



International Research Journal of Ayurveda & Yoga

An International Peer Reviewed Journal for Ayurveda & Yoga



SJIF Impact Factor : 5.69

ISRA Impact Factor : 0.415

ISSN:2581-785X

Research Article

Volume: 3

Issue: 7

Efficacy Of Herbal Formulation As *Amalakyavaleha* In *Pandu* W.S.R To Anemia In Children

Aditya Narayan Upadhyay¹, M.N.Gupta², Prof. Mithilesh Verma^{3*}

1- P.G. Scholar, State Ayurvedic college & Hospital, Lucknow, U.P. India

2- Reader P.G. Department of Kaumarabhritya, State Ayurvedic college & Hospital, Lucknow, U.P. India

3- Head of Department of Kaumarabhritya, State Ayurvedic College & Hospital, Lucknow, U.P. India

ABSTRACT: Anemia is a common micronutrients disease affect health status of very large population of whole world. Iron deficiency is most common cause of anemia. Ayurveda described *Pandu Roga* which correlate with anemia. Ayurveda mentioned as causes, symptoms and treatment of *Pandu*. *Pandu Roga* involves lack of hemoglobin due to poor intake of iron through dietary sources. Poor absorption and digestive problems may also lead anemia. The characteristic feature of diseases involve discoloration of skin, pita and presence of *Ketaki dhuli nibh chaya*. Ayurveda described it as "*Varnoplakshita roga*" which indicates change in colour. The clinical symptoms involve loss of appetite, palpitation, *Pandutwa* and fatigue. In the classification the disease *Pandu* felt in the group of *Varna* in which there are significant changes in the normal color of the body. The detail description of *Pandu Roga* its classification starts from *Ayurvedic Samhitas only*. *Pandu Roga* is one of the diseases mentioned in Ayurveda characterized by whitish discoloration of skin due to loss of blood. The disease is comparable with anemia in the modern medical literature. The incidence of problem is high in school going children, adolescent and pregnant women. The main nutrients involved in the synthesis of hemoglobin are iron, folic acid and Vitamin B12. In public health terms, iron deficiency is by far the first cause of nutritional anemia worldwide. Folic acid deficiency is less widespread and is often observed with iron deficiency anemia. Vitamin B12 deficiency is far rare. Therefore, the focus in this article is on Iron-deficiency anemia in children.

Key Words : Anemia, *Varnoplakshita roga*, *Vaivarna*, *Pandutwa*, Folic acid deficiency, Vitamin B12 deficiency, Nutritional deficiency anemia

Article received on-9 July

Article send to reviewer on-11 July

Article send back to author on-19 July

Article again received after correction on -26 July

Corresponding Author : Aditya Narayan Upadhyay, P.G. Scholar, State Ayurvedic college & Hospital, Lucknow, U.P. India, Email, Id- gytonbhu@gmail.com

How to Site the Article : Aditya Narayan Upadhyay, M.N.Gupta, Prof. Mithilesh Verma, Efficacy Of Herbal Formulation As *Amalakyavaleha* In *Pandu* W.S.R To Anemia In Children' IRJAY, July: 2020 Vol- 3, Issue-7; 93-102, <https://doi.org/10.47223/IRJAY.2020.3709>

INTRODUCTION:

The word *Pandu* has been derived from “*Padi nashne dhatu*” by adding “*Ku*” *pratyay* in it, the meaning of which is always taken in a sense of “*Nashan*” i.e. loss. As *Pandu* which is classified and named according to change of color, therefore, “*Nashan*” should be considered in the sense of “*Varna*” or color which is further clarified by *Charaka* with the word *Vaivarna*. Thus, *Pandu* is a disease in which there is *Vaivarna* or change in the normal color of the body.¹

Ayurveda is the science of life which focuses on the maintenance of positive health and eradication of ailments in the disease through its holistic approach, life style practices ,dietary habits as well as

safer medication. *Pandu roga* occurs in children some time because of *Mritika Bhakshan* and maximum by inadequate nutrition. According to *Ayurvedic Acharya*, there are main five types of *Pandu roga*²

- *Vatika Pandu*
- *Pattika Pandu*
- *Kaphaja Pandu*
- *Tridoshaja / Sannipataja Pandu*
- *Mrtika bhakshanjanya Pandu*

Acharya Shusruta described four types of *Pandu roga*. He has not mentioned *Mrtika bhakshanjanya Pandu*³. Some others types of

Pandu roga are also described (which are assumed as complication of Pandu) named *Lagharaka or Laghavaka, Alasa, Panaki* and *Halimaka*⁴.

Pandu rog is compared with anemia i.e. Iron deficiency anemia in modern sciences. Anemia disease in both developed and developing countries is present with its higher prevalence rate in infant, school going children, adolescence and women of child bearing age.

An abnormally low hemoglobin level due to pathological conditions is defined as anemia. Iron deficiency is one of the most common but not only cause of anemia. Other cause of anemia includes chronic infections particularly malaria, hereditary hemoglobinopathies, HDN, pica history, hemolysis, jaundice, folic acid deficiency etc. It is worth noting that multiple cause of anemia can coexist in individual or in a population and contribute to the severity of anemia.

Iron-deficiency-anemia (IDA)⁵ :

Iron is essential for multiple metabolic process including electron transport, DNA synthesis and electron transport. In severe iron deficiency, low level of iron containing

enzymes affect immune and tissue function. Iron deficiency can also result in diminished growth and learning. Therefore, when decrease in total body iron content is severe enough to diminish erythropoiesis and cause anemia.

Iron deficiency results from diminished dietary iron absorption in the proximal small intestine or excessive loss of body iron. Iron deficiency in older children is usually caused by dietary deficiency; the absorption of iron is further impaired by dietary constituents that lowers the absorption of non-haeme iron, e.g. phytates, phosphates and tannates. Recurrent infection such as hookworm infestation and malaria worsen the problem. Cognitive impairment, decreased physical capacity and reduced immunity are commonly associated with iron-deficiency-anemia. In severe iron deficiency anemia, the capacity to maintain the body temperature may also be reduced. Severe anemia is also life threatening.

EPIDEMIOLOGY :

Anemia is considered as one of the most significant problem occurring due to nutritional deprivation which hinder the linear growth and development of children.

The incidence rate of anemia is 46% globally⁶. 2 billion peoples are suffering from iron deficiency anemia i.e. approximate 1/3 of the whole population⁷. Adolescents constitute more than 20% of Indian population and more than 50% of them suffer from iron deficiency anemia⁸. NFHS IV 2015-16 suggest about the prevalence of anemia in Indian children is 59% having Hb <11mg/dl but its rate is also higher among the rural children. W.H.O. report 2002 titled “Reducing risk and promoting health life” mentions iron deficiency as 9th of 26th preventable risk to disease, disability and death in the world today⁹.

Anemia is present when the hemoglobin level is more than two standard deviation below the mean for the child age and sex. According to 3rd National Family Health Survey(NFHS3), 79% children have anemia, including 71% of urban children and 84% of those in rural areas¹⁰.

HERBAL MEDICINES :

AMALKI¹² :

CHEMICAL COMPOSITION :

A good source of vitamins C, carotene, nicotinic acid, riboflavin, D-glucose, D-

fructose, myo inositol, pectin with D-galacturonic acid, mucin, indole acetic acid and four other auxins, tannin, polyphenolic compounds, ellagic acid, alkaloids, phyllantidine and phyllatine.

PHARMACOLOGICAL ACTION AND

USE : For acute toxicity, including median lethal dose(L.D.50) of Amla; it was administered at rate of 250,500 and 1000mg/kg-body weight to albino rats of group 1 were given normal saline to serve as control. There was not observed any mortality rate.

The fruits are astringent, cooling, carminative, digestive, laxative and tonic. They are useful in dyspepsia, colic, flatulence, hyperacidity, peptic ulcer, anemia, hepatic disorder, diarrhea, skin disease, inflammation, jaundice and grayness of hair.

SUNTHI¹³ :

PHARMACOLOGICAL ACTION AND

ITS USE :

The dry ginger is emollient, appetizer, laxative, stomachic, stimulant, anodyne, anthelmintic and carminative. It is useful in dyspepsia, piles, hyperacidity, abdominal pain, vomiting and distress of pharynx,

cardiac disorder, inflammation and Rheumatoid arthritis. This medicine is considered as an adjunct to many tonic and stimulating remedies.

Shunthi as ingredient of *Taalisadia churna* 5, 50, 300, 2000mg/kg for a period of at least 24 hours were allowed between dosing of each animal and then were observed for 14 days. No toxicity symptoms up to dose level of 2000mg/kg P.O. in sub acute toxicity study.

The vital organs of animals treated with *Taalisadia churna* for 28 days did not show any histo-pathological evidence of pathological lesion.

***PIPPALI*¹⁴ :**

Kaasahara, Shirovirechaka, Vamana, Hikkanigrhana, Triptighna, Deepaniya, Shoolaprashamana.

According to toxicity, study has been carried out in albino rats receiving the first drug dose level maximum upto five times higher (3750 mg/kg) then therapeutic equivalent dose (750 mg/kg). No mortality was observed in any group.

Sub-Chronic toxicity- It has been carried out in two group for therapeutic equivalent dose (2250mg/kg) for 45 days. *Pippali churna* up

to this dose produce any change in biochemical parameter. Therefore, after long duration, administration of this medicine has no serious toxicity potential.

***MULETHI*¹⁵ :**

PHARMACOLOGICAL ACTION AND ITS USE :

Glycyrrhizin shows anti-arthritis, anti-inflammatory, pemphigus.

Glycyrrhetic acid shows anti pyretic activity.

Glycyrrhetic acid drops also found to be significant anti-diuretic effect.

***DRAKSHA*¹⁶ :**

Due to snigdha and guru it helps to overcome Vataj-pittaja dosha.

This is mainly used in jvara, kamala, rajyakshma, daha and trishna, antifungal, antioxidant, antiulcer, wound healing, antimutagenic. In Rohini, decoction of Draksha is used. In Chhardi, cold grape juice should be given.

TOXICOLOGICAL STUDIES : In acute toxicity study, *Vitis vinifera* fruit produced by means of organic farming. At a single dose of 2000mg/kg did not show any toxicity sign which suggest that *Vitis vinifera* practically nontoxic extract did not show detectable abnormalities in organ weight, hematological parameter and clinical parameter.

Therapeutic evaluation : Acc. To modern research, it has Anti-oxidant, Hepato protective actions, Antimicrobial, Antiviral effects and Anti-inflammatory activities.

***VANSLOCHANA*¹⁷:**

Therapeutic evaluation : Acc. To modern research, it has Anti-oxidant, Hepato-protective actions, Antimicrobial, Antiviral effects and Anti-inflammatory activities.

***MADHU(HONEY)*¹⁸:**

Honey is a natural sweet substance produced by honey bees by or enzymatic transformation of floral nectar ingested by them and deposited in the cells of hives or combs & is most valued as well as appreciated natural substances known to mankind since ancient times. Honey is the most rich resources of carbohydrate. Honey is called as *Madhu* in Ayurveda.

Properties according to modern sciences :

Various experiments & studies on honey have shown that it posses antiseptic, antimicrobial, anti-inflammatory, sedative, mild laxative, healing & cleansing properties.

Properties of fresh & old honey in Ayurveda:

Fresh honey has *Bringhana guna*, does not mitigate *Sleshma* very much and is a laxative. Old honey reduces fat and obesity.

Lay out of *Amalkyavaleha* formulation in tabulated form¹⁹ :

S.No.	Drugs	Latin name	Properties
1	<i>Amalaki</i>	<i>Embelica officinale</i>	<i>Amlapitta, Parinamshula, Udavarta, Yakrit vikara, Daurbalya</i>
2	<i>Sunthi</i>	<i>Zingiber officinals</i>	<i>Rochana, Deepana, Paachana, Triptighana, Vatanuloman Aruchi, Hrillasa, Chhardi, Agnimandya, Ajirna,</i>
3	<i>Pippali</i>	<i>Piper longum</i>	<i>Triptighna, Deepaniya, Shoolaprashamana Vamana</i>
4	<i>Mulethi</i>	<i>Glycyrrhiza glabra</i>	<i>Chardinigrahana, Sonitasthapana, Vamanopaga, Asthapanopaga, Kanthya.</i>
5	<i>Draksha</i>	<i>Vitis vinifera</i>	<i>Jvara, kamala, rajayakshma, daha and trishna, antifungal Chardi</i>
6	<i>Vamslochana</i>	<i>Bambusa arundenaceae</i>	Anti-oxidant, Hepatoprotective actions, Antimicrobial, Antiviral effects and Anti-inflammatory activates.
7	<i>Madhu</i>	<i>Mal depuratum</i>	<i>Agnideepana, Chakshuya, Prasadana, Ropana, Sandhana, Shodhana, Tridoshaprashamana, Visaghna</i>

DISCUSSION²⁰ :

Though every age group is susceptible to the affliction of *pandu roga*, it is more common in small children due to intake of iron deficient diet or less iron content in

diet. Families of poor income group are unable to afford proper diet and due to improper and imbalanced diet, children of those families may get the disease. As per the WHO report iron deficiency is most

common among group of low socioeconomic status. *Pandu roga* is equally prevalent in both vegetarian and non-vegetarian. The disease is more prevalent in the children having the *Prakriti* dominant in *Pitta*. As *Pandu roga* is *Pitta* dominant *tridoshaja vikara* and undernutrition is commonly found in *Vata* dominant person so probably this might be the reason of majority of patients of being *Vata-Pitta Prakriti*. *Mandagni* and *Madhyam kostha* are observed in maximum patients. *Madhyam Kostha* showing dominance of *Kapha* leads to improper digestion, which is the prominent cause of any disease. *Kapha dosha* is predominant during childhood period and *Kapha dosha* also play an important role in the pathogenesis of disease.

CONCLUSION :

In this review article, an effort is made to prepare a formulation an *Avaleha* (*Amalakyavaleha*), helpful in the management of *Pandu(Anemia) roga*. The article may be helpful in enhancing the use of herbal drugs in general practices.

In *Amalakyavaleha* , the ingredients are having *Tridoshahara* property, so it becomes helpful in treating *Tridoshaja*

vyadhi Pandu. Analysis of pharmacodynamic property of *Amalakyavaleha* shows that maximum ingredients are having *Katu* and *Tikta* rasa and predominant in *Laghu* guna. These *Tikta* and *Katu* rasa perform *Agnideepana* karma which increase the metabolism and reduces the formation of *Ama*. These all properties assist in *vighatana* of *Pandu roga*.

Amalakyavaleha is an iron rich compound formulation which provides iron in optimum quality which is primarily desired in the management of *Pandu roga*.

Thus *Amalakyavaleha* does *Samprapti vighatana* of *Pandu roga* at various level and *Vyadhiviparita chikitsa* along with *Rasayana* effect so that drug can be used for longer duration to get maximum effect further helpful in improving the hemoglobin as well as general health.

Acknowledgement:- Nil

Financial Assistant:- Nil

Conflict of interest :- Nil

REFERENCES

1. Pt. Kashinath Shastri; Charaka Samhita published by Chaukhamba Bharati Academy Chikitsa Sthana 16/8 page no 488.
2. Pt. Kashinath Shastri; Charaka Samhita published by Chaukhamba Bharati Academy Chikitsa Sthana 16/3 page no 486.
3. Kaviraj Ambika Dutta Shastri; Sushruta Samhita published by Chaukhamba Sanskrit Sansthan Varanasi Sushruta Sutra Sthana 44/4; page no.365
- 4- Kaviraj Ambika Dutta Shastri, Sushruta Samhita; published by Chaukhamba Sanskrit Sansthan Varanasi Sushruta Sutra Sthana 44/13-14; page no.371
- 5- Vinod K Paul, Arvind Bagga ,GHAI Essential Pediatrics; Eight edition, chapter 12th ,Page no. 334
- 6- The global prevalence of anemia in 2011.WHO data base;2011& Asrie,Fikir “Prevalence of anemia and its associated factors among pregnant women receiving antenatal care at Aymiba Health Center, Northwest Ethiopia” Journal blood medicine vol. 8 35-40.11 Apr2017,doi:10.2147/JBM.S13493
- 7- <http://web.worldbank.org/archive/website01213/WEB/OCO-50.HTM>
- 8- Shedole DT,Vidya GS, Suryakantha AH, Vijaykumar B, A comparative study on prevalence of anemia among urban and rural adolescent high school girls of Davangere,Karnataka. Int J Community Med Public Health 2017;4:4638-43
- 9- The world health report 2002-reducing risk,promoting health life
- 10- Vinod K Paul, Arvind Bagga GHAI Essential Pediatrics; Eight edition, , chapter 12th ,Page no. 330
- 11- Vaidya Lakshmi pati Singh Yogaratnakar with Vidyotini Hindi Commentary ,Pandu Roga Chikitsa Adhyaya page no. 345, 2nd Edition, Chaukhamba Sanskrit Series Office,
- 12-. Golechha M, Sarangal V, Ojha S, Bhatia j,Arya DS. Anti-inflammatory effect of *Embica officinalis* in rodent models of acute and chronic inflammation: Involvement of possible mechanism. Int j Inlfm 2014. 2014 178408. [PMC Free article] [Pub Med] [Google Scholar]
- 13- .https://www. Research.net 2816

- 14- . OECD(2000) Guidance document on acute oral toxicity. Environmental health and safety Monograph series on testing & Assessment No. 401,4/26 <https://www.ijpba.info>
- 15- .Walker, B. and Edwards, C(1994) Licorice induced hypertension and syndrome of apparent mineralocorticoid excess, *Endocrinol Metab Clin North Am* 23:359-377
- 16- .M.Cheng,H.Q.Gao,L.Xu,B.Y.Li,H.Zhang,X.H,Li; cardioprotective extract in Streptozocin induced diabetic rats.*J. Cardiovasc pharmacol*,50,503-509,(2007)
- 17- <http://www.tsijournal.com> Vamslochan
- 18- ShastriAmbika dutta, Editor, *Ayurveda-Tatva-Sandipika*(Hindi Commentary) on *Sushruta Samhita*, Chaukhamba Sanskrit Sansthan Varanasi, edition 2005, *Sutrasthan Chapter 45, Madhuvarga,Verse No.140,pg.181*
- 19- P.V. Sharma: *Dravya gun vigyanam*
- 20- *J Ayurveda Integr Med.* 2012Oct-Dec;3(4):215-222, doi:10.4103/0975-9476.104446, PMID: PMC3545243,PMID:23326094, Abhimanyu Kumar and Ashish Kumar Garai.