



EFFECT OF DADIM SWARASA (POMEGRANATE JUICE) ON PANDU IN FEMALES W.S.R.TO. IRON DEFICIENCY ANAEMIA

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ABSTRACT :

Background: Anaemia refers to state in which level of Hemoglobin in blood below the reference range appropriate for age and sex. Around 30% of total world population is anaemic and half of these some 600 million people have iron deficiency. In Ayurveda , *Pandu* (Anaemia) mentioned in *Charaka Samhita*, *Yogaratanakara*, *Vagbhata* in which skin, nails, eyes become fade called *Pandu*. It can be correlated with Anaemia. The clinical features of anaemia reflects diminished oxygen supply to the tissues, skin become pale. Menorrhagia is a common cause of anaemia in female. *Dadim Swaras* (*Punica granatum*) is selected for their wide spectrum action on Anaemia like *Hrdya*(Good for Heart) *Tridoshmashak* , good source of Folate, Vitamin K, Vitamin C . **Aim:** To evaluate the effect of *Dadim Swaras* in the treatment of iron deficiency anaemia . **Materials and Methods:** Total 20 female patients of iron deficiency anaemia with 4weeks duration were enrolled and randomly allocated to GroupA (Oral *Dadim swaras* 50ml daily once at morning) , Group B (Only Tablet Ferrous sulfate 100mg Daily Once) . Duration of treatment was considered about 1 month. Plasma ferritin, Hemoglobin, *Hridspandana*(Palpitation), *Shwasa* (Breathlessness),*Panduta* (Paleness) observed at weekly interval. **Results:** With the treatment of 4 weeks, Group A showed dramatic improvements in signs and symptoms. Resolution of Plasma Ferritin , Hemoglobin, *Hridspandana*(Palpitation), occurred in about 100% of patients. Whereas 90% of patients having reduction in *Panduta* (Paleness) and cessation of *Shwasa* (Breathlessness) in 70%. In patients of Group B, *Panduta* and Mean corpuscular volume shows good results in only 60%. Cessation of *Hridspandana* and *Shwasa* occurred in 50% whereas Hemoglobin elevated in 70%. So use of *Dadim Swaras* (*Pomegranate Juice*) showed significant effect when compared before and after treatment by applying 't' test to parameters, $p < 0.10$. **Conclusion:** *Dadim Swaras* (Pomegranate Juice) used in Iron deficiency anaemia were found more effective than Ferrous sulfate.

Key words: *Pandu*, *Anaemia*, *Iron Deficiency Anaemia* , *Dadim Swarasa*

INTRODUCTION: As we know that our Ayurveda is one of the most ancient health science in the world. Ayurveda provides treatment with appropriate lifestyle too. Almost all diseases described in Ayurveda

with miraculous treatment. It is Ayurveda, which gives treatment for prevention purpose also. *Pandu* is one of nutritional disorder described in Ayurveda in details. In which disease skin, nails, eyes become

fade called *Pandu*. Due to similar characteristic features *Pandu* can correlate with Anaemia; in Ayurveda *Pandu* is *Raspradoshaja vyadhi* (Disease of *Rasavaha Strotasa*) having different types. According to World Health Organization (WHO), Anaemia is defined as blood haemoglobin (Hb) concentration <130g/l (<13g/dl) or haematocrit (Hct) <39% in adults males; Hb <120g/l (<12g/dl) or Hct <37% in adults females¹. 30% of total world populations are anemic. Half of these some 600 million people have Iron Deficiency Anaemia (IDA). Especially females having higher numbers than males. Currently IDA is most common and wide spread nutritional disorders in the world. In our Ayurveda *Pandu* can correlate with Anaemia due to its similar characteristics.

Global Anaemia prevalence (2011) shows in India 40% to 60% women of reproductive age are anaemic². IDA is prominent in South Asia e.g. in India 88% of pregnant women and 74% of non pregnant women affected by IDA³. Now a day's IDA is very common but serious problem among women and children because of its detrimental consequences and wide spread. Menstrual blood loss, pregnancy, poor diet, Malabsorption can cause IDA leads to fatal effects⁴. But good thing is that our Ayurveda has been given answer of Anemia or *Pandu* before thousand years back; as almost all *Acharya* described Anaemia (*Pandu*) with miraculous treatment in details⁵. Among that use of *Dadim Swarasa*^{6,7} (Pomegranate Juice) is one of the best for IDA induces the iron, oxygen concentration leads to increased overall Haemoglobin.

AIMS & OBJECTIVES:

1. To study the efficacy of *Dadim Swarasa* (Pomegranate juice) used in IDA.
2. To study detail cause of IDA in females.
3. To study various concepts of *Padu* (Anaemia) regarding causes & treatments in Ayurveda.
4. To study the effectiveness of *Dadim Swarasa* (Pomegranate Juice) in Iron Deficiency Anaemia (IDA).

MATERIAL & METHODS: It is simple, random group study with sample size 20. It was conducted on patients who were suffered from IDA. Samples were selected randomly from Department of *Kayachikitsa* of Shri Sant Eknath Rughalaya, Shevgaon.

Inclusion Criteria:

1. Women of reproductive age between 15years to 49 years.
2. Female patients who were suffering from Iron Deficiency Anaemia (IDA) with absence of any major illness.
3. Patients were selected irrespective of religion, occupation.

Exclusion Criteria:

1. Unconscious, deaf and dumb patients (Deaf & dumb can include but if patients unable to make & take proper drug dose preparation it may be harmful to themselves)
2. First trimester females.
3. Any other type of anaemia except IDA & blood Hb less than 6g/dl.

Methodology: Thoroughly history had been taken regarding to sign and symptoms of patients. Selected patients were drawn into 2 groups e.g. Group A & B.

Group A -10 patients were treated with *Dadim Swarasa* (Pomegranate Juice)

Group B – Whereas other 10 patients were administered only Tab Ferrous Sulfate

All treatment was done daily for 1 month. Assessment was done every 7th day.

Drug Administration:Table No. 1 – Administration of Procedures

Sr. No.	Topic	Group A	Group B
1	Medicine	Dadim Swarasa (Pomegranate Juice)	Tab Ferrous Sulfate
2	Dose	50ml to 100ml ⁸ once daily as per requirement	100mg to 200mg once daily as per requirement
3	Time	At morning with breakfast	At morning with breakfast
4	Duration	1 Month	1 Month

Follow Up: There were five follow up performed for case study which included 1st (Base line), 2nd (7th day), 3rd (14th day), 4th (21st day) & 5th (28th day) follow ups.

Assessment Criteria:Table No.2- Gradation for signs and symptoms

Sr. No.	Parameters	No Abnormality Detected	Mild Fall	Moderate Fall	Severe Fall
1	Plasma Ferritin	0	1	2	3
2	Haemoglobin	0	1	2	3
			Mild Rise	Moderate Rise	Severe Rise
3	Hridspandana(Palpitation)	0	1	2	3
4	Shwasa (Breathlessness)	0	1	2	3
5.	Panduta (Paleness)	0	1	2	3

OBSERVATIONS & RESULTS:Before started the treatment, all patients of both groups had all signs and symptoms (mild to severe) which mentioned in Table no .2

in different manner like much or less. After treatment there was decreased in signs and symptoms of both groups had been seen.

Table No. 3 -Number of patients showing sings & symptoms before treatment(BT) and after treatment(AT)

	Group A		Group B	
	B.T.	A.T.	B.T.	A.T.
Plasma Ferritin	10	0	10	4
Haemoglobin	10	0	10	3
Hridspandana(Palpitation)	10	0	10	5
Shwasa (Breathlessness)	10	3	10	5
Panduta (Paleness)	10	1	10	4

Table No 4 – Group wise Improvements in Parameters after Treatments

Group	Number of Patient	Parameters				
		Plasma Ferritin	Haemoglobin	Hridspandana (Palpitation)	Shwasa (Breathlessness)	Panduta (Paleness)
A	10	10(100%)	10 (100%)	10(100%)	07 (70%)	09 (90%)
B	10	06(60%)	07 (70%)	05 (50%)	05 (50%)	06 (60%)

STATISTICAL ANALYSIS: Paired ‘t’ and unpaired ‘t’ test is applied for analysis.

Table No. 5- Findings in Group A after t/t by paired ‘t’ test

	Mean	$\sum(x-x)^2$	Std.Dev.	Std. Error	t_9	Result
Plasma Ferritin	1.7	6.1	0.2744	0.0868	19.59	As p<0.001 treatment is highly significant
Haemoglobin	1.6	6.4	0.2811	0.0889	18	
Hridspandana (Palpitation)	1.8	3.6	0.2108	0.0667	26.98	
Shwasa (Breathlessness)	1.4	10.4	0.3583	0.1133	12.35	
Panduta (Paleness)	1.5	8.5	0.3239	0.1024	14.64	

Table No.6- Findings in Group B after t/t by paired ‘t’ test

	Mean	$\sum(x-x)^2$	Std.Dev.	Std. Error	t_9	Result
Plasma Ferritin	0.7	4.1	0.2249	0.0712	9.33	As p<0.001 treatment is highly significant
Haemoglobin	0.6	2.4	0.1721	0.0544	11.02	
Hridspandana (Palpitation)	0.5	2.5	0.1757	0.0556	8.99	
Shwasa (Breathlessness)	0.5	2.5	0.1757	0.0556	8.99	
Panduta (Paleness)	0.8	5.6	0.2629	0.0831	9.62	

Table No.7- Comparison of Group A&B after treatment by unpaired ‘t’ test

	Std. Dev.	Std. Error	t_{18}	Result
Plasma Ferritin	2.3637	0.4727	2.11	As p<0.10 treatment is significant
Haemoglobin	2.6687	0.5337	2.06	
Hridspandana (Palpitation)	2.2085	0.4417	2.26	
Shwasa (Breathlessness)	3.3638	0.4364	2.06	
Panduta (Paleness)	1.2581	0.2516	1.57	

For all symptoms p is less than 0.10, difference is significant. Treatment of Group A is more effective than Group B. Hence *Dadim Swarasa* (Pomegranate Juice) is more effective on Iron Deficiency Anaemia than Tab Ferrous Sulfate .

DISCUSSION: Blood is main human body constituent. Human body contains almost 4.5 lit to 5.5 liters blood. Ayurveda also gives important by mentioning *Rakta as 2nd* number of *Dhatu*. Simply blood provides life. Nevertheless according to *Charaka*⁹ & *Vagbhata*¹⁰ *Pandu* (Anaemia) is *Rasapradoshaja* (Due to vitiation of *Rasa Dhatu Vyadhi*) disease. There are different types of anaemia described in Ayurveda & modern science too. Vitiating *Tridosha* entered in *Hridaya*(Heart) cause *Pandu*(Anaemia). Use of *Snehana*, *Vamana*, *Virechana Karma*, use of *Dipana* (Improve digestion) & *Pachaka* medicine, *Siddhigrita* & many more treatmental aspect for *Pandu*(Anaemia). So *Dadim* (*Punica granatum*) is fulfilled with all requirements to overcome *Pandu* w.r.s. to Iron Deficiency Anaemia because sweet *Dadim* has *Hridya*(Good for heart) , *Dipaka*(Improve Digestion), *Stambhaka*(Coagulative) properties. With these Ayurvedic properties *Dadim* is great source of Nutrients, Vitamins & Minerals like Vit C (Enhances iron absorption), Vit K, Folic Acid, Fiber, Iron , Potassium & many more nutrients.

Pathophysiology of *Pandu*(IDA) described in Ayurvedic text as ; vitiating *Tridoshas* entered into heart , spread all over body through arteries and veins. Body become pale generate *Pandu*(IDA). But if we use sweet *Dadim Swarasa* (Pomegranate Juice), it can break pathophysiology of *Pandu*(IDA). With the treatment of 4 weeks, Group A showed dramatic improvements in signs and symptoms.

Resolution of Plasma Ferritin , Hemoglobin, *Hridspandana*(Palpitation) occurred in about 100% of patients. Whereas 70% of patients having reduction in *Shwasa*(Breathlessness) and cessation of *Panduta*(Paleness) in 90%. In patients of Group B, Plasma Ferritin and *Panduta*(Paleness) reduced in only 60%. Cessation of *Hridspandana* (Palpitation) and *Shwasa* (Breathlessness) occurred in 50% whereas Haemoglobin reduced in 70%.

CONCLUSION: In *Pandu* or Iron Deficiency Anemia , Group A , treated with *Dadim Swarasa* (Pomegranate Juice) as orally.. There was reduction in symptoms such as Plasma Ferritin , Hemoglobin, *Hridspandana*(Palpitation), *Shwasa*(Breathlessness) .*Panduta* (Paleness). In Group B patients there was also inhibition of above mentioned symptoms with Tab Ferrous Sulfate as orally.. In Group A and B, respective treatment proved to effective. But when outcomes compared with each other (Between Group A and B), there is significant difference found. So *Dadim Swarasa* (Pomegranate Juice) as orally, used in *Pandu* (Iron Deficiency Anaemia) found more effective than Tab Ferrous Sulfate.

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