0	0%	3	16.6%	0	0%
Marked improvement (50-74%)	10	55.5%	12	66.6%	11	57.8%
Mild improvement (25-49%)	8	44.4 %	3	16.6%	7	36.8%
No improvement (<25%)	0	0%	0	0%	1	5.2%

DISCUSSION

Effect of therapy

GROUP I- In subjective assessment of Group A, *NISHA LAUHA VATI*, significant relief was observed in all symptoms like, Pallor (60.4%), Reduced Exercise Capacity (55.4%), Fatigue (58.7%), Breathlessness (59.4%), Palpitation (64.7%), Dizziness (59.2%), Headache (55.2%), Irritability (55.6%), Anorexia (62.6%), Weakness (57.5%). In objective assessment of Group A significant result was found in Hb, Poly, Lympho, Eosino, ESR, MCV, MCH, MCHC, Serum Iron level and non significant result was found in TLC, Mono, Baso.

GROUP II- In patients treated with *NISHA LAUHA VATI AFTER VIRECHANA KARMA*, highly significant relief was observed in symptoms, Pallor (75.5%), Reduced Exercise Capacity (75.9%), Breathlessness (78.9%), Palpitation (75%), Weakness (79.9%), Significant improvement was found in symptoms, Fatigue (70.4%), Dizziness (72.8%), Headache (74.5%), Irritability (73.7%) and Anorexia (73.2%). Result was found insignificant in curing symptom, *Chardi*. Regarding Haematological values results were highly significant for Hb%(20.63%). In objective assessment of Group B significant result was found in Hb, Poly, Lympho, Eosino, Mono, ESR, MCV, MCH, MCHC, Serum Iron level and non significant result was found in TLC, Baso.

GROUP III- In patients treated with TAB. IRON (Ferrous sulphate). Significant relief was observed in all symptoms like, Pallor (62.9%), Reduced Exercise Capacity (63.3%), Fatigue (58.6%), Breathlessness (60.6%), Palpitation (62.4%), Dizziness (62.2%), Headache (61.9%), Irritability (58.6%), Anorexia (63.1%), Weakness (61%). In objective assessment of Group C significant result was found in Hb, Lympho, Eosino, Mono, ESR, MCV, MCH, MCHC, Serum Iron level and non significant result was found in TLC, Poly, Baso.

Follow up study

Out of 55 patients, 38 patients came for follow up. In 28 patients, Hb level was found to be maintained. 3 patients complained of recurrence of symptoms after completion of trial.

Comparison of the effects

When percentage of relief was compared on symptoms Group I ,Group II and Group III, Group II showed maximum improvement in symptoms Pallor (**75.5%**), Reduced exercise capacity (**75.9%**), fatigue (**70.4%**), breathlessness (**78.9%**), palpitation (**75%**), dizziness (**72.8%**), headache (**74.5%**), irritability (**73.7%**), anorexia (**73.2%**), weakness (**79.9%**). As

compare to Group I and Group III. When percentage of relief was compared on objective parameters Group I, Group II, Group III, Group II showed maximum improvement in HB (28%), MCV (14.4%), MCH (19.1%), MCHC (19.7%) and Serum Iron Level (89.3%). As compare to Group I and Group III.

Intergroup Comparison

FOR COMPARISON in Group I, Group II and Group III, we have used Kruskal Wallis Test. From above table we can observe that P-Values for all parameters are less than 0.05. Hence we conclude that there is significant difference in effect of three groups. Further we can observe that mean rank for Group II is greater than Group I and Group III. Hence we conclude that effect observed in Group II is more than Group I and Group III.

Overall effect of therapy

Overall response in Group A (*NISHA LAUHA VATI*) was **Excellent** improvement in 0% patients, **Marked** improvement in 55.55% patients and **Mild** improvement in 44.4% patients. While Group B (*NISHA LAUHA VATI AFTER VIRECHANA KARMA*) showed **Excellent** improvement in 16.6% patients, **Marked** improvement in 66.6% patients and **Mild** improvement in 11.1% and in Group C, Excellent improvement in 0% patients, Marked improvement in 57.8%, Mild improvement in 36.8% and 5.2% of patients shows No improvement.

Probable mode of action of trial drug

Pandu or Iron Deficiency Anemia Treatment requires adequate bioavailability of *Lauha*. Iron salts when taken it cause constipation. In *Nisha Lauha Vati* iron is present. *Katuki* is a *Pitta Virechaka* having *Shodhan* property. *Triphala* in this drug is *Rasayan* & also have the property of *Shodhan Karma*. *Haridra* and *Daruharidra* present in is *Nisha Lauha Vati Tikta-Katu* and *Tikta-kashaya Rasa Pradhan* respectively and also *Ushna Virya* having good effect on liver function as well as *Amapachak*. Because of all these drug present in *Nisha Lauha Vati*, we can think that there is increased absorption of iron in the body result in rapid formation of hemoglobin.

The *Virechna Karma* is very effective in *Pandu Roga* (Iron Deficiency Anemia), iron is absorbed in our body in small intestine. If there is obstruction in *Srotas* (*Strotavarodha*) then the iron will not be properly absorbed & the benefit of drug will not completely established. The iron absorbed from small intestine. The *Virechana* is the *Samsodhana* procedure for

whole intestine. It cleans the *Srotas* and removes the *Srotavrodha*. So we can think that if we use the *Nisha LAUHA Vati* with *Samshodhana* then iron absorption is increased and the total time of recovery process of a patient will reduced.

In “*NISHA LAUHA VATI*” majority of drugs are having *Tridosahara* property, so it becomes helpful in treating *Tridoshaj Vyadhi PANDU*. Majority of drugs are having *Deepana*, *Pachana* property. So drug increases the *Jatharagni* and *Dhatvagni* up to normal level and the drug diminishes *Mandagni* and breaks the pathogenesis of *PANDU ROG*. Maximum no of *Dravyas* possess *Laghu*, *Ruksha Guna* and *Tikta Kashaya Ras* so the drug also posses *Srotoshudhikara* property as a result it is able to clarify the *Srotas*. So all the drugs combinely act and gave significant relief in *PANDU*.

Probable mode of action of *Virechana Karma*

All *Acharyas* have common opinion regarding the importance of *Shodhana* in the management of different diseases.

TABLE NO. 12

KARMA	MODE OF ACTION
<i>Deepana</i>	Enhances appetite and it pacifies vitiated <i>Vata Dosha</i> .
<i>Snehapana</i> , <i>Abhyanga</i> and <i>Swedana</i>	Expels vitiated <i>Doshas</i> from <i>Shakha</i> to <i>Koshta</i> by virtue of its property. <i>Ghrita</i> is <i>Pitta Shamaka</i> and <i>Agni Deepaka</i> .
<i>Virechana Karma</i>	It is targeted to expel increased <i>Pitta Dosha</i> out of the body i.e. <i>Srotoshodhana</i> . As we know that <i>Rakta</i> is said to be <i>Pitta Sadharmi</i> so it will pacify vitiated <i>Pitta</i> as well as vitiated <i>Rakta</i> .
<i>Sansarjana Karma</i>	Due to <i>Shodhana (Virechana)</i> procedure <i>Mandagni</i> develops therefore <i>Sansarjana Karma</i> maintains <i>Agni</i> balance or equilibrium.

CONCLUSION

Nisha lauh vati due to its contents did *Agni deepana*, *Ama Pachana* and *Vata anulomanam* thus breaking the pathogenesis of *Pandu Roga*. *Nisha lauh vati* is very effective after *virechana* karma in controlling the aggravated *Pitta pradhan tridoshaja vyadhi (Pandu roga)*. So, it can be concluded that the *Ayurvedic* management provide better alternative to Allopathic drugs in treating *Pandu roga (IDA)* without any side-effects as seen Constipation, Nausea etc. Result of group II *NISHA LAUHA VATI AFTER VIRECHANA KARMA* was encouraging in terms of providing relief on subjective and objective parameters of *pandu*

roga as compared to group I (*NISHA LAUHA VATI*) & group III (Tab.Iron). Thus it can be concluded that *NISHA LAUHA VATI AFTER VIRECHANA KARMA* is more effective in management of *pandu roga*. in comparison to *NISHA LAUHA VATI* & Tab.Iron alone. *Nisha Lauha Vati* significantly reduces the symptoms of *Pandu Roga* (iron deficiency anemia) & no adverse effects of this *vati* were seen. Thus it can be concluded that, *Nisha Lauha Vati* may be used in the effective management of patients of *Pandu Roga* (iron deficiency anemia).

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