

**ASSESSING THE EFFECTIVENESS OF AYABRINGARAJA KARPAM IN THE
TREATMENT OF PAANDU NOI (ANAEMIA)**

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ABSTRACT

Anemia, commonly referred to as Paandu Noi in Siddha literature, remains one of the most widespread health problems in India. This study aimed to evaluate the effectiveness of Ayabringaraja Karpam, a traditional herbomineral Siddha formulation, in improving hematological parameters in patients diagnosed with anemia. A descriptive case series was conducted on 20 patients over a period of 40 days. Hematological values were assessed before and after treatment, and statistical analysis was carried out using a paired t-test in SPSS 21. The results showed a statistically significant improvement in hemoglobin levels, with an average increase of 1.3 g/dL—from 9.4 g/dL to 10.7 g/dL ($p < 0.005$)—within five weeks of treatment. No adverse effects were observed during the course of the study. These findings suggest that Ayabringaraja Karpam is a safe and effective Siddha medicine for the management of anemia.

KEYWORDS: Anemia, Hemoglobin, Siddha Medicine, Ayabringaraja Karpam, Hematological Parameters.

1. INTRODUCTION

Anemia is a common health problem found in India, usually seen in females and children. As per modern science, anemia is not classified as a disease. It is a state or condition in which the level of Hemoglobin in the blood is below the normal range appropriate for a particular age and sex. In this condition, decreased Oxygen supply to the tissues occurs, leading to tiredness, muscle weakness, headache, lack of concentration, faintness, dizziness, dyspnea on exertion, palpitation, etc. When examined, the patient shows pallor of the tongue, nails, and mucosa. Sometimes, tachycardia and systolic flow murmur. In severe cases, ankle oedema and cardiac manifestations are also found. The history of the patient, when taken in detail, may include malnutrition (inadequate diet, iron deficiency, folate deficiency, Vitamin B12 deficiency, etc.), pregnancy, menorrhagia, hemolysis, rheumatoid arthritis, SLE, jaundice, any surgery, drugs like NSAID, family history of pernicious anemia, malignancy etc. Any one of these conditions, when found in the patient's history, may clearly indicate anemia.^[1] Approximately one-third of the world's population (32.9%) was estimated to suffer from anemia in 2010. Females were consistently at greater risk of

anemia than men across almost all geographic regions and in most age groups. Other at-risk groups include the elderly, as the prevalence of anemia among adults over 50 years of age rises with advancing age, though data are limited. The prevalence of anaemia also varies by geographic region. Progress on decreasing anemia has been slow and uneven overall. For all age groups and both sexes, anemia is estimated to have decreased by roughly seven percentage points between 1990 and 2016, from 40% to 33%. The WHO Global Nutrition Target 2025 on anaemia aims to reduce anemia in WRA by 50% by 2025. Based on a global prevalence of 29–38% anaemia among WRA (nonpregnant and pregnant, respectively) as of 2011, a reduction of 1.8–2.4 percentage points per year would be required to meet this target.^[2] **CAUSES:** Although many parts of the body help make red blood cells, most of the work is done in the bone marrow. Bone marrow is the soft tissue in the center of bones that helps form all blood cells. Healthy red blood cells last between 90 and 120 days. Parts of your body then remove old blood cells. A hormone called erythropoietin (epo) made in your kidneys signals your bone marrow to make more red blood cells. Hemoglobin is the oxygen-carrying protein inside red

blood cells. It gives red blood cells their color. People with anemia do not have enough hemoglobin.^[3] The body needs certain vitamins, minerals, and nutrients to make enough red blood cells. Iron, vitamin B12, and folic acid are three of the most important ones. The body may not have enough of these nutrients due to: Changes in the lining of the stomach or intestines that affect how well nutrients are absorbed (for example, celiac disease), Poor diet, Surgery that removes part of the stomach or intestines, Possible causes of anemia include: Iron deficiency, Vitamin B12 deficiency, Folate deficiency, Certain medicines, Destruction of red blood cells earlier than normal (which may be caused by immune system problems,) Long-term (chronic) diseases such as chronic kidney disease, cancer, ulcerative colitis, or rheumatoid arthritis Some forms of anemia, such as thalassemia or sickle cell anemia, which can be inherited Pregnancy Problems with bone marrow such as lymphoma, leukemia, myelodysplasia, multiple myeloma, or aplastic anemia. Slow blood loss (for example, from heavy menstrual periods or stomach ulcers) Sudden heavy blood loss^[4] **SYMPTOMS:** If the anemia is mild or if the problem develops slowly. Symptoms that may occur first include: Feeling weak or tired more often than usual or with exercise, Headaches, Problems concentrating or thinking, Irritability, Loss of appetite, Numbness and tingling of hands and feet If the anemia gets worse, symptoms may include: Blue color to the whites of the eyes, Brittle nails, Desire to eat ice or other non-food things (pica syndrome), Lightheadedness when you stand up, Pale skin color, Shortness of breath with mild activity or even at rest, Sore or inflamed tongue, Mouth ulcers, Abnormal or increased menstrual bleeding in females Loss of sexual desire in men.^[4]

AIM AND OBJECTIVE: To evaluate the effectiveness of AYABRINGARAJA KARPAM in PAANDU NOI

2.2 DRUG PROPERTIES

Ingredients of AYABRINGARAJA KARPAM are given below in Table 2.2

S. NO	INGREDIENTS	SCIENTIFIC NAME	PROPERTIE
1	AYATHOOL	Ferrum	Erythropoietic activity, Hemoglobin formation
2	MANDOORAM	Ferruso ferric oxide	Hemoglobin formation ^[5]
3	KARISALAI JUICE	<i>Eclipta prostate</i>	Hepato-protective activity, Anti-inflammatory activity, Analgesic activity ^[6]
4	LEMON JUICE	<i>Citrus lemon</i>	Antioxidant, Anti-inflammatory, Hepato-productive, Anti atherosclerotic activity

PHYSICAL PROPERTIES OF THE TRIAL DRUG AYABRINGARAJA KARPAM ARE AS FOLLOWS

1. Nature of preparation-Freeness, Fineness, Lightness, Non-adhesive
2. Fineness-Forms loop or whorl pattern on finger
3. Lightness-Floating and forming a layer in the water surface
4. Particle size-Minute particle size
5. Color- Greenish black
6. Odor – Lime odor
7. Taste- Astringent

(ANAEMIA) using assessment of hematological parameters before and after interventions.

2. MATERIALS AND METHODS

Study design and setting: Descriptive study (**Case series**) the study was conducted over the period of 4 months at the outpatient and inpatient Department of Pothu Maruthuvam, Government siddha medical college & Hospital, Palayamkottai. Participants total of 20patients diagnosed with Anemia(PANDU) were enrolled in the study. Sampling Procedure: Non-random (convenience) sampling.

Inclusion criteria: Participants were included to be between age of 20 – 60 years, of either male or female with Hb>/ 6 gms /dl in early laboratory investigation and be willing to attend the OPD and IPD for 4months and provide bloods sample for laboratory investigation before and after treatment.

Exclusion criteria: Patient below 19 and above 59 years of age, those who are with Malignancy/ other terminal illness, Pregnancy/ lactation, Hb<6 gms/dl were excluded from the study.

Discontinuation criteria: Hemoglobin level becomes less than 5 g/dL during the course of treatment, any other acute illness, Patients not willing to continue, Any severe untoward effect.

2.1. TRAIL DRUG: AYABRINGARAJA KARPAM

Book Reference: *THERAIYAR PAADAL THIRATTU (moolamum uraiyum)* **Author:** Dr. R. Thiyagarasan L.I.M **Year of publication:** Second edition 197 **Page no:** 29 & 30. **ADJUVANT:** Ghee, Curd, Honey, Lemon juice **DOSE:** Panavedai (488 mgs). **INDICATION:** Uthira azhivu, Narai, Kai kaal ooichchal. **MEDICINE:** Aya Bringaraja Karpam. **TIME:** Twice a day.

8. PH – 4.12(acidic in nature –acidic medium not favor for microbial contamination Viscosity)^[6]

2.4 PURCHASE OF THE MEDICINE

The medicine was purchased from the well reputed GMP pharma.



Figure No. 2.4.1: Shows as Picture of Trial Drug.

2.5 METHODOLOGY

Data collection and Outcome Measures: This study was carried out on the GSMC campus in Palayamkottai after attaining permission from IEC (GSMC-XI IEC-Br-I/06/28.07.2023). The patients who were enrolled informed about the terms and objectives of the study in the regional language & informed consent obtained from them in a consent form. The case series was designed to study the clinical efficacy of AYA BRINGARAJA KARPAM for the treatment of PAANDU NOI (ANAEMIA). Clinical symptoms were analyzed by comparing the two points of data (before & after treatment) & assessed by using laboratory investigation (Hb, MCV, PCV, MCH, MCHC)

Statistical Analysis: Data were coded, categorized and analyzed using MS-EXCEL and SPSS 21 (students 't' test). A **Paired t-test** was employed to assess the significance of changes within each patient (before and after treatment).

Quality Assurance: Protocol was reviewed by review board and expert's opinion is taken. The whole procedure of the research was supervised by guide and faculties of Pothu Maruthuvam department. No

vulnerable population were included in the study. The personal information of the participants was kept confidential. The participants were informed about the study in their own language. The study was conducted only after their consent.

3. RESULT

3.1 Demographic Characteristics: Age: The age and gender distribution of 20 patients were recorded: Out of 20 patients, 20-30 years (25%, n=5), 31-40 years (30%, n=6) 41-50 years (30%, n=6), 51-60 years (15%, n=3), the age frequency ranged from minimum of 20 years to maximum of 56 years. **Gender:** Out of 20 patients 6 (30%) are male, 14(70%) is female.

3.2. DIET: Out of 20 patients vegetarians (25%, n=5), Mixed diet (75%, n=15)

3.4. ETIOLOGICAL FACTORS *Figure 3.4.1 shows as etiological factors of patients.*

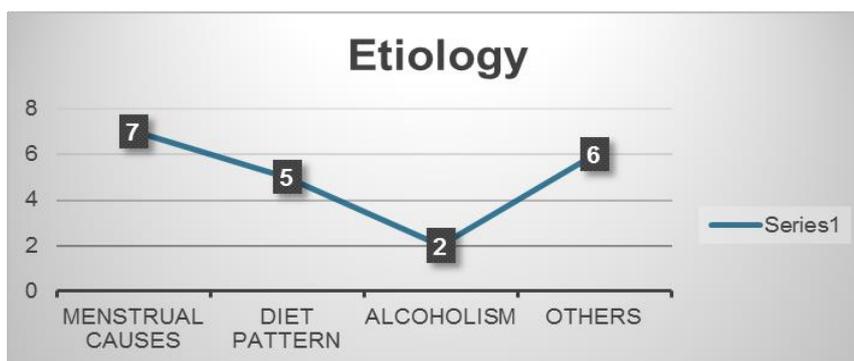


Fig. 3.4.1: The study participants were subdivided into various groups according to the above etiological factors.

3.5 NAADI DISTRIBUTION and YAKKAI ILAKANAM

Out of 20 patients an assessment of naadi, valiazhal (30%, n=6), azhalvali (50%, n=10), azhaliyam naadi(15% n=3), iyavali naadi(5% n=1). **Yakkai**

Ilakanam: out of 20 patients 6 patients (30%) observed vathapitha the gi, 2 (10%) patients had vathakapam, 8 (40%) had pithvatha thegi, 4 (20%) had kapavatha thegi were observed.

3.6. PAIRED T-TEST

Table no. 3.6.1 shows Mean and standard deviation of patients.

	MEAN±SD	
	BEFORE TREATMENT	AFTER TREATMENT
TRBC	3.98± 0.30	4.28± 0.25
HB	9.44± 0.75	10.74± 0.66
PCV	31.04 ± 3.47	34.28± 2.108
MCV	73.62 ± 7.91	79.74± 7.14
MCH	22.51± 2.86	25.67± 2.09
MCHC	29.76 ± 2.82	31.95± 1.06

The mean differences in Total RBC, Hemoglobin, Packed cell volume, mean corpuscular volume, mean corpuscular Hemoglobin, and mean corpuscular hemoglobin concentration before treatment and after treatment were depicted statistically in above the table no.3.6.1

The Mean Hemoglobin before treatment was 9.4 and after treatment was 10.7; the mean MCV before treatment with ABK was 73.6 and after treatment was

79.7, showing a marked prognosis. The mean value of MCH differs from 22.51 to 25.67 after intervention with the trial drug, and the mean of MCHC markedly increased from 29.76 to 31.95.

3.8. PAIRED TEST T VALUE & HYPOTHESIS: In order to elicit the difference between the two groups, 'Before treatment' and 'after treatment', the paired t-test was employed. The results are depicted below the table no.3.8

Table No. 3.8.1: T Value of Study and Hypothesis.

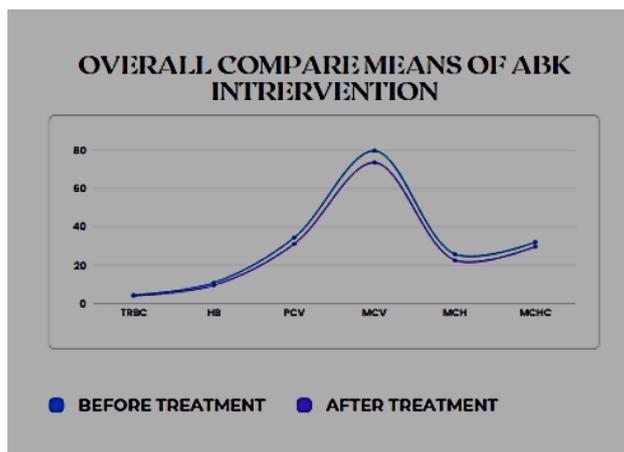
Variable 1	Variable 2	t value	Sig 2 tailed p value	Significance
TRBC BT	TRBC AT	-4.192	0.000	HS*
HB BT	HB AT	-9.057	0.000	HS*
PCV BT	PCV AT	-5.213	0.000	HS*
MCV BT	MCV AT	-3.614	0.002	HS*
MCH BT	MCH AT	-5.170	0.000	HS*
MCHC BT	MCHC AT	-3.626	0.002	HS*

HYPOTHESIS

H_0 = There is no significant difference in TRBC between before and after treatment. H_a = There is a significant difference in TRBC between before and after treatment. Hypothesis Testing Results TRBC ($p < 0.05$), Haemoglobin($p < 0.05$), PCV ($p < 0.05$), MCV ($p < 0.05$), MCHC ($p < 0.05$). All measured blood parameters

(TRBC, hemoglobin, PCV, MCV, MCHC) showed statistically significant improvements after treatment with the trial drug ABK. Since the p-value is < 0.05 , the H_0 is rejected, and H_a is accepted.

DISCUSSION: Figure 3.9 shows has, over all compare means of ABK intervention.



Anemia is a serious global public health problem. Low and lower-middle-income countries bear the greatest burden of anemia. In India, there are various national health programs focused on reducing the prevalence of anemia. Ayush's system of medicine has already been contributing to achieving this goal. With this note, a Herbo-mineral medicine, *AYABRINGARAJA KARPAM* was taken for this case series. In this study, 20 patients were recruited with a minimum age of 20 and a maximum of 56 for a period of 40 days. *AYABRINGARAJA KARPAM* was given orally in honey as adjuvant with a dosage of 488 mg. Patients with a mean age of 38 (30% of male, 70% of female) were included. The underlying medical condition, Thegi, naadi, and patients' diets were reported graphically. The most common yakkai ilakanam among the 20 paandu patients observed were pithavatham and vaathapitham. The most common type of naadi observed in this study were Azhalvali and valiazhal. After the intervention of *AYABRINGARAJA KARPAM*, blood hemoglobin level increased significantly with a mean of 1.3 g/dl in 5 weeks (9.4 g/dl to 10.7 g/dl), Total RBC count increased with a mean of 0.3 million/Cumm in 5 weeks of intervention, the mean of PCV was improved by 3% (31.04% to 34.2%), the mean of MCV was increased after treatment by 6 fl (73.6 fl to 79.7 fl), the mean of the MCH volume increased by 3.1 pg (22.5 pg to 25.6 pg), and the MCHC improved significantly with a mean 2.2 g/dl in 5 weeks of intervention (29.7 g/dl to 31.9 g/dl). Student's t test was performed for blood parameters before and after treatment which disseminated statistically significant results (p value <0.05) stating the increase in all 6 blood parameters. The present case series demonstrates that *AYABRINGARAJA KARPAM* can serve as a potential drug for anemia with significant improvement in blood investigations such as TRBC, PCV, HB, MCH, MCV, and MCHC. **LIMITATION:** Since this is a case series with a minimum number of 20 samples, generalizing this study result is not possible. Even though it is evident from the case series that our trial drug can be potentially used against the anemia, the clinical efficacy among difference population, age group still needs to be evaluated. This preliminary data can be used as the baseline and up scaled by performing randomized double blinded controlled trial in large sample size.

4. CONCLUSION

In this case series, 20 cases were selected with a minimum age of 20 and a maximum of 56, with 14 females and 6 males. After 40 days of clinical intervention with the trial drug *AYABRINGARAJA KARPAM*, marked changes were seen in blood parameters. The **mean hemoglobin level** improved by **1.3 gm/dl** (9.4 gm/dl to 10.7 gm/dl) in 5 weeks; the **mean total red blood cell** improved by **0.3 million /cu.mm**, the **mean packed cell volume** improved by **3%** (31.04% to 34.2%), the **mean of MCV** was increased after treatment by **6 fl** (73.6 fl to 79.7 fl), the **mean of MCH** volume increased by **3.1 pg** (22.5 pg to 25.6 pg), and the **MCHC**

improved significantly with a mean **2.2 g/dl** (29.7 g/dl to 31.9 g/dl). The present case series indicates that the Herbo mineral formulation *AYABRINGARAJA KARPAM* suspension is effective for the management of anaemia.

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