

A study on haematinic activity of pitha paandu maathirai in iron deficiency anaemia

Dr.P.chilambuselvi,

siddha doctor

Tamzhil siddha clinic, Lakshminagar/Erode,India

Email - drchilmbuselvi@gmail.com

Abstract: Iron deficiency anaemia is by far the commonest cause of anaemia in most parts of the world. In Iron deficiency anaemia ferrous salts mainly ferrous sulphate is the drug of choice in modern medicine. It has Side effects include heart burn, nausea, upper gastric discomfort, constipation, and diarrhoea. So to overcome the side effects, a study was conducted with the siddha drug pitha paandu maathirai. 40 patients were taken with both sexes and treated with the medicine for 48 days. after the treatment 22 cases (55%) shows good result, 11 cases (27.5%) shows moderate result, 7 cases (17.5%) shows mild result with good clinical prognosis. It is hereby suggested that more patients should be studied with this treatment to prove its efficacy.

Key words: Iron deficiency anaemia, haematinic activity, pitha paandu.

1. INTRODUCTION:

Anaemia may be defined as a state in which the blood haemoglobin level is below the normal range for patient's age and sex. In general, reduction of haemoglobin is associated with fall in erythrocyte count and packed cell volume. it is a global health Problem affecting both developed and developing countries. It affects 24.8% of global population⁽¹⁾.

Iron deficiency anaemia is common in our country, because most of the people in our country are pleading to the decreased production of red blood cells. In women at their reproductive age anaemia occurs due to menorrhagia and in pregnancy it is due to excess need of iron⁽²⁾. The world health organization defines IDA as in women hemoglobin <12.0g/dl⁽³⁾. Iron therapy can be administered orally or parentally as a treatment.⁽⁴⁾ however 40% of patients reporting gastrointestinal adverse events⁽⁵⁾.

In siddha, anaemia is defined as "paandu". In our oldest epic mahabharatham has the character paandu. He is so pale. Like that paandu noi have the features of pallor of skin, conjunctiva, nails and mucous membrane. Iron deficiency anaemia is compared with pitha paandu noi. Because its symptoms told in modern aspect may correlated with symptoms referred in "yugi vaithiya chinthaamani"⁽⁶⁾.

In order to avoid the side affects, Siddha system numerous herbo-mineral preparations used to treat anaemic disorders. The interventional drug is Pitha Paandu Maathirai (PPM), which was quoted on the text sarabendra vaithya muraigal⁽⁷⁾.

2. OBJECTIVES OF THE STUDY:

- To study the efficacy of pitha paandu maathirai in the management of pitha paandu.
- To have an idea of disease incidence in relation to age, sex, socio economic status, habits etc.
- To have a detailed clinical investigation on pitha paandu noi.
- To study the clinical course of the disease with observation on the etiology, classification, pathology, prognosis, complications and treatment by siddha aspect.

3. MATERIALS AND METHODS:

A clinical study was carried out in the post graduate department of pothu maruthuvam, govt .siddha medical college attached to arignar anna hospital, Chennai, during the period of 2013 to 2015. The study was approved by **Institutional Ethics Committee (IEC)** and the approval number is **GSMC-CH-ME-2/002/2013**. It was registered in **Clinical Trials Registry – India (CTRI)** and the reference number is **REF/2014/06/007105**.

3.1. SOURCE OF RAW DRUGS:

The required raw drugs are procured from a well reputed indigenous drug shop. The raw drugs will be authenticated by the concerned pharmacognosist at SCRI, Chennai.

3.2. PURIFICATION OF RAW DRUGS:

Raw drugs are purified as mentioned in the text Gunapadam Thadhu Jeevam.

3.3. PREPARATION:

INGREDIENTS :

- PURIFIED INDHUPPU (Rock Salt)
- MILAGU (*Piper nigrum*) - PEPPER
- THIPPILI (*Piper longum*) – INDIAN LONG PEPPER
- SEERAGAM (*Cuminum cyminum*) - CUMIN equal quantity
- PURIFIED AYAM (Ferrum) - IRON POWDER - half of the above
- KAIYANTHAGARAI JUICE (*Eclipta prostrata*) - BHRINGRAJ - as per needed.

The raw drugs are purified and finely powdered .The powdered drugs are rubbed it with bhringraj juice till it becomes dry and attains the stage to made into pills. Then it made into 500mg pills. The trial drug is stored in clean dry air tight container and it is dispensed to the patients in packets.

DOSE: 1tablet (500mg) twice a day with Ghee for 48 days (1 mandalam).

INDICATION: PITHA PAANDU (iron deficiency anaemia), KAAMAAALAI (jaundice).

3.4. SELECTION OF CASES:

40 patients of both the sexes of age groups between 15 – 60 yrs suffering from pitha paandu noi were treated.

CRITERIA FOR SELECTION:

The patients were subjected to pre designed protocol comprising of following clinical manifestations .

INCLUSION CRITERIA:

- Pallor of conjunctiva, tongue, nails,
- Dimness of vision,
- Faintness,
- Glossitis,
- Angular stomatitis,
- Dyspnoea,
- Palpitation,
- Giddiness,
- Bitter taste in mouth,
- Fatigue,
- Lassitude,
- Anorexia
- Patients having HB below 10 gms
- Age between 15 – 60 yrs
- Worm infestations are selected for the study.

EXCLUSION CRITERIA:

- Age above 60 yrs
- HB above 10 gms
- (Clinical history)
- History of chronic Renal disorders
- History of chronic Liver disorders
- History of Thalessemia
- History of Bleeding disorder
- History of Myxoedema
- Vulnerable Populations such as pregnant women, Lactating mothers, TB affected individuals, HIV positive.

3.5. HISTORY TAKING:

A detailed history of patients age, occupation, socio economic status, complaints and its duration, previous illness, personal habits, menstrual history are recorded in the case sheet for each and every patient at the time of admission.special attention was paid to record any past history of blood loss, nutritional deficiency and worm infestation.

3.6. LABORATORY INVESTIGATION:

- **BLOOD:** TC, DC, ESR, HB, MCV, PCV, MCH, MCHC, RBC count and peripheral blood smear, blood sugar ,urea and cholesterol.
- **URINE:** Albumin, sugar, deposit.
- **MOTION:** Ova, cyst and occult blood.

4. REVIEW OF LITERATURE:

- ✓ In the text “Sarabendhira Vaithya Muraigal” under the topic “Pandu Kamalai Roga Sikitchai” the trial drug PITHA PAANDU MAATHIRAI was quoted as

தேடரிய மிளகுசீரக மிந்துப்புத்
திப்பிலியு முண்டுமிவை சமனதாகக்
கூடியதற் கோர்பாதி யிரும்பின் றுளைக்
கோமயத்திற் காடியிலுஞ் சுத்திசெய்க
கோடிகுண மேயுறுநற் கரிப்பான்சாறு
கொண்டிவையெல் லாமரைத்து வாக்காய்நேராய்
நாடுரிய நெய்தனிலுண் பித்தபாண்டு
நவிலுங் காமாலையுடன் தீருந்தானே. ⁽⁷⁾

- ✓ In “Yugi vaithiya chinthaamani” the symptoms of pithapaandu in siddha system is described in the following quote. It is correlated with the symptoms of iron deficiency anaemia

“வாமென்ற மேனியெல்லாம் மஞ்ச ளித்து
மகாவெளுப்பு உண்டாகி மந்தக் கண்ணாய்
தாமென்ற தாகமொடு மூர்ச்சை யாகுந்
தனிவாயில் மிளகுபோற் றானு முறைக்கும்
நேமென்ற நெஞ்சமுள் தானு முண்டாய்
நெருக்கியே மூச்சமுட்டதுவே யாகும்
கோமென்ற கிறுகிறுத்து வாய்கைப் பாகுங்
கிளர்பித்த பாண்டு வெனக் கூறலாமே”

Yugi vaithiya chinthaamani (page.no:272) ⁽⁸⁾

5. DISCUSSION :

“Pitha Paandu”, a nutritional deficiency disease described by Yugi munivar in his Yugi Vaidhya Chinthamani 800. The clinical features are pallor of conjunctiva and nail bed, fatigue, loss of appetite, dyspnoea on exertion, headache, giddiness, glossitis, constipation, parasthesia in fingers and toes. The symptoms of Pitha Paandu are mostly similar to that of symptoms of Iron deficiency Anaemia.

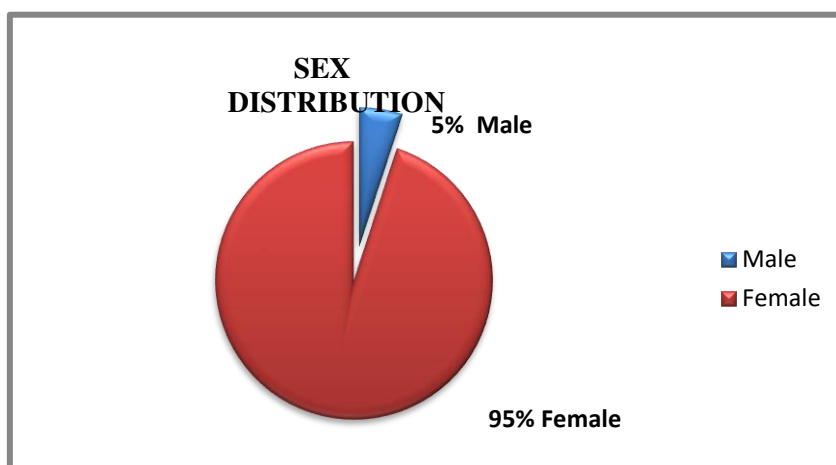
40 patients were treated in the outpatient Department of Pothumaruthuvam, Government Siddha medical College, attached to Arignar Anna Hospital, Arumbakkam, Chennai -106. The time duration for treatment was 48 days and all necessary investigations were carried out to all patients and trial medicine was given and followed up regularly in the OP department once in 7 days.

5.1. Sex:

Among 40 cases, 38 Patients (95%) were females and 2 Patients (5%) were males. Females are mostly affected than males due to menstrual blood loss and malnourished diet. ^{fig(1,1.1)}

FIGURE (1, 1.1):

SEX	NO.OF CASES	PERCENTAGE
Male	2	5%
Female	38	95%

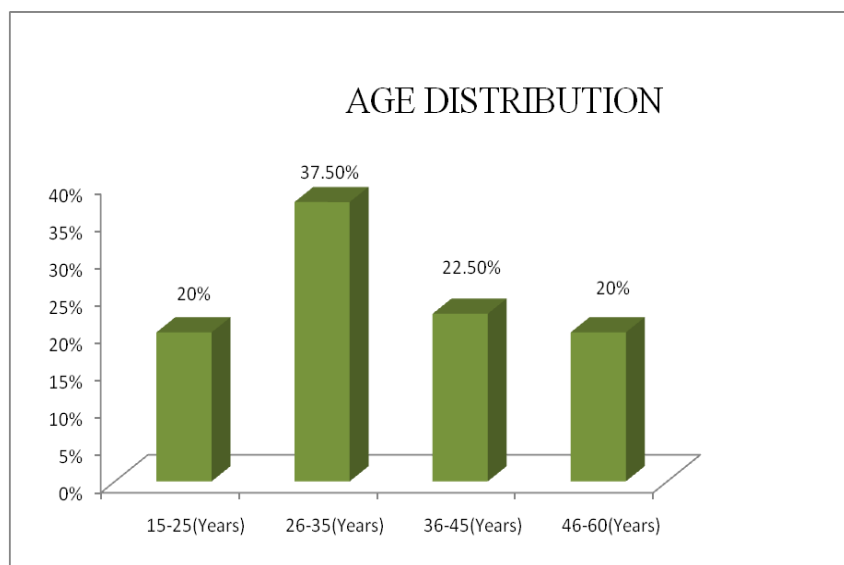


5.2. Age:

Out of 40 patients, 8 Patients (20%) were in the age group of 15-25, 15 Patients (37.5%) were in the age group of 26-35, 9 Patients (22.5%) were in the age group of 36- 45, 8 Patients (20%) were in the age group of 46-60. The incidence was increased in the age group of 15-45 due to menstrual blood loss^{fig(2,2.1)}.

FIGURE 2, 2.1:

AGE IN YEARS	NO. OF CASES	PERCENTAGE
15-25(Years)	8	20%
26-35(Years)	15	37.5%
36-45(Years)	9	22.5%
46-60(Years)	8	20%

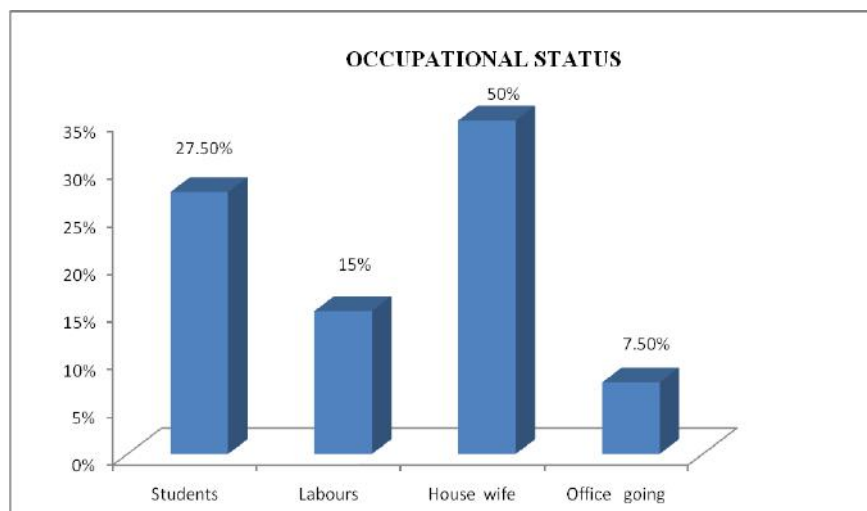


5.3. Occupation:

Out of 40 patients, 11 Patients (27.5%) were students, 6 patients (15%) were Labourers, 20 Patients (50%) were house wives and remaining 3 Patients (7.5%) were office going^{fig(3,3.1)}.

FIGURE 3, 3.1:

OCCUPATION	NO. OF CASES	PERCENTAGE
Students	11	27.5%
Labours	6	15%
House wife	20	50%
Office going	3	7.5%

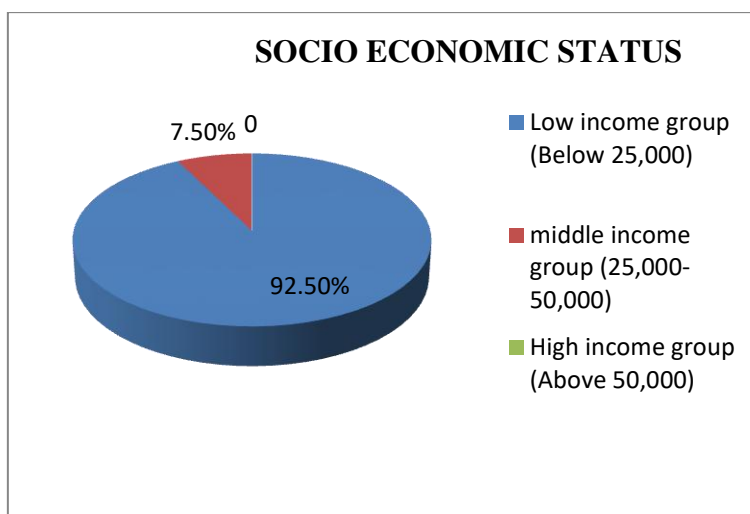


5.4. Socio-economic status:

Out of 40 patients, 3 Patients (7.5%) belongs to middle income group , 37 Patients (92.5%) belongs to low income group. Economically low income group were more affected than middle or high income group due to their malnourished diet^{fig(4.4.1)}.

FIGURE 4, 4.1:

INCOME/MONTH	NO. OF CASES	PERCENTAGE %
Low income group (Below 25,000)	37	92.5%
Middle income group (25,000-50,000)	3	7.5%
High income group (Above 50,000)	0	0

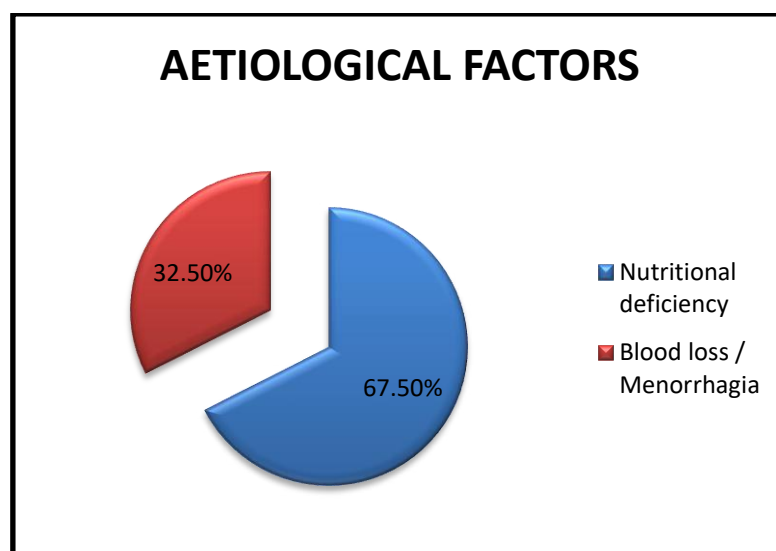


5.5. Aetiological factors:

Out of 40 patients, 27 patients (67.5%) were due to nutritional deficiency and 32.5% due to blood loss. So, the nutritional deficiency plays a major role in causing Iron deficiency Anaemia^{fig(5.5.1)}.

FIGURE 5,5.1:

AETIOLOGY		NO. OF CASES	PERCENTAGE %
Nutritional deficiency		27	67.5%
Blood Loss	Menorrhagia	13	32.5%

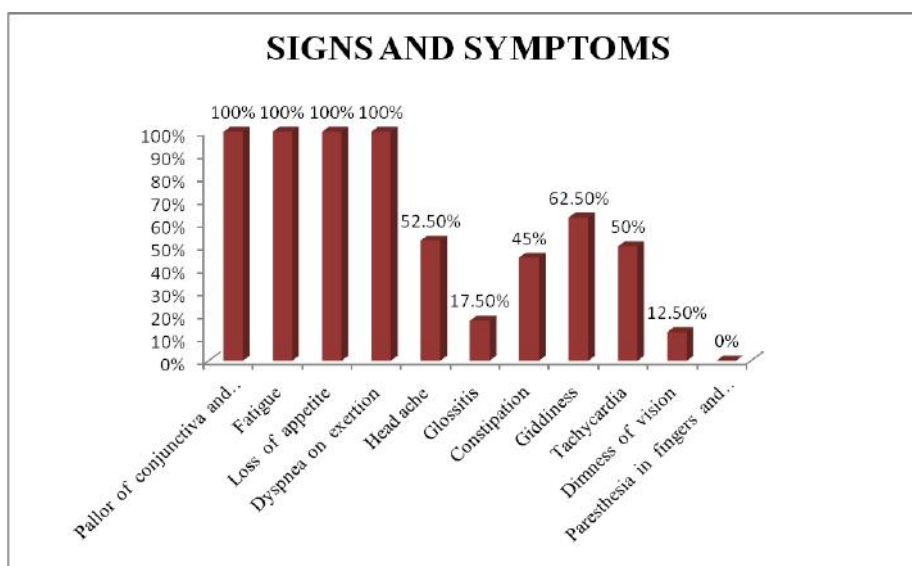


5.6. Clinical symptoms:

Out of 40 patients, 40 patients (100%) had Pallor of conjunctiva and nail bed, Fatigue, Loss of appetite, Dyspnea on exertion, 21 Patients (52.5%) had Headache, 7 patients (17.5%) had Glossitis, 18 patients (45%) had Constipation, 25 patients (62.5%) had Giddiness 20 patients (50%) had Tachycardia and 5 patients (12.5%) had Dimness of vision^{fig(6, 6.1)}.

FIGURE 6.6.1:

S. No	Signs& Symptoms	No. of cases	Percentage (%)
1.	Pallor of conjunctiva and nail bed	40	100%
2.	Fatigue	40	100%
3.	Loss of appetite	40	100%
4.	Dyspnea on exertion	40	100%
5.	Head ache	21	52.5%
6.	Glossitis	7	17.5%
7.	Constipation	18	45%
8.	Giddiness	25	62.5%
9.	Tachycardia	20	50%
10.	Dimness of vision	5	12.5%
11.	Paresthesia in fingers and toes	0	0%



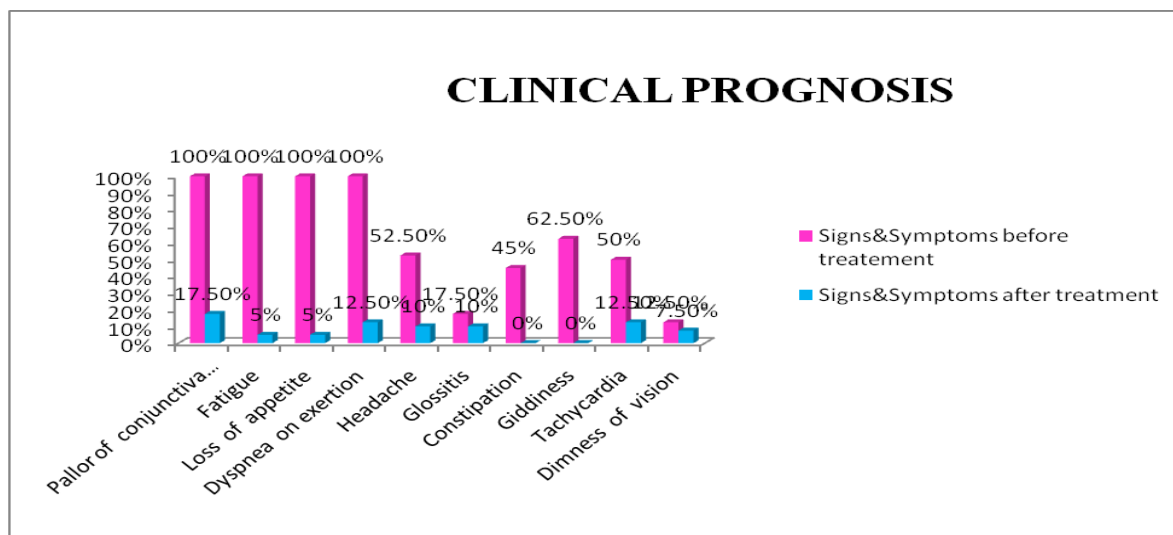
5.7. EFFECT AFTER THE TREATMENT:

Clinical Prognosis:

After treatment Pallor of conjunctiva and nailbed , Tachycardia present in 5 patients (12.5%), Loss of appetite and Fatigue present in 2 patients (5%), Dyspnoea on exertion present in 5 patients (12.5%), Headache and Glossitis present in 4 patients (10%), and Dimness of vision present in 3 patients (7.5%)^{fig(7, 7.1)}.

FIGURE 7.7.1:

S. No	Signs&Symptoms	Before Treatment		After Treatment	
		No. of cases	Percentage (%)	No. of cases	Percentage (%)
1.	Pallor of conjunctiva and nail bed	40	100%	7	17.5%
2.	Fatigue	40	100%	2	5%
3.	Loss of appetite	40	100%	2	5%
4.	Dyspnoea on exertion	40	100%	5	12.5%
5.	Headache	21	52.5%	4	10%
6.	Glossitis	7	17.5%	4	10%
7.	Constipation	18	45%	0	0%
8.	Giddiness	25	62.5%	0	0%
9.	Tachycardia	20	50%	5	12.5%
10.	Dimness of vision	5	12.5%	3	7.5%

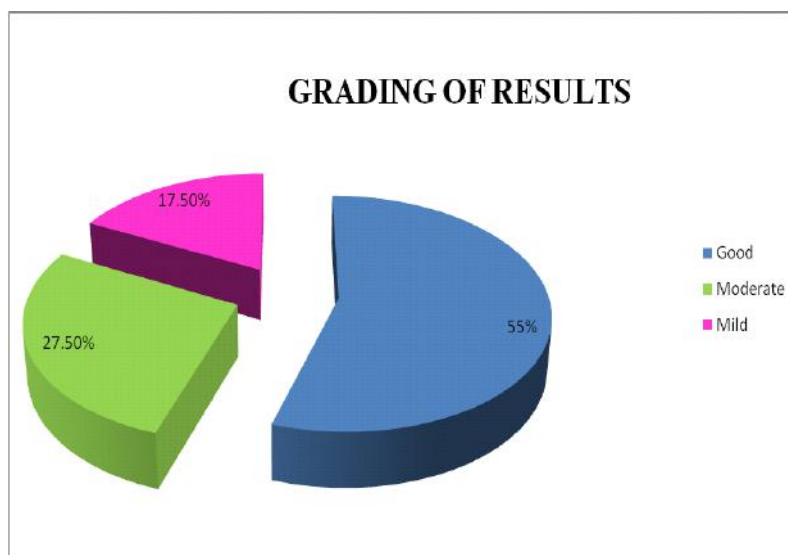


5.8. Grading of results:

Out of 40 patients, 22 cases (55%) shows good result, 11 cases (27.5%) shows moderate result, 7 cases (17.5%) shows mild result after treatment (fig 8, 8.1).

8. FIGURE 8,8.1:

S. No	Grading of results	No. Of cases	Percentage (%)
1.	Good	22	55%
2.	Moderate	11	27.5%
3.	Mild	7	17.5%



5.9. Haemoglobin level:

Out of 40 patients,

- 22 cases shows increase in Hb level between 3gms/dl and above after treatment (55%).
- 11 cases shows increase in Hb level between 2gms/dl to 2.9 gms/dl after treatment (27.50%)
- 7 cases shows increase in Hb level between 0.5gms/dl to 1.5gm/dl after treatment (17.5%)

5.10. Bio statistical report:

- The bio statistical report reveals that, the trial medicine shows a significant improvement with P value < 0.01 and the mean difference of Hb level before and after treatment is 2.68±1.18 (gm/dl), also there is a significant reduction in signs and symptoms among the patients.
- It results as the treatment was significantly improving the HB level (gms/dl) .

6. SUMMARY:

The results obtained from the studies are summarized below:

- The prevalence was found to be higher in females (95%). High incidence of patients was noted in the age group of 26 -35 years (37.5%). In Occupational status, housewife (50%) was mostly affected. Economically low income group (92.5%) was more affected. Aetiological factors, Nutritional deficiency (67.5%) plays a major role in PithaPaandu.
- The clinical trial shows that there is significant improvement in the clinical manifestations of PithaPaandu. Regarding Haemoglobin level, 22 cases shows increase in Hb level between 3gms/dl and above after treatment (55%), 11 cases shows increase in Hb level between 2gms/dl to 2.9 gms/dl after treatment (27.50%) and 7 cases shows increase in Hb level between 0.5gms/dl to 1.5gm/dl after treatment (17.5%)
- The trial medicine having thuvappu suvai which neutralizes the dearranged Pitham by ethirurai maruthuvam. Also the ingredients of the trial drug have Haematinic, Stomachic, Tonic, and laxative activity. In Qualitative analysis, basic radicals like ferrous iron, sodium, potassium and acid radicals like chloride, fluoride, and oxalate were present. The pre clinical studies show that the trial medicine was safe with significant Haematinic activity.
- The Bio statistical report of the clinical trial shows significant P value <0.01 and concluded that, the treatment is effective and significant.

7. CONCLUSION:

- **Pitha Paandu** is primarily due to the dearrangement of pitham. The trial medicine **pitha paandu maathirai** predominating with thuvappu taste it neutralizes the dearranged pitham by ethirurai maruthuvam. From the Preclinical Pharmacological studies, it reveals that the trial medicine possess significant Haematinic activity. No contraindications were reported during the course of the treatment.
- In clinical study, the trial medicine gave maximum relief from the symptoms of Pitha Paandu and increases the haemoglobin level. The trial drug is economical. Therefore I conclude that PITHA PAANDU MAATHIRAI is an effective haematinic drug for the remedy of **Pitha Paandu**. but further studies on large samples are required for an authentic conclusion.

REFERENCES:

1. Melckam tesfaye and Tilahun yemane, (dec2015); anaemia and iron deficiency among school adolescents: *adolescent health, medicine and therapeutics*, vol 6: pp 189-196.
2. Ramesh chellan, and lopamudra paul, 1 (july2010); prevalence of iron deficiency anaemia in india, *journal of population and social studies*, vol 19. No.1 pp 59-80 ref 18
3. Melvin h.seid, and Angelina d.butcher,(vol 2017): ferric carboxymaltose as treatment in women with iron deficiency anaemia, *research article, hindwai anaemia*, , id 9642027, 9 pages.
4. M.Auerbach and J.W. Adamson,(2016) :“ how we diagnose and treat iron deficiency anaemia”, *American journal of haematology*, vol 91,no.1:pp 31-38,.
5. Z.Tolkien, L.Stecher,and A.P.Mander (feb 2015),”ferrous sulphate supplementation causes significant gastrointestinal side affects in adults: a systemic review”, *plos one*. Vol 10, no.2,id, 0117383,.
6. yugimunivar. paandu roga nithaanam,, *yugi vaithiya cinthamani 800 moolamum uraiyum*. S.P.Ramachandran,(Eds) (dec 1998) : (page no 202. first edition), Chennai: Thaamarai noolagam,.
7. K.Vaasudeva saasthiri, S.Venkataraman (Eds) (Aug 2000): sarabendra munivar. Paandu Kaamalai roga sigichai,*sarabendra vaithya muraigal*: (5th edition pp-33), Thanjavur: Saraswathi magal noolagam,.
8. S.P.Ramachandran,(Eds) (dec 1998) : yugimunivar. paandu roga nithaanam,, *yugi vaithiya cinthamani 800 moolamum uraiyum*. (page no 272. first edition), Chennai: Thaamarai noolagam,.