



A RESEARCH PROTOCOL ANALYSIS ON PHARMACEUTICO-ANALYSIS STUDY OF KHADIRA LAUHA AND ITS EFFECT IN PANDU ROGA

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ABSTRACT

Anaemia affects a third of the world's population and causes increased illness and death, as well as diminished job productivity and neurological development. Understanding the many and complicated causes of anaemia is critical for devising successful interventions that address context-specific causes of anaemia and for evaluating anaemia control initiatives. The word "pandu mean" implies "pale." Paleness is prevalent across the body with this condition. It may be linked to the current illness anaemia because of its resemblance. Almost all of our Acharyas have elucidated Pandu Roga. One of them is Pandu Roga. Our bad eating habits and way of life develop Ama, which then causes Agnimandya and finally Amayukta Ahararasa. Rasa Dhatu utpatti is hampered, and Pandu Roga manifests. The work done on a pharmaceutical study of Khadira Bhasma at the Department of Rasa Shastra Sri Sai Ayurvedic Medical College, Aligarh, UP as part of a postgraduate research programme is provided in this research report. Following the Samanya shodhana, Vishesh shodhana, and Marana of Lauha, the medicinal processing of Khadira Bhasma was carried out. Three distinct medicinal approaches were used in the Marana process: bhanupaka, sthalipaka, and putapaka. An electric muffle furnace was utilized in the Putapaka process. The temperature of puta was investigated in two batches, with Batch I maintaining an 800°C temperature and Batch II maintaining a 600°C temperature.

Keywords – Pandu Roga, iron deficiency anaemia, nutritional anaemias, Khadira Lauha, Marana etc.

INTRODUCTION

Almost all Ayurveda Samhitas have a detailed description of Pandu Roga. Pandu Roga is named for the preponderance of Pandubhava (paleness) across the body.¹ Pandu Rog has a low blood count, as well as Bala (strength), Varna (complexion), Sneha, Meda, and Oja. Nihsara (loss of natural integrity, tone, and strength) and Shithilendriya develop in the patient. There is vitiation of Pitta Pradhana Vatadi Dosha and Raktadhatu in the body as a result of this.² Under Rasapradoshaja Vikara. For a comprehensive grasp of minute factors related to sickness, a careful review of Nidanapanchaka (i.e. Nidana, Purvarupa, Rupa, Upashaya, and Samprapti) will be beneficial. This can help in the diagnosis and management of an illness with a lot of precision. As a result, the Nidanapanchaka of Pandu Rogahas been examined using authoritative Ayurveda Samhitas and textbooks, as well as a logical approach, to explicate several traits associated with Pandu Roga.

Anaemia is a condition in which a person's haemoglobin (Hb) concentration and/or red blood cell (RBC) count are below normal and insufficient to satisfy their physiological requirements. 1—affects around a third of the global population. Anaemia is linked to higher morbidity and mortality in women and children,^{3,4} poor birth outcomes,^{5,6} lower job productivity in adults,⁷ and children's cognitive and behavioural development.³ Women of reproductive age (WRA) and preschool children (PSC) are particularly affected.

It is critical to establish acceptable Hb criteria to define anaemia to ensure that anaemia is accurately detected and its harmful effects are avoided.⁴ Understanding the diverse and complicated aetiology of anaemia is also critical for establishing suitable interventions to address context-specific causes of anaemia and tracking the efficacy of anaemia management initiatives.⁵ To that end, the main goals of this paper are to define and classify anaemia, describe the biological mechanisms by which anaemia develops, review the various factors and conditions that contribute to anaemia development, with a focus on those that are most common in low- and middle-income countries (LMICs), and identify research needs.

PREVIOUS WORK DONE:

1. 1965 - Bhattacharya R. C.: Clinical study of Tikshna Lauha prepared with mercury in anaemia.
2. 1985 - Algundimath I. S.: A comparative and analytical study of Khadira Bhasmaprepared by the media of Parada, Moolika, Gandhaka and AriLauha.
3. 1986 - Gopalkrishnan G.: A comparative clinical study of Khadira Bhasmaon Pandu with special reference to its media.
4. 1992 - Neeraj K.: The contribution of Rasa Ratna Samucchaya w.s.r. to Lauha Bhasma
5. 1992 - Thirutharu G. A.: Determination of free metal in Ayurvedic Bahamas employing various methods with special reference to Lauha Bhasma.
6. 2003 - Kadam A. J.: A comparative study of Abhraka Sattva Bhasma and Lauha Bhasma.

AIM AND OBJECTIVES

1. Preparation of safe, effective and quality medicine i.e., Khadira Lauha for oral administration

2. To evaluate its efficacy in the context of Pandu Roga with special reference to iron deficiency anaemia (IDA)

Methodology

Source of Data - This article is based on a review of Pandu Roga's Nidanpanchaka from Ayurvedic scriptures and Samhitas. The Charak Samhita, Susruta Samhita, Ashtanga hrudaya, Astang sangraha, and Madhava nidana, as well as comments.

Conceptual / Literary Study - It was studied under two heading

Drug Review -Individual ingredients were identified, validated by taking an expert opinion before subjecting them for preparation.

Disease Review -it was reviewed from the data collected from Ayurvedic and Modern textbooks updated with recent medical journals and internet

Pharmaceutical Study – The process of the making of drugs was described. The drug selected for the research work will be prepared in the pharmacy of Sri Sai Ayurvedic Medical College, Aligarh

INGREDIENT -Khadira Lauha

S. No.	Ingredients	Parts Used	Proportion
1.	Khadira	Sar/Decoction	100 Part
2.	Vidanga	Fruit	1 part
3.	Nagarmotha	Kanda	1 part
4.	Loha Bhasma	As such	1 part
5.	Bala	Panchanga	1 part
6.	Kutaki	Roots	1 part
7.	Yashtimadhu	Fruits	1 part
8.	Triphala	Fruits	3 parts
9.	Haldi	Kanda	1 part
10.	Daruharidra	Kanda	1 part
11.	Sharkara	As such	10 parts
12.	Goghrita	As Such	2.5 times
13.	Madhu	As such	5 parts

Analytical study – The semi-processed and the finished product was analyzed as per Ayurvedic Pharmacopeia of India in an Approved Laboratory

Clinical Study – A detailed proforma was designed with help of available literary materials and the administration of medicine was carried out.

Method of Sampling – Simple random sampling method was followed in the OPD and IPD of Sri Sai Ayurvedic PG Medical College, Aligarh, UP along with a medical camp was conducted. 30 Patients with clinical signs and Symptoms of Pandu Roga i.e. Iron Deficiency Anaemia was selected irrespective of Sex, Caste and Religion.

Inclusion Criteria

- Patients who are willing for trial
- Patients with HB% within the range of 7 to 11 gm/dl
- Patients of either sex
- Patients of 16-60 yrs. of Age
- Patients with classical symptoms of Pandu Roga as explained in Ayurvedic Classics

Exclusion Criteria

- HB% <5 gm/dl
- Patients with a history of other systemic diseases like DM and HTN
- Patients with a history of congenital disorders related to Haemopoietic system like SLE, Leukemia, Hemophilia
- Patients suffering from any infection like malaria, Kala-azar
- Pregnant Ladies

Treatment Schedule

- No. of patients -30
- Medicine – Khadira Lauha
- Dosages -2 Masha i.e. 5 gm/ day, divided into two doses
- Duration -90 days
- Route of Administration -Oral
- Follow-up – 0th, 30th, 60th, 90th day

Assessment Criteria

Subjective Criteria

Changes in clinical signs and symptoms of Pandu Roga/ Iron Deficiency anaemia such as Pandutva, Daurbalya, Arohanayasa, Shrama, Bhrama, Aruchi, Swasa, Karnashweda along with other classical symptoms

Objective Criteria

Lab investigation -HB%, MCV, MCHC, PCV and Peripheral Blood smear

DISCUSSION

Pandu is a Varnatmaka Shabda that represents a colour loss. Shweta Varna, Ketaki Dhuli Sannibha, and Peeta Varna are allusions found in Ayurvedic texts. Pandu is a Rasa Raktavaha Sroto Vikara characterized by the paleness of the skin, nails, eyes, and face, as well as Lakshanas such as Alparakta, Alpamedas, Balaheena, Varnaheena, Alaska, Nisara, decreased sensory and motor function, and a lack of vitality. Pandu Rogi loses his passion and becomes a body dryness survivor. Balakshaya and Ojogunakshaya are also utilized in Pandu Rogi. It's a Pitta Pradhana Vyadhi with the addition of another Dosha. Charaka denotes skin colour in Pandu, just as Harita, Haridra, Bahavidha Varna, Krishna Pandu, Arunangata, Svetata, and Svetavabhasta. Panduta is told about Data and Nakha by Sushruta.⁶

Sveta, Akshi, Nakha Vakrata in Pandu is described as the Purvarupa of Pandu in Kashyapa Samhita Hrudaya Spandanam and can be equated in contemporary medicine with the symptom palpitation stated in Anemia. Raksha, Swedabhava, Shrama, Mrudbhakshana, Akshi Kutha Shotha, and Avipaka are some of the other signs in Pandu. Rukshata is observed in Pandu as a result of Rasa Dhatu Dushti, and Twak is Rasa Dhatu's Upadhatu. Shrama is provided in Pandu because symptoms like Swedabhava are congruent with Medovaha and Raktavaha Srotas. In anaemia, Akshikutha Shotha can detect papill-oedema, and angular stomatitis (Avipaka) is a common sign of mild anaemia.

Even though it is classified as a form of Pandu, most people was not eat mud because of unsanitary conditions and unclean meals, which allow various parasites to enter the body and devour food and minerals. Hookworms feed directly on human blood and are the leading cause of iron deficiency anaemia in developing nations.

Except for Sushruta and Harita, all of the Acharya agree with Charaka's viewpoint and embrace Pandu's five forms. According to Sushruta, Mrudbhakshana is a Nidana rather than a Pandu variation. Because the diagnosis, symptoms, and treatment of Mrudbhakshanajanya Pandu differ from those of other kinds, it is classified separately.⁷

The investigation of various Nidana, Dosha, Dushya, Srotas, Agni, and another Nidana, Dosha, Dushya, Srotas, Agni, and other Nidana, Dosha, Dushya, Srotas, Agni, and other Nidana, Dosha, Dushy Pandu is considered a Rasa Pradoshaja Vikara by Acharya Charaka, and a Rakta Pradoshaja Vikara by Sushruta. However, both believe Pitta is the most important Dosha. Ranjaka Pitta gives Rasa Dhatu colour and helps shape Rakta Dhatu, according to our traditions. When the Pitta Vruddhi occurs as a result of the Nidana, the Dravatwa of Pitta Dosha, in particular, becomes intensified, and the Jatharagni decreases more, similar to spilt hot water. As the Upadhatu of Rasadhatu, Sthana Samsraya in Twak received the Vitiated Dosha.

The nirvapa procedure was used for the samanya shodhana and vishesha shodhana processes. The iron turnings were heated until they were red hot and then dipped in various media, such as Tila Taila, Takra, Gomutra, Kanji, and Kulattha kwatha, for samanya shodhana (seven times). Each time the medium was dipped, a suitable amount was collected, which was roughly 500 ml.⁸ The heating equipment (hearth) had an average temperature of 1250°C. During the method, the average temperature of the pan's surface was 900°C,

and the average temperature of the red-hot iron turning was 750°C. The usage of a certain medium and in a specific order is noteworthy.

The idea behind such modification might be to remove contaminants from the medicine in a certain acidic or alkali medium.⁹ The Shodhana method, when combined with purification and potentiation, results in particle size reduction. By weight up to shodhana in kanji, a significant reduction in particle size, i.e. the ratio of small to big particles, was achieved. Microcracks develop as a result of rapid cooling. Ferrite and pearlite are the two primary phases found in mild steel.¹⁰ This is carefully heated and chilled to achieve hardness. It converts to martensite, which is hard and brittle when it cools quickly. The weight gained after the Bhanupaka procedure was roughly double that of the original weight, which might be related to the buildup of Triphala kwatha residues.¹¹

Pellets were exceedingly delicate in the first batch (800°C) up to the fourth puta and were broken down even by touch, resulting in a brownish-red tint. The pellets were exceedingly hard in the fifth puta and brassy-yellow in colour in the sixth puta, indicating the production of an entirely new compound that was unwanted, as the colour of Khadira Bhasmais stated as "Pakwajambu Phala varna" or brownish-red. The temperature was dropped to 700°–600°C on subsequent putas, and after 22 putas, the concentration of the yellow iron compound decreased and eventually changed to the desired hue of Lauha Bhasma.¹² The procedure went off without a hitch in the second batch.

CONCLUSION

In the preparation of Bhasma in Batch, I took 22 puta and was 70 per cent varitar. Batch II required 20 puta to convert the material completely to Bhasma form, and it was 75 per cent varitar. As a result, a temperature of 600°C in the EMF must be maintained for 1 hour to prepare adequate Lauha Bhasma. Iron deficiency anaemia can be linked to Nidana and Lakshana Pandu, according to current research. Pandu exhibited its instant influence on Rasa Raktavaha Sroto Dushti Lakshana as a result of Rasa Dhatvagni Mandyata. Pandu is more vulnerable to the people of Vata Pitta Prakruti and those who obey the people of Pittakara Nidana. Pandu's eating habits are influenced by his current lifestyle, which has interrupted agnimandya and vidhagdhaajirna. Low socioeconomic position, mental stress, and pressure all have a part in causing and worsening Pandu. Married people were more prone to Pandu because of their unneeded hard work and strain, which contributed to Pandu. Pandu is a Pitta Pradhana Vyadhi since it contains Vata and Kapha Dosha.

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