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A CLINICAL OBSERVATIONAL STUDY OF ROLE OF 'KRODHA' AS AN ETIOLOGICAL FACTOR OF PANDU W.S.R. TO ANEMIA

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ABSTRACT

The clinical signs and symptoms of pandu resembles with anemia. The etiological factors or nidan helps to know about etiology, symptomatology and pathogenesis of the disease. Krodh is one of the etiological factors of pandu among various aharaj, viharaj and psychological factors. Krodha is stated to be a common causative factor for both pandu and pitta vitiation. As pitta dosha has a cardinal role in the samprapti of pandu, there is a need to assess the role of krodha in the etiopathogenesis. Assessment of krodha (Anger) is done with the help of Clinical Anger Scale (CAS). It is observed that there is a positive clinical correlation between pandu symptoms and anger score. This study tries to explain the possible role of krodha in the etiopathogenesis of pandu hence along with other causative factors there is a need to focus on psychological factors like krodha, which plays a vital role in the etiopathogenesis of pandu.

KEYWORDS: Pandu, Anemia, Krodha, Clinical Anger Scale.

❖ INTRODUCTION

Globally, anemia affects 1.62 billion people (95% CI: 1.50–1.74 billion), which corresponds to 24.8% of the population (95% CI: 22.9–26.7%).[1] Prevalence of anemia among women of reproductive age (% of women ages 15-49) in India was 51.40 as of 2016.[2]

Pandu explained in Ayurveda classics can be clinically correlated with Anemia due to the resemblance in the clinical signs and symptoms. Anemia is a major health concern in India. Most of the time people are not aware of the signs and symptoms at early stages. So, the disease gets worsen and may lead to severe complications. Therefore emphasis should be made on its prevention. Awareness about etiological factors plays major role in its prevention. Ayurved also gives utmost importance to the etiological factors i.e. *Hetu* or *Nidana*. *Hetu* is one of the important factor of *nidan panchak*.[3] and plays a vital role in the pathogenesis of the disease.

Nidan or etiological factors are the factors which are capable of manifesting the development of disease either quickly or after certain period. *Nidan* aggravates *vatadi doshas* may be due to intake of incompatible dietetics and improper activities.[4] If we emphasize the etiological factors of *Pandu*, there are some *aharaj hetu*, some are *viharaj* and some are *manas bhavaa* or psychological factors. The *aharaj, viharaj hetus* of *Pandu* are ruled out very commonly in the practice but at the same time the psychological factors are not taken into consideration much which also have a great impact in the etiopathogenesis of *Pandu*. *Kam* (sexual desire), *Chinta* (anxiety), *Bhay* (fear), *Krodh* (Anger), *shoke* (grief) are some of them,[5] which involves in the *samprapti*. '*Krodh'* is one of the causative factor and also stated to be the *hetu* of *Pitta Prakopa*[6] in the compendia. In *Pandu*, there is a Predominance of *Pitta Dosha*[7] which afflicts *dhatus*, mainly *raktadhatu*[8] which leads to further progression of disease *Pandu*. *Ashrayashrayi bhava* of *pitta Dosha* and *rakta dhatu*[9] is well known concept of Ayurveda. Therefore being a common *hetu* for *Pittaprakopa* and *Pandu*, there is a need of assessement of *Krodh* (anger) for its role in the etiopathogenesis of *Pandu*. As anger is one of the powerful, vital emotion with behavioral manifestation, a person experiencing persistent anger will have harmful disturbances that impacts on different body systems altering the physiological conditions. It has a negative impact on both body and mind if remain insidiously. When an otherwise emotion becomes long lasting, it becomes a clinical problem. So, in this article an attempt is made to assess the role of *Krodh* as an etiological factor of *Pandu* with the help of Psytoolkit CLINICAL ANGER SCALE[10] along with its association with hemoglobin content is also assessed.

❖ AIM & OBJECTIVES

Aim

To assess the role of *Krodha* as an etiological factor of *Pandu* w.s.r. to Anemia.

Objectives

- Primary Objectives

1. To estimate the Hb % in female population of North Ratnagiri in Konkan region.
2. To assess Anger Score with the help of Clinical Anger Scale.
3. To correlate *pandu* symptoms with CAS

- Secondary objectives:

1. To study an etiological factors of *Pandu* in detail from Ayurveda Classics.
2. To study the practical application of Clinical Anger Scale.

❖ Hypothesi

➢ Null hypothesis (H_0)

There is no any association between '*Krodha'* and *Pandu*.

➢ Alternate hypothesis (H_1)

'*Krodha'* is an etiological factor for *Pandu.*

❖ MATERIAL AND METHODS

- Study type: Clinical, Observational study
- Study setting: North Ratnagiri in Konkan region.
- Sample size: 30 subjects with the signs & symptoms of *Pandu*.
- Sampling technique: Simple random

❖ Inclusion & exclusion criteria

➢ Inclusion criteria

1. Patients with clinical signs and symptoms of *Pandu* irrespective of Hb content.
2. Age group: 16-35 yrs.
3. Sex: Female.

➢ Exclusion criteria

1. Known case of any Blood disorders other than Nutritional deficiency Anemia.
2. Seriously ill patients.
3. Known case of Anemia due to other disorders.

❖ **Review of literature**

The disease which is predominated by yellowish white discoloration all over the body is termed as *Panduroga.*[11,12,13]

Pandurog manifests due to the following etiological factors.[14,15]

Aharaj: Habitual consumption of sour and salty foods; incompatible dietetics and Unwholesome food substances.

Intake of *Nishpav, Masha, pinyak,* and *tila taila* in excess.

Viharaj: sleep during day time, Indulgence in sexual intercourse and physical exercise during indigestion.

Faulty management of seasonal regime.

Erratic administration of biopurificatory therapies.

Psychological/*Manas*: *Kam* (sexual desire), *Chinta* (anxiety), *Bhay* (fear), *Krodh* (Anger), *shoke* (grief)

Due to the consumption of etiological factors, *dosha* aggravates especially *pitta dosha* and afflicts *dhatus* mainly *rakta dhatu* as a result, it brings laxity and heaviness in the *dhatus*. Heaviness of the *dhatus* manifests due to disturbance of normal functions of *dhatus*. Patients of *Pandu roga* loses their vitality, complexion, strength, unctuousness and other properties of *ojus* due to morbidity of *dosha* and *dushya*. That's why patients of *pandu roga* suffers from deficiency of *Rakta , meda, nisara* (loss of essence) associated with improper functioning of sense organs and discoloration.[16]

Aggravated *pitta* expelled from *hridaya* via ten blood vessels by powerful *vata*, circulates all over the body. It reaches the space between *Twak* and *mamsa* and brings abnormality in *kapha, vata, rakta, twak, mamsa* leading to abnormal complexion like pale yellow, deep yellow and greenish discoloration.[17]

Along with this, it generates some other signs and symptoms like hatanal (loss of function of agni), durbalata (Generalized debility), angasad (Malaise), annadwit (aversion towards food), gatrashul (fatigue), bhram (giddiness), jwar (fever), shwas (breathlessness), gaurav (heaviness), anorexia etc.[18]

Anemia means deficiency of hemoglobin in the blood, which can be caused by either too few red blood cells or too little hemoglobin in the cells.[19] 30-50% of Anemia in children and

other groups is caused by Iron deficiency. Iron deficiency is the most common cause of Anemia worldwide.[20] It is a health problem that affects the major portions of the population in underdeveloped countries. The prevention and successful treatment for iron deficiency anemia remains woefully insufficient worldwide, especially among underprivileged women and children. Hence there is a need to focus on the awareness of its causes symptoms so the early detection and successful treatment is possible. Symptoms like sallow skin (pale yellow skin), fatigue, weakness, dizziness, headache, brittle nails etc. are developed in Iron deficiency Anemia.

Anger is a human emotion that can range from slight irritation to strong rage having behavioral manifestation. It is an intense emotional state involving a strong uncomfortable and non-cooperative response to a perceived provocation, hurt or threat.[21]

Anger can have many physical and mental consequences. Uncontrolled anger can, however, negatively affect personal or social well-being.[22] The disadvantage of anger consists of excess anger serving as a numbing agent emotionally, physically and cognitively. It can cause significant difficulties if remained for long run persistently knocking mind associated with thinking, feeling, behavior and relationship. If not handled properly may have destructive results. When any common emotion like worry, anger becomes long lasting, it becomes a clinical problem. When anger is chronic and pervasive it becomes clinical concern. Clinical Anger is measured by a Psytoolkit Clinical Anger Scale.[23] The Clinical Anger Scale (CAS) is an objective, valid self-report measures the psychological symptoms resumed to have relevance in the understanding and treatment of clinical anger. Twenty-one sets of statements were prepared for this purpose. The following symptoms of anger were measured by the CAS items: anger now, anger about the future, anger about failure, anger about things, angry-hostile feelings, annoying others, angry about self, angry misery, wanting to hurt others, shouting at people, irritated now, social interference, decision interference, alienating others, work interference, sleep interference, fatigue, appetite interference, health interference, thinking interference, and sexual interference.

OBSERVATIONS

Distribution According to Pandu Symptoms

We have collected all the references of *pandu* symptoms from *brihattrayi*. Out of total 85 symptoms, all the subjects under the study shown mild to moderate symptoms. The gradations has been done as follows.

Table 1: Distribution According to Pandu Symptoms.

Grade	No. of Pandu Symptoms	No. of Patients
Mild	0-21	22
Moderate	22-42	08
Marked	43-63	00
Severe	64-85	00

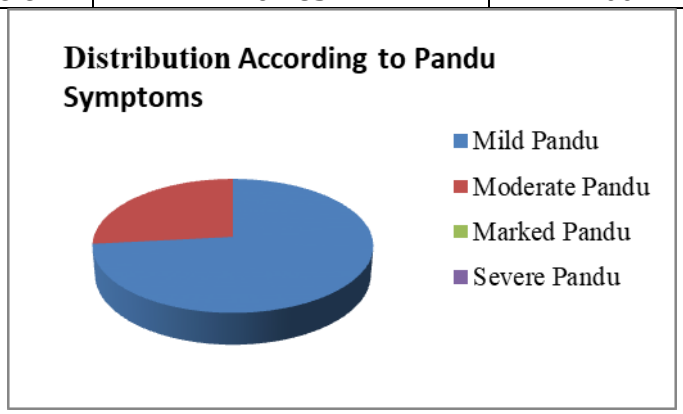


Figure 1: Distribution According to Pandu Symptoms.

Distribution According to CAS

Assessment of clinical anger is done with the help of clinical anger scale (Psy tool Kit). This scale analyses the clinical anger as per following gradations.[10]

Table 2: Distribution According to Clinical Anger Score.

Grade	Range	No. Of patients
Minimal	0-13	8
Mild	14-19	4
Moderate	20-28	8
Severe	29-63	10

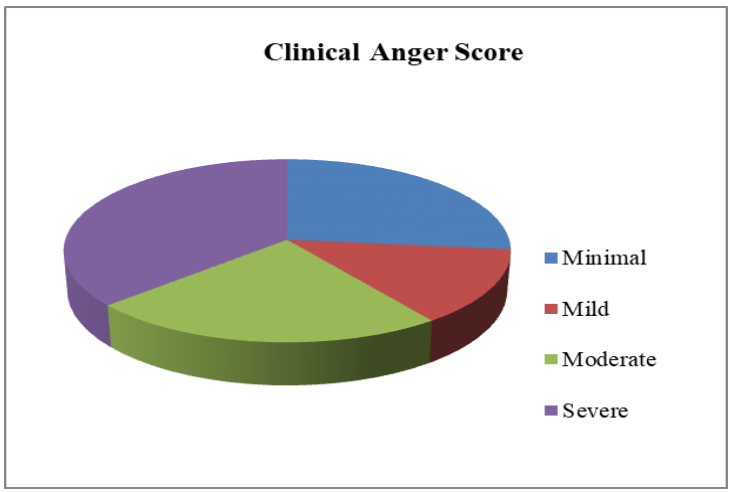


Figure 2: Distribution According to Clinical Anger Score.

Distribution According to Hb%

All the patients under study undergone Hb% estimation and assessment of anemia is done according to following gradations.

Table No: 3 Distribution According to Hb%.

Grade	Range (HB %)	Total No. Of Patients
No Disease	Above 12 gm%	14
Mild Anemia	12 to 10.1	5
Moderate Anemia	10 to 8.1	4
Severe Anemia	Less than 8	7

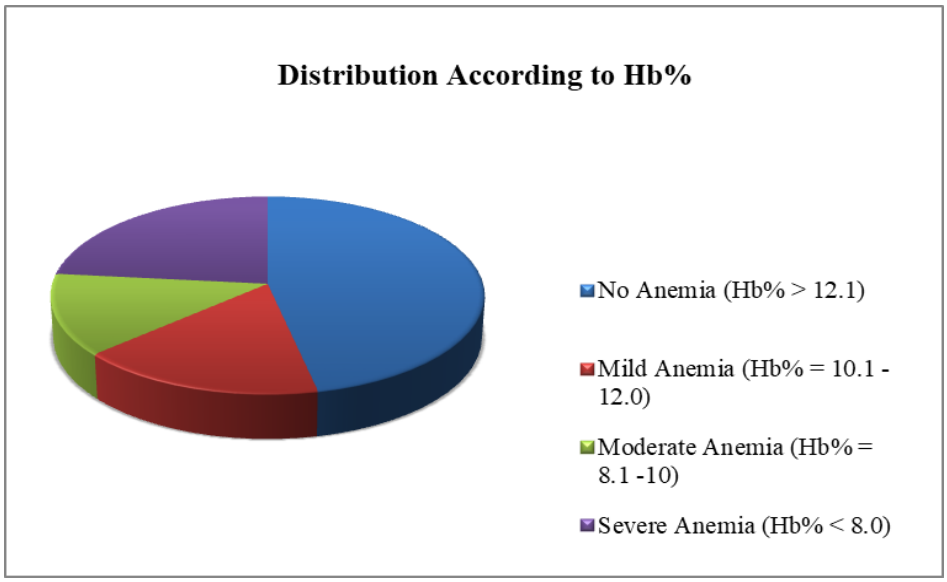


Figure 3: Distribution According to Hb%.

❖ **Statistical analysis**

Statistical analysis for significance of the observations is done with the help of statistical software INSTAT Version 3.01,32bit for Win 95/NT 1998.

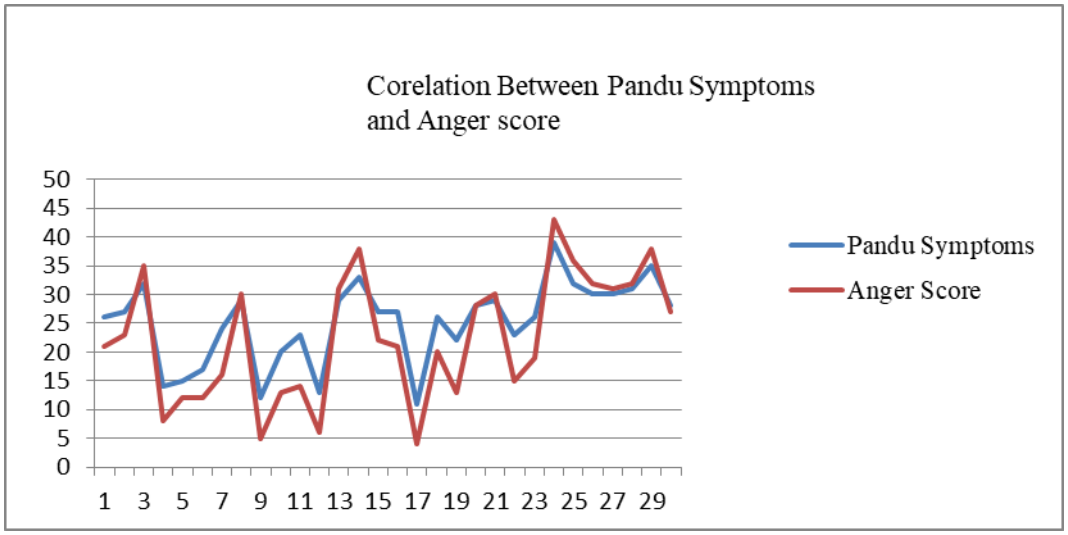
'Correlation and regression' is applied to correlate the data obtained from the observations.

Corelation Between Pandu Symptoms and Clinical Anger Score

Table No 4: Corelation Between Pandu Symptoms and Clinical Anger Score.

Linear Correlation
Number of points = 30
Correlation coefficient (r) = 0.9602
95% confidence interval: 0.9172 to 0.9811
Coefficient of determination (r squared) = 0.9220
The two-tailed P value is < 0.0001, considered extremely significant.

Correlation coefficient r is 0.9602 which lies between 0 and +1 and shows strong positive correlation between pandu symptoms and anger score. Hence it can be stated that as pandu symptoms go on increasing, anger score also increases accompanying the same.



Graph No 4: Corelation Between Pandu Symptoms and Clinical Anger Score.

Correlation Between Anger Score and Hb %

Table No.5: Correlation Between Anger Score and Hb%.

Number of points = 30
Correlation coefficient (r) = -0.6006
95% confidence interval: -0.7900 to -0.3066
Coefficient of determination (r squared) = 0.3607
The two-tailed P value is 0.0004, considered extremely significant.

Correlation coefficient r is -0.6006 which lies between -1 and 0 and shows strong Negative correlation between Anger score and Hb%. Hence it can be stated that as Anger Score go on increasing, Content of Hb decreases accordingly.

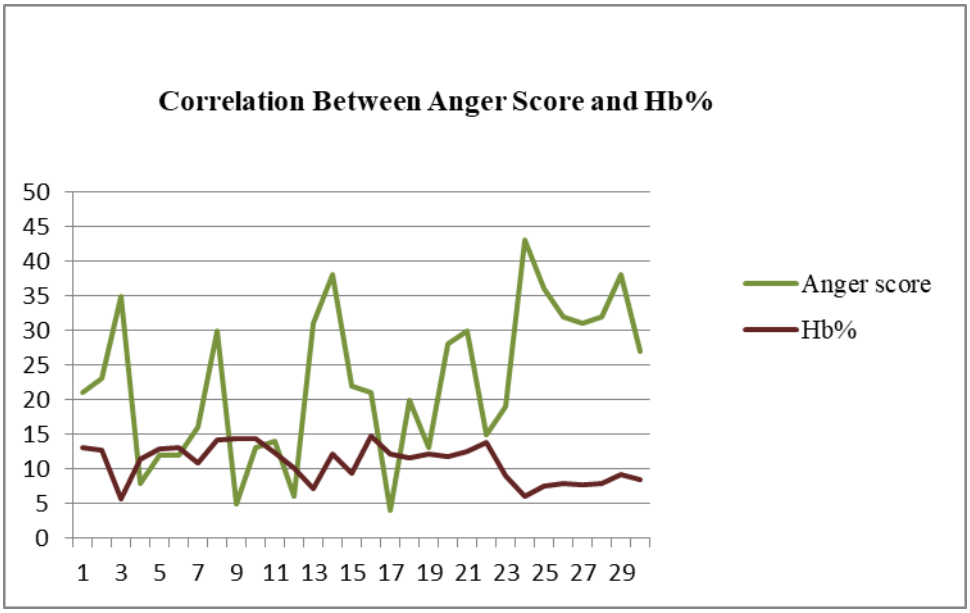


Figure No.5: Correlation between Anger Score and Hb%.

❖ DISCUSSION

On the basis of an etiological factors, the clinical correlation between pandu symptoms and anger score is made and it is observed that there is significant positive correlation. It may be because Pandu is a pitta pradhan vyadhi with the involvement of other doshas. It is rasa rakta srotovikara with prime involvement of pittadosha.

To be specific *Ranjak pitta* performs the function of *Ranjan* i.e to give colour to *rakta dhatu* from *rasa dhatu*. Due to the *krodh* as the common *hetu* of *pitta vriddhi* and *pandu*; there is a aggrevation of *pitta dosha* which subsides the *Jathragni* as a result of which there is less production of *poshakansh* (nutrient portion) of *rasadhatu* as a result depletion of *rakta dhatu* takes place. The vitiated *dosha* got *sthansamshray* in *twak* and *mamsa* which creates pallor. *Tej Mahabhoot, Rakta dhatu, Pitta dosha* and *Oja* are responsible for the *varna* and *prabha.* When vitiation of *rakta* and *pitta* occurs, it affects *Oja* and function of *Tej Mahabhoot* (i.e. *Roop Grahan*) and hence *varna* (complexion) and *prabha* (luster) get affected.[24]

Twak panduta is associated with *prabhahani* or *kanti hinata* due to *Rakta dushti* and *ojodushti*. When a person involves excessively and constantly with anxiety, fright, wrath or grief, the vitiated *pitta* severly vitiates the blood because of their '*Ashray-ashrayi Bhava*' relation resulting in pallor of the skin.

According to Ayurveda, Site of *Mana* is *Hridaya*[25] and all the psychological factors are concerned with *Hridaya*. *Sadhak Pitta* also resides at *Hridaya*[26] from where pathogenesis of

Pandu initiates, hence when psychological factors like *krodha*, vitiates *Sadhak Pitta*, it leads to the pathogenesis of *Pandu*.

This study is an attempt to evaluate the role of *krodha* in the pathogenesis of *pandu* with the help of clinical anger scale. The correlation of anger score and content of hemoglobin is additional part of the study. In this study we have observed mild significant correlation between anger score and content of hemoglobin but for more significant results the study should be done on larger sample size

❖ CONCLUSION

Therefore along with the proper consumption of nutrients; there is a need to focus on the various *manas bhava* which actively takes part in the Pathogenesis of *Pandu*. Psychological factors like *krodha* have significant role in the pathogenesis of *Pandu*.

❖ ACKNOWLEDGEMENT

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