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Yogvahi Action Of Rasasindoor With Aqueous Extract Of Eclipta Alba In Essential Hypertension: A Clinical Research Study

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ABSTRACT

Background Hypertension is a major global health concern and a leading risk factor for cardiovascular morbidity and mortality. In Ayurveda, it can be correlated to Vyanabala Vaishamya involving Vata predominance. Conventional anti-hypertensives often require lifelong use, prompting interest in safe, cost-effective alternatives. Bhringraj (Eclipta alba) has documented antihypertensive activity, while Rasasindoor is described as Yogvahi, enhancing the potency and bioavailability of co-administered drugs. This study was undertaken to evaluate the Yogvahi action of Rasasindoor in combination with Eclipta alba in Essential Hypertension.

Aim Of Study - To evaluate the Yogvahi action of Rasasindoor with aqueous extract of Eclipta alba upto stage 1 in management of Essential Hypertension.

Objectives of Study-Primary: To evaluate the Yogvahi action of Rasasindoor with aqueous extract of Eclipta alba in management of upto Essential Hypertension

Secondary: to evaluate the safety of Rasasindoor with aqueous extract of Eclipta alba in management of Essential Hypertension.

Materials and Methods A randomized, open-label, comparative, interventional clinical trial was conducted on 100 patients of Essential Hypertension (as per JNC-7 criteria). Patients were randomly allocated into two groups: Group A received aqueous extract of Eclipta alba (500 mg), while Group B received Rasasindoor (62 mg) along with Eclipta alba (500 mg), twice daily for 30 days. Assessments were made at baseline, day 10, day 20, day 30, and follow-up on day 45 and 60. Objective parameters included systolic and diastolic blood pressure, mean arterial pressure (MAP), and pulse rate. Subjective parameters included Shirshoola, Bhrama, Klama, Hrutspandana, Swedadhikya, and Anidra. Safety was assessed through hematological, biochemical, and urinary investigations.

Results Both groups demonstrated significant reductions in blood pressure and symptomatic relief. Group B showed superior improvement with statistically significant intergroup differences in MAP and subjective symptoms like palpitation and insomnia ($p < 0.05$). Laboratory parameters remained within normal limits, indicating safety. Only one patient in Group B reported mild itching, which subsided without intervention.

Conclusion The study establishes the Yogvahi action of Rasasindoor in potentiating the antihypertensive effect of Eclipta alba. Combination therapy proved more effective than monotherapy, with favorable safety and tolerability. This integrative approach highlights the potential of Ayurvedic herbo-mineral formulations as supportive therapy in Essential Hypertension

Keywords: *Rasasindoor, Yogvahi, Eclipta alba, Essential Hypertension, Ayurveda, Clinical Trial*

udi woman in her eighth pregnancy with previous six deliveries and one abortion , at her 28th weeks of gestation , presented to internal medicine clinic with left hand joints pain, swelling , and morning stiffness for less than 10 minutes , which all started one day before clinic presentation . patient gave a history of similar attacks in the last two months but in

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1. INTRODUCTION

Hypertension, also known as high blood pressure, is a chronic disorder characterized by persistent elevation of arterial pressure. It is one of the leading global risk factors for cardiovascular morbidity and mortality. According to the World Health Organization, hypertension accounted for approximately 7.5 million deaths worldwide in 2015, representing nearly 13% of all fatalities. In India, its prevalence has been steadily increasing, affecting nearly one in four adults, with urban populations showing a higher incidence compared to rural areas. Despite the availability of effective antihypertensive drugs, only a small proportion of patients achieve optimal control, largely due to the need for lifelong therapy, cost, and potential side effects.[1]

From an *Ayurvedic* perspective, hypertension can be correlated with *Vyanabala Vaishamya*—a disturbance in the normal functioning of *Vyana Vayu*, with predominant involvement of *Vata Dosha*. Classical texts do not mention hypertension as a specific entity but describe conditions such as *Raktagata Vata, Siragata Vata, Dhamni Pratichaya*, and *Pakshavadha*, which share similarities in symptomatology. Considering its systemic nature and complications, it may be interpreted as a *Maha Roga*, representing a composite form of *Vata Vyadhi*. Since there is no direct *Aushadhi Adhikara* (specific classical prescription) for hypertension, management in *Ayurveda* is directed through *Dosha Pratyanika Chikitsa*, focusing on correcting *doshic* imbalances rather than disease-specific treatment.[2]

Among the herbs traditionally valued in *Ayurveda*, *Bhringraj* (*Eclipta alba*) is described as *Hridrogvishanashana*—beneficial in cardiac disorders. Modern studies confirm its antihypertensive, diuretic, and hypolipidemic properties in experimental and clinical settings. Parallelly, *Rasasindoor* (a herbo-mineral formulation prepared through the *Kupipakwa Rasayana* process of mercury and sulphur) is described as *Yogvahi*, meaning it enhances the potency and bioavailability of other drugs without exerting major action of its own. Textual references also highlight its *Vata-shamaka*, *Hridya*, and *Rogahara* properties, making it a suitable candidate for integrative therapy in cardiovascular conditions.[3]

In this context, combining *Rasasindoor* with *Eclipta alba* represents a novel therapeutic strategy aimed at harnessing the synergistic potential of *Ayurveda*'s pharmacological wisdom. While *Eclipta alba* directly exhibits antihypertensive activity, *Rasasindoor* may act as a *Yogvahi*, potentiating its action and reducing dosage requirements. However, despite classical references, limited clinical data are available to establish this synergy in the management of Essential Hypertension. Hence, the present study was undertaken to evaluate the *Yogvahi* action of *Rasasindoor* with aqueous extract of *Eclipta alba*, with an emphasis on both clinical efficacy and safety.[4]

2. AIM AND OBJECTIVES

Aim of Study –

To evaluate the *Yogvahi* action of *Rasasindoor* with aqueous extract of *Eclipta alba* in management of Essential Hypertension.

Objectives of Study-

Primary:

To evaluate the *Yogvahi* action of *Rasasindoor* with aqueous extract of *Eclipta alba* in management of Essential Hypertension

Secondary:

To evaluate the safety of *Rasasindoor* with aqueous extract of *Eclipta alba* in management of Essential Hypertension

3. REVIEW OF LITERATURE

Hypertension in Ayurvedic Perspective

Although hypertension is not directly described in classical *Ayurvedic* texts, it may be correlated with several conditions. The concept of *Vyana Vayu Vaishamya* (irregularity in circulation), *Raktagata Vata* (Vata vitiated in blood), *Siragata Vata*, *Dhamni Pratichaya* (arterial thickening), and *Vyanabala Vaishamya* have been considered equivalent or contributory conditions.

Charaka Samhita mentions *Raktagata Vata*, characterized by symptoms like *Bhrama* (giddiness), *Murchha* (fainting), *Shirashoola* (headache), and irregular pulse, which resemble hypertensive symptoms.

Sushruta Samhita describes *Dhamani Pratichaya* as thickening of arteries, a concept parallel to arteriosclerosis and vascular hypertension.

Commentaries highlight hypertension as a *Maha Roga*, since it involves multi-systemic complications (*Hridaya*, *Mutravaha Srotas*, *Medovaha Srotas*).

Thus, the *Ayurvedic* understanding places hypertension under systemic *Vata Vyadhi* with the involvement of *Tridosha* and *Raktavaha Srotas*.

Concept of Hypertension

Hypertension is defined as persistently elevated arterial blood pressure, most commonly diagnosed when systolic blood pressure exceeds 140 mmHg and/or diastolic pressure exceeds 90 mmHg. It is a leading risk factor for coronary artery disease, stroke, heart failure, chronic kidney disease, and premature mortality.[5] Global Burden of Disease studies and WHO reports consistently rank hypertension among the top contributors to Disability Adjusted Life Years (DALYs). The prevalence in India has risen sharply over the last five decades, now affecting nearly 25–30% of urban and 15–25% of rural populations. Risk factors include obesity, sedentary lifestyle, high salt intake, stress, and genetic predisposition. Current treatments involve long-term administration of antihypertensive drugs such as calcium channel blockers, ACE inhibitors, and beta-blockers, but adherence and side effects remain major challenges.[6]

4. DRUG REVIEW

Table 1: Review of *Bhringraj* (*Eclipta alba*)

Parameter	**Details**
Botanical Name	*Eclipta alba* Hassk. (syn. *Eclipta prostrata*)
Family	Asteraceae
Classical Names	*Bhringaraja, Kesharaja, Markava, Tekaraja*
Ayurvedic Reference	Mentioned in *Dhanvantari Nighantu – Karviradi Varga* as *Hridrogvishanashana*
Rasa	*Tikta (bitter), Katu (pungent)*
Guna	*Laghu (light), Ruksha (dry)*
Veerya	*Ushna (hot)*
Vipaka	*Katu*
Doshaghnata	*Kapha-Vata Shamaka*
Karma	*Rasayana, Hridya, Medohara, Shothahara, Balya*
Part Used	Whole plant
Phyto-constituents	Wedelolactone, Ecliptine, Alkaloids, Flavonoids, Coumestans
Pharmacological Actions	Antihypertensive, Diuretic, Hypolipidemic, Hepatoprotective, Antioxidant
Therapeutic Uses	Hypertension, Liver disorders, Edema, Hair disorders, Cardiac diseases
Dose	Extract 500 mg (in trial); Classical use ~ 10–20 ml Swarasa or 3–6 g Churna
Research Evidence	Clinical and experimental studies confirm antihypertensive and hypolipidemic activity in rats and humans.

Table 2: Review of *Rasasindoor*

Parameter	Details
Name	*Rasasindoor*
Category	*Rasaushadhi* (Herbo-mineral preparation)
Ingredients	*Shuddha Parada* (purified mercury), *Shuddha Gandhaka* (purified sulphur)
Method of Preparation	*Kupipakwa Rasayana* method (Kajjali preparation and sublimation)
Classical References	*Rasatarangini*, *Rasamritam*
Classical Properties	*Yogvahi* (bioenhancer), *Vata-shamaka*, *Hridya*, *Rogahara*
Rasa	*Katu, Tikta*
Guna	*Laghu, Snigdha*
Veerya	*Ushna*
Vipaka	*Madhura*
Doshaghnata	*Vata-Kapha Shamaka*
Pharmacological Actions	Bioenhancer (improves absorption and bioavailability), Nervine tonic, Cardiac tonic
Therapeutic Indications	*Shotha, Hridroga, Gulma, Agnimandya, Vatarakta, Udara Roga, Jwara*
Dose	62 mg (in trial); Classical dose 30–125 mg
Safety Profile	Safe when prepared with proper *Shodhana* and *Kupipakwa* method; GMP-certified formulations preferred
Research Evidence	Demonstrated as a bioenhancer in pharmacokinetic studies; traditional reports of *Yogvahi* action validated.

5. MATERIALS AND METHODS

Study Design

The present clinical research was an open-label, randomized, comparative, interventional, prospective trial. Patients were allocated to two groups using a computer-generated random number table. The trial followed a two-arm, parallel-group design with pre- and post-treatment assessments.

Source of Data

Patients were selected from the OPD and IPD of the Department of Kayachikitsa, MLR *Ayurvedic* College and Hospital. Each patient was informed about the nature of the study, and written informed consent was obtained prior to inclusion.

Selection of Patients

Inclusion Criteria

Patients diagnosed with upto **Stage 1 Essential Hypertension** (as per JNC-7 criteria: Systolic BP ≤160 mmHg and Diastolic BP ≤100 mmHg).

Age group: **25–60 years**.

Both sexes included.

Patients willing to participate and provide written consent.

Exclusion Criteria

Secondary hypertension due to renal, endocrine, or cardiac causes.

Pregnant and lactating women.

Patients with uncontrolled diabetes mellitus, severe hepatic or renal disease, or major psychiatric illness.

Patients already on multiple antihypertensive medications.

Intervention

Group A (n=50): Aqueous extract of *Bhringraj* (*Eclipta alba*) 500 mg orally, twice daily.

Group B (n=50): *Rasasindoor* 62 mg + Aqueous extract of *Bhringraj* (*Eclipta alba*) 500 mg orally, twice daily.

Duration of Therapy: 30 days.

Follow-up: 15 days post-treatment (Day 45) and 30 days post-treatment (Day 60).

Preparation and Standardization of Study Drugs

Aqueous Extract of *Eclipta alba*

Dried plant material was pulverized and suspended in 80% aqueous solution.

Extract was filtered and concentrated under reduced pressure using a rotary evaporator at <50°C.

Final yield: 12.5% (w/w).

Stored at 4°C until use.

Standardization included organoleptic, physio-chemical, and phytochemical tests.

Rasasindoor

Prepared as per ***Kupipakwa Rasayana*** method of *Rasashastra*.

Ingredients: *Shuddha Parada* (purified mercury) and *Shuddha Gandhaka* (purified sulphur).

Ratio: 1:6, triturated to form *Kajjali*.

Processed in glass bottles with gradual heating until *Rasasindoor* (red sulphide of mercury) was obtained.

Procured from a GMP-certified Ayurvedic pharmacy.

Standardization included classical parameters (*Varna, Rekhapurnata, Nischandratva*) and modern tests (XRD, AAS for heavy metals, loss on drying, etc.).

Assessment Criteria

Objective Parameters

Blood Pressure (SBP, DBP)

Mean Arterial Pressure (MAP)

Pulse Rate

Measured on: Day 1, 10, 20, 30, 45 (follow-up), 60 (follow-up).

Laboratory Investigations

Hematological profile: Hb, TLC, DLC, ESR

Renal function tests: Serum urea, creatinine, electrolytes (Na^+, K^+)

Fasting blood sugar

Lipid profile: TG, Cholesterol, HDL, LDL, VLDL

Urine routine & microscopic examination

Serum uric acid

ECG and Chest X-ray (Baseline, Day 1)

Subjective Parameters (*Ayurvedic* Symptoms)

Shirshoola (Headache)

Bhrama (Giddiness)

Klama (Fatigue)

Hrutspandana (Palpitation)

Swedadhikya (Excessive sweating)

Anidra (Insomnia)

6. OBSERVATION AND RESULT

Table 3: Demographic Summary of 100 Patients with Essential Hypertension

Parameter	Categories	No. of Patients	%	Observation
Age (Years)	≤30 / 31–40 / 41–50 / 51–60 / ≥61	11 / 19 / 35 / 35 / 0	11 / 19 / 35 / 35 / 0	Majority (70%) were 41–60 yrs; middle age most affected
Gender	Male / Female	62 / 38	62 / 38	Higher incidence in males
Religion	Hindu / Muslim	98 / 2	98 / 2	Reflects local population distribution
Marital Status	Married / Unmarried	97 / 3	97 / 3	Hypertension more in married individuals
Residence	Urban / Rural	60 / 40	60 / 40	Urban predominance due to lifestyle stress
Socioeconomic	Upper / Upper Middle / Lower Middle / Lower	3 / 35 / 26 / 31	3 / 35 / 26 / 31	More in middle & lower strata
Education	Illiterate / Secondary / Graduate+	2 / 45 / 53	2 / 45 / 53	Mostly educated till graduate level
Prakriti	*Vata–Pitta / Pitta–Kapha / Vata–Kapha*	24 / 50 / 26	24 / 50 / 26	*Pitta-Kapha* most common
Manasika Prakriti	*Rajsik / Satvik / Tamsik*	51 / 22 / 27	51 / 22 / 27	*Rajasik* type dominated
Agni	*Manda / Tikshna / Vishama / Sama*	56 / 7 / 20 / 17	56 / 7 / 20 / 17	*Mandagni* most frequent
Ahara Shakti	*Pravara / Madhyama / Avara*	3 / 78 / 19	3 / 78 / 19	Mostly *Madhyama*
Samhanana	*Pravara / Madhyama / Avara*	4 / 79 / 17	4 / 79 / 17	Mostly *Madhyama*
Sara	*Pravara / Madhyama / Avara*	2 / 81 / 17	2 / 81 / 17	Majority *Madhyama*
Satva	*Pravara / Madhyama / Avara*	5 / 35 / 10	10 / 70 / 20	Predominantly *Madhyama*
Satmya	*Pravara / Madhyama / Avara*	4 / 85 / 11	4 / 85 / 11	*Madhyama* dominated
Kostha	*Mridu / Madhyama / Kroora*	5 / 33 / 62	5 / 33 / 62	*Kroora Kostha* prevalent
Vyayama Shakti	*Pravara / Madhyama / Avara*	4 / 71 / 25	4 / 71 / 25	Reduced exercise capacity in many
Diet	Vegetarian / Mixed	77 / 23	77 / 23	Vegetarian majority
Addictions	Tea / Smoking / Tobacco / Alcohol	76 / 12 / 5 / 3	76 / 12 / 5 / 3	Tea addiction highest

Family History	Yes / No	33 / 67	33 / 67	1/3rd had positive family history
Occupation	Service / Business / Housework / Student	44 / 38 / 17 / 1	44 / 38 / 17 / 1	Service sector most affected
Sharira	*Sthoola / Madhyama*	38 / 62	38 / 62	Mostly *Madhyama Sharira*
Mental Stress	Yes / No	63 / 37	63 / 37	Stress strongly associated
Sleep	Disturbed / Normal	51 / 49	51 / 49	Disturbed sleep common
Bowel Habits	Regular / Irregular	64 / 36	64 / 36	1/3rd irregular
Physical Activity	Yes / No	65 / 35	65 / 35	35% inactive lifestyle

Table 4: Clinical Parameters and Symptoms of 100 Patients with Essential Hypertension

Parameter	Categories	Group A (n=50)	%	Group B (n=50)	%	Observation / Statistics
Salt Intake	Yes / No	40 / 10	80 / 20	25 / 25	50 / 50	65% had high salt intake; X^2=0.500, p=0.480 (NS)
Headache	Present / Absent	40 / 10	80 / 20	39 / 11	78 / 22	79% had headache; X^2=0.029, p=0.864 (NS)
Bhrama (Vertigo)	Present / Absent	35 / 15	70 / 30	32 / 18	64 / 36	67% reported vertigo; X^2=0.149, p=0.700 (NS)
Klama (Fatigue)	Present / Absent	33 / 17	66 / 34	39 / 11	78 / 22	72% had fatigue; X^2=0.350, p=0.851 (NS)
Hritspandan (Palpitation)	Present / Absent	28 / 22	56 / 44	38 / 12	76 / 24	66% had palpitations; X^2=0.729, p=0.393 (NS)
Swedadhikya (Excessive Sweating)	Present / Absent	24 / 26	48 / 52	26 / 24	52 / 48	50% sweating complaints; X^2=2.039, p=0.153 (NS)
Anidra (Insomnia)	Present / Absent	19 / 31	38 / 62	30 / 20	60 / 40	49% had insomnia; X^2=0.905, p=0.341 (NS)
Systolic BP (mmHg)	<120 / 120–139 / 140–159	0 / 7 / 43	0 / 14 / 86	0 / 6 / 44	0 / 12 / 88	Mean±SD: 147.46±8.82 vs 150.86±10.09; t=1.794, p=0.076 (NS); U=1.966, p=0.046 (S)
Diastolic BP (mmHg)	<80 / 80–89 / 90–99	0 / 5 / 45	0 / 10 / 90	0 / 3 / 47	0 / 6 / 94	Mean±SD: 97.12±7.44 vs 98.20±8.31; t=0.685, p=0.495 (NS)
Pulse Rate	Mean ± SD	85.12 ± 8.76	—	86.24 ± 7.60	—	Δ=1.12±1.16, 1.32% ↑; U=0.762, p=0.446 (NS)
MAP	Mean ± SD	113.90 ± 6.21	—	115.75 ± 7.92	—	Δ=1.85±1.71, 1.62% ↑; U=1.225, p=0.221 (NS)

Table 5: Showing the incidence of Haematological parameters in 100 patients of EHT.

Haematological	Groups	N	Mean	Std. Deviation	Mean Rank	Mean Difference	%age Change	Mann – Whitney U Test	p value
Hb	Group A	50	12.60	1.89	49.35	0.15±0.02	1.19	0.398	0.691 (NS)
	Group B	50	12.75	1.91	51.65				
TLC	Group A	50	7362.00	1646.88	62.98	1278.00±267.42	17.36	4.315	0.001 (HS)
	Group B	50	6084.00	1379.46	38.02				
Neutrophil	Group A	50	58.82	13.05	57.32	2.60±6.41	4.42	2.359	0.018 (S)
	Group B	50	56.22	6.64	43.68				
Lymphocytes	Group A	50	34.32	9.85	45.13	2.10±3.88	6.12	1.862	0.063 (NS)
	Group B	50	36.42	5.97	55.87				
Eosinophil	Group A	50	2.77	2.05	33.37	1.71±1.06	61.73	6.011	0.001 (HS)
	Group B	50	4.48	0.99	67.63				
Monocytes	Group A	50	3.88	1.61	43.12	0.94±0.04	24.23	2.588	0.010 (S)
	Group B	50	4.82	1.65	57.88				
Basophil	Group A	50	0.00	0.01	43.35	0.03±0.45	0.0	3.878	0.001 (HS)
	Group B	50	0.30	0.46	57.65				
ESR	Group A	50	16.22	8.43	42.64	3.60±5.89	22.19	2.727	0.006 (S)
	Group B	50	19.82	2.54	58.36				
FBS	Group A	50	90.66	14.13	52.72	3.20±1.87	3.53	0.770	0.442 (NS)
	Group B	50	87.46	16.00	48.28				
Blood Urea	Group A	50	17.34	1.30	50.82	0.02±0.00	0.12	0.114	0.909 (NS)
	Group B	50	17.32	1.30	50.18				
Serum. Creatinine	Group A	50	0.77	0.29	45.18	0.05±0.15	6.49	1.840	0.066 (NS)
	Group B	50	0.82	0.14	55.82				
S.Cholesterol	Group A	50	188.70	24.11	47.77	3.59±7.77	1.90	0.944	0.345 (NS)
	Group B	50	192.29	16.34	53.23				
S.TG	Group A	50	132.75	31.96	43.31	15.53±2.44	11.70	2.485	0.013 (S)
	Group B	50	148.28	29.52	57.69				
HDL	Group A	50	45.28	5.54	56.61	1.53±3.48	3.38	2.123	0.034 (S)
	Group B	50	43.75	9.02	44.39				
LDL	Group A	50	152.92	13.79	72.00	23.48±6.82	15.35	7.466	0.001 (HS)
	Group B	50	129.44	6.97	29.00				
VLDL	Group A	50	47.04	7.45	68.85	14.14±2.50	30.106	6.344	0.001 (HS)
	Group B	50	32.90	9.95	32.15				
T.BL.	Group A	50	0.64	0.17	33.69	0.38±0.14	59.38	5.876	0.001 (HS)
	Group B	50	1.02	0.31	67.31				
D.BL	Group A	50	0.56	0.21	50.80	0.00±0.00	0	0.105	0.916

	Group B	50	0.56	0.21	50.20				(NS)
SGOT	Group A	50	41.77	13.46	39.89	4.21±8.28	10.08	3.675	0.001 (HS)
	Group B	50	45.98	5.18	61.11				
SGPT	Group A	50	32.05	10.43	30.02	16.99±5.70	53.01	7.157	0.001 (HS)
	Group B	50	49.04	4.73	70.98				
Serum Uric Acid	Group A	50	4.77	0.78	49.32	0.09±0.05	1.89	0.409	0.682 (NS)
	Group B	50	4.86	0.73	51.68				
Serum NA	Group A	50	139.68	2.70	41.89	2.04±1.12	1.46	3.002	0.003 (S)
	Group B	50	141.72	3.82	59.11				
Serum K	Group A	50	3.94	0.60	46.41	0.19±0.21	4.82	1.471	0.156 (NS)
	Group B	50	4.13	0.39	54.59				

Table 6: Distribution of Symptoms, Effect on *Sirshool* – Intensity, Intergroup (Intensity), Effect on *Sirshool* – Frequency (N = 100)

Sl. No.	Parameter / Category	Group	BT – Patients (%)	AT – Patients (%)	X^2 Value	p Value
Distribution of Symptoms						
1	*Sirshool* (Headache)	–	81 (81%)	–	–	–
2	*Hrutspandan* (Palpitation)	–	69 (69%)	–	–	–
3	*Klama* (Fatigue)	–	73 (73%)	–	–	–
4	*Bharama* (Giddiness)	–	56 (56%)	–	–	–
5	*Swedhadhikya* (Excessive sweating)	–	50 (50%)	–	–	–
6	*Anidra* (Insomnia)	–	51 (51%)	–	–	–
Effect on *Sirshool* – Intensity						
None (0)	A	8 (16%)	8 (16%)	rowspan=6	rowspan=6	
	B	11 (22%)	11 (22%)			
Annoying (1–2)	A	6 (12%)	27 (54%)			
	B	5 (10%)	25 (50%)			
Uncomfortable (3–4)	A	29 (58%)	13 (26%)			
	B	27 (54%)	12 (24%)			

Dreadful (5–6)	A	7 (14%)	2 (4%)	202.865 (A) 208.000 (B)	0.001 (HS) 0.001 (HS)	
	B	7 (14%)	2 (4%)			
Horrible (7–8)	A	0	0			
	B	0	0			
Agonizing (9–10)	A	0	0			
	B	0	0			
Intergroup (Intensity)	–	–	–	–	33.100 (BT) 14.294 (AT) 3.903 (D)	0.129 (NS) 0.956 (NS) 0.419 (NS)
Effect on *Sirshool* – Frequency						
No Pain (0)	A	11 (22%)	34 (68%)	rowspan=4	60.429	0.001 (HS)
	B	11 (22%)	28 (56%)	rowspan=4	77.768	0.001 (HS)
Pain / Month (1)	A	26 (52%)	14 (28%)			
	B	16 (32%)	14 (28%)			
Pain / Week (2)	A	12 (24%)	2 (4%)			
	B	15 (30%)	8 (16%)			
Pain / Day (3)	A	1 (2%)	0 (0%)			
	B	8 (16%)	0 (0%)			

Table No. 7: *Sirshool* (Frequency), Sirshool (Duration), Bharama (Giddiness) (N = 100)

Parameter	**Category**	**Group**	**BT – Patients (%)**	**AT – Patients (%)**	**D – Patients (%)**	**X^2 Value**	**p Value**
Sirshool (Frequency)	No Pain (0)	A	11 (22%)	34 (68%)	16 (32%)	7.997	0.534 (NS)
		B	11 (22%)	28 (56%)	15 (30%)	2.108	0.716 (NS)
	Pain / Month (1)	A	26 (52%)	14 (28%)	34 (68%)		
		B	16 (32%)	14 (28%)	32 (64%)		
	Pain / Week (2)	A	12 (24%)	2 (4%)	0 (0%)		

		B	15 (30%)	8 (16%)	3 (6%)		
	Pain / Day (3)	A	1 (2%)	0 (0%)	0 (0%)		
		B	8 (16%)	0 (0%)	0 (0%)		
***Sirshool* (Duration)**	No Pain (0)	A	18 (36%)	37 (74%)	21 (42%)	7.786	0.556 (NS)
		B	11 (22%)	36 (72%)	12 (24%)	5.331	0.255 (NS)
	Pain Few Min–Hours (1)	A	20 (40%)	11 (22%)	26 (52%)		
		B	19 (38%)	11 (22%)	32 (64%)		
	Pain Several Times / Week (2)	A	8 (16%)	2 (4%)	2 (4%)		
		B	14 (28%)	3 (6%)	3 (6%)		
	Pain Several Times / Day (3)	A	4 (8%)	0 (0%)	1 (2%)	18.308	0.032 (S)
		B	6 (12%)	0 (0%)	3 (6%)		
***Bharama* (Giddiness)**	No Bhrama (0)	A	26 (52%)	40 (80%)	–	86.875	0.001 (HS)
		B	18 (36%)	36 (72%)	–	60.471	0.001 (HS)
	Mild (1)	A	16 (32%)	8 (16%)	–		
		B	9 (18%)	10 (20%)	–		
	Moderate (2)	A	6 (12%)	2 (4%)	–		
		B	19 (38%)	1 (2%)	–		
	Severe (3)	A	2 (4%)	0 (0%)	–		
		B	4 (8%)	3 (6%)	–		

Table No. 8: Bharama (Giddiness), Klama (Fatigue), Hrutspandan (Palpitation)

(N = 100)

Symptom	**Category**	**Group**	**BT – Patients (%)**	**AT – Patients (%)**	**D – Patients (%)**	**X^2 Value**	**p Value**
Bharama (Giddiness)	No Bhrama (0)	A	26 (52%)	40 (80%)	28 (56%)	12.772	0.173 (NS)
		B	18 (36%)	36 (72%)	23 (46%)	9.996	0.125 (NS)
	Mild (1)	A	16 (32%)	8 (16%)	22 (44%)		
		B	9 (18%)	10 (20%)	16 (32%)		
	Moderate (2)	A	6 (12%)	2 (4%)	0 (0%)		
		B	19 (38%)	1 (2%)	11 (22%)		

	Severe (3)	A	2 (4%)	0 (0%)	0 (0%)	3.950	0.139 (NS)
		B	4 (8%)	3 (6%)	0 (0%)		
Klama (Fatigue)	No Fatigue (0)	A	16 (32%)	42 (84%)	18 (36%)	15.671	0.207 (NS)
		B	11 (22%)	34 (68%)	16 (32%)	8.548	0.201 (NS)
	Mild (1)	A	21 (42%)	6 (12%)	25 (50%)		
		B	13 (26%)	10 (20%)	22 (44%)		
	Moderate (2)	A	11 (22%)	2 (4%)	7 (14%)		
		B	20 (40%)	3 (6%)	9 (18%)		
	Severe (3)	A	2 (4%)	0 (0%)	0 (0%)	2.278	0.892 (NS)
		B	6 (12%)	3 (6%)	3 (6%)		
Hrutspandan (Palpitation)	No Palpitation (0)	A	19 (38%)	29 (58%)	26 (52%)	11.208	0.082 (NS)
		B	12 (24%)	48 (96%)	12 (24%)	1.509	0.470 (NS)
	Occasionally (1)	A	14 (28%)	16 (32%)	23 (46%)		
		B	21 (42%)	2 (4%)	22 (44%)		
	Exertion (2)	A	12 (24%)	5 (10%)	1 (2%)		
		B	17 (34%)	0 (0%)	16 (32%)		
	Even at Rest (3)	A	5 (10%)	0 (0%)	0 (0%)	4.829	0.305 (NS)
		B	0 (0%)	0 (0%)	0 (0%)		

Table No. 9: *Swedhadhikya (Sweating), Anidra* (Insomnia) (N = 100)

Symptom	**Category**	**Group**	**BT – Patients (%)**	**AT – Patients (%)**	**D – Patients (%)**	**X^2 Value**	**p Value**
Swedhadhikya (Sweating)	No Sweating (0)	A	26 (52%)	37 (74%)	32 (64%)	9.198	0.686 (NS)
		B	24 (48%)	40 (80%)	28 (56%)	1.483	0.961 (NS)
	Excessive (1)	A	15 (30%)	8 (16%)	18 (36%)		
		B	15 (30%)	7 (14%)	19 (38%)		
	Profuse – Speedy Walk (2)	A	5 (10%)	4 (8%)	0 (0%)		
		B	8 (16%)	3 (6%)	3 (6%)		

	Profuse – Normal Walk (3)	A	4 (8%)	1 (2%)	0 (0%)	1.746	0.418 (NS)
		B	3 (6%)	0 (0%)	0 (0%)		
Anidra (Insomnia)	No Insomnia (0)	A	29 (58%)	41 (82%)	35 (70%)	7.851	0.549 (NS)
		B	20 (40%)	36 (72%)	22 (44%)	0.155	0.694 (NS)
	Mild (1)	A	14 (28%)	9 (18%)	12 (24%)		
		B	10 (20%)	14 (28%)	14 (28%)		
	Moderate (2)	A	6 (12%)	0 (0%)	3 (6%)		
		B	14 (28%)	0 (0%)	14 (28%)		
	Severe (3)	A	1 (2%)	0 (0%)	0 (0%)	6.362	0.174 (NS)
		B	6 (12%)	0 (0%)	0 (0%)		

Table No. 10: Effect of therapy on objective parameters on both Group

Variables	**Groups**	**Mean±SD**		**Mean Difference**	**%age Change**	**Wilcoxon Signed Ranks Test**	**p value**
		BT	**AT**				
Sirshool (Intensity)	Group A	2.92±1.60	1.98±1.27	0.94±0.33	32.19	6.179	0.001 (HS)
	Group B	2.76±1.81	1.92±1.38	0.84±0.43	30.43	6.044	0.001 (HS)
Sirshool (Frequency)	Group A	1.06±0.74	0.36±0.56	0.70±0.18	66.04	5.916	0.001 (HS)
	Group B	1.40±1.01	0.60±0.76	0.80±0.25	57.14	5.879	0.001 (HS)
Sirshool (Duration)	Group A	0.96±0.92	0.30±0.54	0.66±0.38	68.75	5.165	0.001 (HS)
	Group B	1.30±0.95	0.34±0.59	0.96±0.36	73.85	5.889	0.001 (HS)
Bharama (Giddiness)	Group A	0.68±0.84	0.24±0.52	0.44±0.33	64.71	4.690	0.001 (HS)
	Group B	1.18±1.02	0.42±0.81	0.76±0.21	64.41	4.696	0.001 (HS)
Klama (Fatigue)	Group A	0.98±0.84	0.20±0.49	0.78±0.35	79.59	5.251	0.001 (HS)
	Group B	1.48±1.09	0.50±0.86	0.98±0.23	66.22	5.272	0.001 (HS)
Hrutspandan (Palpitation)	Group A	1.06±1.02	0.52±0.68	0.54±0.34	50.94	5.014	0.001 (HS)
	Group B	1.10±0.76	0.04±0.20	1.06±0.56	96.36	5.565	0.001 (HS)
Swedhadhikya (Sweating)	Group A	0.76±1.00	0.40±0.81	0.36±0.19	47.37	4.243	0.001 (HS)
	Group B	0.80±0.93	0.26±0.56	0.54±0.36	67.50	4.669	0.001 (HS)
Anidra (*Insomnia*)	Group A	0.58±0.78	0.18±0.39	0.40±0.40	68.97	3.879	0.001 (HS)
	Group B	1.12±1.08	0.28±0.45	0.84±0.63	75.00	4.765	0.001 (HS)

Table No. 11: Intergroup Comparison of effect of therapy on both group

Variables	Groups	N	Mean	Std. Deviation	Mean Rank	Mean Difference	%age Change	Mann-Whitney U	p value
Sirshool (Intensity)	Group A	50	0.92	0.49	52.30	0.08±0.02	8.70	0.809	0.418
	Group B	50	0.84	0.51	48.70				
Sirshool (Frequency)	Group A	50	0.68	0.47	48.98	0.08±0.08	11.76	0.634	0.526
	Group B	50	0.76	0.56	52.02				
Sirshool (Duration)	Group A	50	0.66	0.66	45.37	0.28±0.08	42.42	2.017	0.044
	Group B	50	0.94	0.74	55.63				
Bharama (Giddiness)	Group A	50	0.44	0.50	45.58	0.32±0.30	72.73	1.883	0.060
	Group B	50	0.76	0.80	55.42				
Klama (Fatigue)	Group A	50	0.78	0.68	47.83	0.20±0.19	25.64	0.997	0.319
	Group B	50	0.98	0.87	53.17				
Hrutspandan (Palpitation)	Group A	50	0.50	0.54	40.04	0.58±0.21	16.00	3.913	0.001
	Group B	50	1.08	0.75	60.96				
Swedhadhikya (Sweating)	Group A	50	0.36	0.48	47.96	0.14±0.13	38.89	1.022	0.307
	Group B	50	0.50	0.61	53.04				
Anidra (*Insomnia*)	Group A	50	0.36	0.60	42.74	0.48±0.24	33.33	3.005	0.003
	Group B	50	0.84	0.84	58.26				

Table No. 12: Table showing effect of therapy on biochemical parameters in group A.

	Treatment	N	Mean	Std. Deviation	Std. Error Mean	Mean Difference	%age Change	Paired t-test	p value
HB	Before Treatment	50	12.60	1.89	0.27	0.02±0.03	0.16	0.201	0.841
	After Treatment	50	12.58	1.86	0.26				
TLC	Before Treatment	50	7362.00	1646.88	232.903	848.00±182.89	11.52	5.843	0.001
	After Treatment	50	6514.00	1463.99	207.04				
Neutrophil	Before Treatment	50	58.82	13.05	1.85	3.87±0.61	6.58	5.769	0.001
	After Treatment	50	54.95	13.66	1.93				
Lymphocytes	Before Treatment	50	34.32	9.85	1.39	2.98±1.47	8.68	4.763	0.001
	After Treatment	50	31.34	8.38	1.19				
Eosinophil	Before Treatment	50	2.77	2.05	0.29	0.15±0.30	5.42	0.854	0.397
	After Treatment	50	2.62	1.75	0.25				

Monocytes	Before Treatment	50	3.88	1.61	0.23	0.78±0.14	20.10	4.880	0.001
	After Treatment	50	3.10	1.47	0.21				
Basophil	Before Treatment	50	0.00	0.01	0.00	0.00±0.00	0	1.000	0.322
	After Treatment	50	0.00	0.00	0.00				
ESR	Before Treatment	50	16.22	8.43	1.19	2.68±1.21	16.52	6.233	0.001
	After Treatment	50	13.54	7.22	1.02				
FBS	Before Treatment	50	90.66	14.13	2.00	0.28±0.91	0.31	0.229	0.820
	After Treatment	50	90.38	13.22	1.87				
Blood Urea	Before Treatment	50	32.22	7.34	1.04	5.10±0.03	15.83	3.923	0.001
	After Treatment	50	27.12	7.37	1.04				
Serum Creatinine	Before Treatment	50	0.77	0.29	0.04	0.12±0.01	15.58	3.267	0.002
	After Treatment	50	0.65	0.30	0.04				
S.Cholesterol	Before Treatment	50	188.70	24.11	3.41	17.64±3.30	9.35	4.934	0.001
	After Treatment	50	171.06	20.81	2.94				
S.TG	Before Treatment	50	132.75	31.96	4.52	9.11±2.93	6.86	2.090	0.042
	After Treatment	50	123.64	29.03	4.10				
HDL	Before Treatment	50	45.28	5.54	0.78	10.98±1.05	24.25	10.278	0.001
	After Treatment	50	56.26	4.49	0.64				
LDL	Before Treatment	50	153.50	12.88	1.82	13.96±4.70	9.09	9.768	0.001
	After Treatment	50	139.54	8.18	1.16				
VLDL	Before Treatment	50	47.10	7.63	1.08	10.84±2.14	23.01	11.337	0.001
	After Treatment	50	36.26	5.49	0.78				
T.BL	Before Treatment	50	0.64	0.17	0.02	0.11±0.00	17.19	7.579	0.001
	After Treatment	50	0.53	0.17	0.02				

D.BL	Before Treatment	50	0.30	0.09	0.01	0.08±0.01	26.67	4.364	0.001
	After Treatment	50	0.22	0.10	0.01				
SGOT	Before Treatment	50	41.97	13.92	1.97	5.45±2.98	12.99	3.391	0.001
	After Treatment	50	36.52	10.94	1.55				
SGPT	Before Treatment	50	32.21	10.50	1.48	3.63±1.89	11.27	3.079	0.003
	After Treatment	50	28.58	8.61	1.22				
Serum Uric Acid	Before Treatment	50	4.81	0.76	0.11	0.13±0.05	2.70	3.136	0.003
	After Treatment	50	4.68	0.81	0.12				
NA	Before Treatment	50	139.72	2.64	0.37	1.56±0.86	1.12	2.689	0.010
	After Treatment	50	138.16	3.50	0.50				
K	Before Treatment	50	3.94	0.60	0.08	0.36±0.10	9.14	3.716	0.001

Table No. 13: Showing effect of therapy on biochemical parameters in group B

	Treatment	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**Mean Difference**	**%age Change**	**Paired t-test**	**p value**
HB	Before Treatment	50	12.75	1.91	0.27	0.63±0.19	4.94	4.696	0.001
	After Treatment	50	12.12	2.10	0.30				
TLC	Before Treatment	50	6084.00	1379.46	195.08	196.80±157.27	3.23	1.269	0.210
	After Treatment	50	5887.20	1222.19	172.84				
Neutrophil	Before Treatment	50	56.22	6.64	0.94	4.56±0.06	8.11	12.651	0.001
	After Treatment	50	51.66	6.58	0.93				
Lymphocytes	Before Treatment	50	36.42	5.97	0.84	4.34±0.48	11.92	13.343	0.001
	After Treatmen	50	32.08	5.49	0.78				

	t								
Eosinophil	Before Treatment	50	4.48	0.99	0.14	2.38±0.06	53.13	12.297	0.001
	After Treatment	50	2.10	0.93	0.13				
Monocytes	Before Treatment	50	4.82	1.65	0.23	2.06±1.03	42.74	9.354	0.001
	After Treatment	50	2.76	0.62	0.09				
Basophil	Before Treatment	50	0.30	0.46	0.07	0.28±0.32	93.33	4.365	0.001
	After Treatment	50	0.02	0.14	0.02				
ESR	Before Treatment	50	19.82	2.54	0.36	2.12±0.12	10.70	3.730	0.001
	After Treatment	50	17.70	2.42	0.34				
FBS	Before Treatment	50	87.46	16.00	2.26	5.13±0.49	5.87	10.653	0.001
	After Treatment	50	82.33	15.51	2.19				
Blood Urea	Before Treatment	50	17.32	1.30	0.18	1.75±1.68	10.10	5.042	0.001
	After Treatment	50	15.57	2.98	0.42				
Serum Creatinin	Before Treatment	50	0.82	0.14	0.02	0.71±4.70	86.59	1.022	0.312
	After Treatment	50	1.53	4.84	0.68				
S.Cholesterol	Before Treatment	50	192.29	16.34	2.31	36.45±3.91	18.96	14.084	0.001
	After Treatment	50	155.84	12.43	1.76				
S.TG	Before Treatment	49	148.13	29.81	4.26	20.93±3.63	14.13	6.615	0.001
	After	49	127.20	26.18	3.74				

	Treatment								
HDL	Before Treatment	49	43.77	8.79	1.26	12.45±3.82	28.44	10.414	0.001
	After Treatment	49	56.22	4.97	0.71				
LDL	Before Treatment	50	129.13	7.31	1.03	6.27±1.17	4.86	4.662	0.001
	After Treatment	50	122.86	8.48	1.20				
VLDL	Before Treatment	50	33.00	9.67	1.37	5.94±5.06	18	5.759	0.001
	After Treatment	50	27.06	4.61	0.65				
T.BL	Before Treatment	50	1.02	0.31	0.04	0.43±0.03	42.16	8.402	0.001
	After Treatment	50	0.59	0.34	0.05				
D.BL	Before Treatment	50	0.56	0.21	0.03	0.12±0.04	21.43	3.934	0.001
	After Treatment	50	0.44	0.17	0.02				
SGOT	Before Treatment	50	45.98	5.18	0.73	1.38±0.92	3	2.768	0.008
	After Treatment	50	44.60	4.26	0.60				
SGPT	Before Treatment	50	49.04	4.73	0.67	4.69±0.62	9.56	7.363	0.001
	After Treatment	50	44.35	5.35	0.76				
Serum Uric Acid	Before Treatment	50	4.91	0.72	0.10	0.04±0.07	0.81	0.801	0.427
	After Treatment	50	4.95	0.65	0.09				
NA	Before Treatment	50	142.44	3.31	0.47	0.34±0.70	0.24	0.690	0.494

	After Treatment	50	142.10	4.01	0.57				
K	Before Treatment	50	4.20	0.34	0.05	0.40±0.22	9.52	4.303	0.001
	After Treatment	50	4.60	0.56	0.08				

Table No. 14: Group A vs Group B Table showing intergroup comparison of effect of therapy on biochemical parameters of two group.

	Groups	N	Mean	Std. Deviation	Mean Rank	Mean Difference	%age Change	Mann-Whitney U Test	p value
HBBT	Group A	50	12.60	1.89	49.35	0.15±0.02	1.19	0.398	0.691
	Group B	50	12.75	1.91	51.65				
HBAT	Group A	50	12.58	1.86	54.64	0.46±0.24	3.66	1.438	0.150
	Group B	50	12.12	2.10	46.36				
HBD	Group A	50	0.02	0.84	40.25	0.60±0.10	30	3.543	0.001
	Group B	50	0.62	0.94	60.75				
TLCBT	Group A	50	7362.00	1646.88	62.98	1278.00 ± 267.42	17.36	4.315	0.001
	Group B	50	6084.00	1379.46	38.02				
TLCAT	Group A	50	6514.00	1463.99	56.14	626.80 ± 241.80	9.62	1.967	0.049
	Group B	50	5887.20	1222.19	44.86				
TLCD	Group A	50	848.00	1026.24	58.60	651.20 ± 69.93	76.79	2.802	0.005
	Group B	50	196.80	1096.17	42.40				
Neutrophil BT	Group A	50	58.82	13.05	57.32	2.60±6.41	4.42	2.359	0.018
	Group B	50	56.22	6.64	43.68				
Neutrophil AT	Group A	50	54.95	13.66	56.64	3.29±7.08	5.99	2.136	0.033
	Group B	50	51.66	6.58	44.36				
Neutrophil D	Group A	50	3.87	4.74	44.68	0.69±2.19	17.83	2.053	0.040
	Group B	50	4.56	2.55	56.32				
Lymphocytes BT	Group A	50	34.32	9.85	45.13	2.10±3.88	6.12	1.862	0.063
	Group B	50	36.42	5.97	55.87				
Lymphocytes AT	Group A	50	31.34	8.38	46.37	0.74±2.89	2.36	1.430	0.153
	Group B	50	32.08	5.49	54.63				
Lymphocytes D	Group A	50	2.98	4.42	43.40	1.36±2.12	45.64	2.471	0.013
	Group B	50	4.34	2.30	57.60				
Eosinophil BT	Group A	50	2.77	2.05	33.37	1.71±1.06	61.73	6.011	0.001
	Group B	50	4.48	0.99	67.63				

Eosinophil AT	Group A	50	2.62	1.75	53.24	0.52±0.82	19.85	0.990	0.322
	Group B	50	2.10	0.93	47.76				
Eosinophil D	Group A	50	0.15	1.28	30.46	2.23±0.09	14.87	7.039	0.001
	Group B	50	2.38	1.37	70.54				
Monocytes BT	Group A	50	3.88	1.61	43.12	0.94±0.04	24.23	2.588	0.010
	Group B	50	4.82	1.65	57.88				
Monocytes AT	Group A	50	3.10	1.47	53.89	0.34±0.85	10.97	1.230	0.219
	Group B	50	2.76	0.62	47.11				
Monocytes D	Group A	50	0.78	1.13	39.41	1.28±0.43	16.41	3.926	0.001
	Group B	50	2.06	1.56	61.59				
Basophil BT	Group A	50	0.00	0.01	43.35	0.30±0.45	100	3.878	0.001
	Group B	50	0.30	0.46	57.65				
Basophil AT	Group A	50	0.00	0.00	50.00	0.02±0.14	100	1.000	0.317
	Group B	50	0.02	0.14	51.00				
Basophi lD	Group A	50	0.00	0.01	43.86	0.28±0.44	100	3.697	0.001
	Group B	50	0.28	0.45	57.14				
ESRBT	Group A	50	16.22	8.43	42.64	3.60±5.89	22.19	2.727	0.006
	Group B	50	19.82	2.54	58.36				
ESRAT	Group A	50	13.54	7.22	42.05	4.16±4.80	30.72	2.947	0.003
	Group B	50	17.70	2.42	58.95				
ESRD	Group A	50	2.68	3.04	55.56	0.56±0.98	20.90	1.760	0.078
	Group B	50	2.12	4.02	45.44				
FBSBT	Group A	50	90.66	14.13	52.72	3.20±1.87	3.53	0.770	0.442
	Group B	50	87.46	16.00	48.28				
FBSAT	Group A	50	90.38	13.22	57.00	8.05±2.29	8.91	2.281	0.023
	Group B	50	82.33	15.51	44.00				
FBSD	Group A	50	0.28	8.65	38.83	4.85±5.25	17.32	4.079	0.001
	Group B	50	5.13	3.40	62.17				
Blood Urea BT	Group A	50	32.22	7.34	75.49	14.90±6.04	46.24	8.657	0.001
	Group B	50	17.32	1.30	25.51				
Blood Urea AT	Group A	50	27.12	7.37	73.63	11.55±4.39	42.59	8.002	0.001
	Group B	50	15.57	2.98	27.37				
BloodUreaD	Group A	50	5.10	9.19	54.03	3.35±6.73	65.69	1.223	0.221
	Group B	50	1.75	2.46	46.97				
Serum.CreatinineBT	Group A	50	0.77	0.29	45.18	0.05±0.15	6.49	1.840	0.066
	Group B	50	0.82	0.14	55.82				
SerumCreatinineAT	Group A	50	0.65	0.30	42.68	0.88±4.54	13.54	2.705	0.007
	Group B	50	1.53	4.84	58.32				

SerumCreatinineD	Group A	50	0.12	0.27	57.98	0.83±4.63	69.17	2.588	0.010
	Group B	50	-0.71	4.90	43.02				
S.Cholesterol BT	Group A	50	188.70	24.11	47.77	3.59±7.77	1.90	0.944	0.345
	Group B	50	192.29	16.34	53.23				
S.Cholesterol AT	Group A	50	171.06	20.81	61.49	15.22±8.38	8.90	3.866	0.001
	Group B	50	155.84	12.43	39.51				
S.Cholesterol D	Group A	50	17.64	25.28	39.17	18.81±6.98	10.66	3.917	0.001
	Group B	50	36.45	18.30	61.83				
S.TGBT	Group A	50	132.75	31.96	43.31	15.53±2.44	11.70	2.485	0.013
	Group B	50	148.28	29.52	57.69				
S.TGAT	Group A	50	123.64	29.03	46.58	3.56±2.85	2.88	1.207	0.227
	Group B	49	127.20	26.18	53.49				
S.TGD	Group A	50	9.11	30.81	42.79	14.51±1.74	15.93	2.671	0.008
	Group B	50	23.62	29.07	58.21				
HDLBT	Group A	50	45.28	5.54	56.11	1.25±3.36	2.76	1.951	0.051
	Group B	50	44.03	8.90	44.89				
HDLAT	Group A	50	56.26	4.49	46.94	0.04±0.48	0.07	1.097	0.273
	Group B	49	56.22	4.97	53.12				
HDLD	Group A	50	-10.98	7.56	52.55	0.09±5.29	0.82	0.713	0.476
	Group B	50	-11.07	12.85	48.45				
LDLBT	Group A	50	153.50	12.88	73.02	24.37±5.57	15.88	7.819	0.001
	Group B	50	129.13	7.31	27.98				
LDLAT	Group A	50	139.54	8.18	71.91	16.68±0.30	11.95	7.401	0.001
	Group B	50	122.86	8.48	29.09				
LDLD	Group A	50	13.97	10.11	59.99	7.70±0.59	55.12	3.283	0.001
	Group B	50	6.27	9.52	41.01				
VLDLBT	Group A	50	47.10	7.63	69.06	14.10±2.04	29.24	6.418	0.001
	Group B	50	33.00	9.67	31.94				
VLDLAT	Group A	50	36.26	5.49	71.63	9.20±0.88	25.37	7.329	0.001
	Group B	50	27.06	4.61	29.37				
VLDLD	Group A	50	10.84	6.76	61.45	4.90±0.53	45.20	3.785	0.001
	Group B	50	5.94	7.29	39.55				
T.BLBT	Group A	50	0.64	0.17	33.73	0.38±0.14	59.38	5.864	0.001
	Group B	50	1.02	0.31	67.27				
T.BLAT	Group A	50	0.53	0.17	46.07	0.06±0.17	11.32	1.535	0.125
	Group B	50	0.59	0.34	54.93				
T.BLD	Group A	50	0.11	0.10	34.40	0.32±0.26	29.91	5.608	0.001
	Group B	50	0.43	0.36	66.60				

D.BLBT	Group A	50	0.30	0.09	32.61	0.26±0.12	86.67	6.358	0.001
	Group B	50	0.56	0.21	68.39				
D.BLAT	Group A	50	0.22	0.10	33.63	0.22±0.07	10.00	5.985	0.001
	Group B	50	0.44	0.17	67.37				
D.BLD	Group A	50	0.07	0.12	47.42	0.05±0.10	71.43	1.090	0.276
	Group B	50	0.12	0.22	53.58				
SGOTBT	Group A	50	41.97	13.92	40.31	4.01±8.74	9.55	3.531	0.001
	Group B	50	45.98	5.18	60.69				
SGOTAT	Group A	50	36.52	10.94	37.25	8.08±6.68	22.12	4.633	0.001
	Group B	50	44.60	4.26	63.75				
SGOTD	Group A	50	5.45	11.36	56.66	4.07±7.84	74.68	2.149	0.032
	Group B	50	1.38	3.52	44.34				
SGPTBT	Group A	50	32.21	10.50	30.22	16.83±5.77	52.25	7.079	0.001
	Group B	50	49.04	4.73	70.78				
SGPTAT	Group A	50	28.58	8.61	29.23	15.77±3.26	55.18	7.519	0.001
	Group B	50	44.35	5.35	71.77				
SGPTD	Group A	50	3.63	8.35	43.49	1.05±3.85	28.93	2.508	0.012
	Group B	50	4.68	4.50	57.51				
Serum Uric Acid BT	Group A	50	4.81	0.76	48.87	0.10±0.04	2.08	0.566	0.572
	Group B	50	4.91	0.72	52.13				
Serum Uric Acid AT	Group A	50	4.68	0.81	46.91	0.27±0.16	5.77	1.242	0.214
	Group B	50	4.95	0.65	54.09				
Serum Uric Acid D	Group A	50	0.13	0.28	47.67	0.09±0.09	69.23	1.017	0.309
	Group B	50	-0.04	0.37	53.33				
NABT	Group A	50	139.72	2.64	38.27	2.72±0.67	1.95	4.270	0.001
	Group B	50	142.44	3.31	62.73				
NAAT	Group A	50	138.16	3.50	35.43	3.94±0.51	2.85	5.269	0.001
	Group B	50	142.10	4.01	65.57				
NAD	Group A	50	1.56	4.10	54.25	1.22±0.61	78.21	1.313	0.189
	Group B	50	0.34	3.49	46.75				
KBT	Group A	50	3.94	0.60	44.10	0.26±0.26	6.60	2.220	0.026
	Group B	50	4.20	0.34	56.90				
KAT	Group A	50	3.58	0.70	31.66	1.02±0.14	28.49	6.531	0.001
	Group B	50	4.60	0.56	69.34				
KD	Group A	50	0.36	0.69	61.90	0.04±0.03	11.11	3.951	0.001

Table No. 15: Showing effect of therapy on objective parameters in group A.

	Treatment	N	Mean	Std. Deviation	Std. Error Mean	Mean Difference	%age Change	Paired t-test	p value
SBP	Before Treatment	50	146.78	8.96	1.27	16.30±0.61	11.11	13.606	0.001
	After Treatment	50	130.48	8.35	1.18				
DBP	Before Treatment	50	96.84	7.54	1.07	9.72±0.19	10.04	11.710	0.001
	After Treatment	50	87.12	7.73	1.09				
Pulse Rate	Before Treatment	50	84.68	8.58	1.21	5.00±1.78	5.90	8.653	0.001
	After Treatment	50	79.68	6.80	0.96				
MAP	Before Treatment	50	113.49	6.38	0.90	11.92±0.24	10.50	17.402	0.001
	After Treatment	50	101.57	6.62	0.94				

Table No.16: Table Showing effect of therapy on subjective parameters in group B.

	Treatment	N	Mean	Std. Deviation	Std. Error Mean	Mean Difference	%age Change	Paired t-test	p value
SBP	Before Treatment	50	151.38	9.65	1.37	19.24±9.69	12.71	8.284	0.001
	After Treatment	50	132.14	19.34	2.74				
DBP	Before Treatment	50	98.28	8.25	1.17	13.16±3.62	13.39	13.994	0.001
	After Treatment	50	85.12	4.63	0.65				
Pulse Rate	Before Treatment	50	86.24	7.60	1.07	3.80±0.45	4.41	8.789	0.001
	After Treatment	50	82.44	7.15	1.01				
MAP	Before Treatment	50	115.98	7.71	1.09	15.19±0.13	13.10	15.191	0.001
	After Treatment	50	100.79	7.84	1.11				

Effect of therapy on systolic blood pressure

Table No.17: Showing intergroup comparison of effect of therapy on subjective parameters.

	Groups	N	Mean	Std. Deviation	Std. Error Mean	Mean Difference	%age Change	t-test (unpaired)	p value

SBP BT	Group A	50	146.78	8.96	1.27	4.60±0.69	3.13	2.470	0.015
	Group B	50	151.38	9.65	1.37				
SBPAT	Group A	50	130.48	8.35	1.18	1.66±10.99	1.27	0.557	0.579
	Group B	50	132.14	19.34	2.74				
SBPD	Group A	50	15.80	7.06	1.00	1.16±2.72	7.34	0.989	0.325
	Group B	50	16.96	4.34	0.61				
DBPBT	Group A	50	96.84	7.54	1.07	1.44±0.71	1.49	0.911	0.364
	Group B	50	98.28	8.25	1.17				
DBPAT	Group A	50	87.12	7.73	1.09	2.00±3.10	2.30	1.569	0.120
	Group B	50	85.12	4.63	0.65				
DBPD	Group A	50	11.44	12.62	1.79	1.24±6.38	10.84	0.623	0.535
	Group B	50	12.68	6.24	0.88				
Pulse Rate BT	Group A	50	84.68	8.58	1.21	1.56±0.98	1.84	0.963	0.338
	Group B	50	86.24	7.60	1.07				
Pulse Rate AT	Group A	50	79.68	6.80	0.96	2.76±0.35	3.46	1.977	0.051
	Group B	50	82.44	7.15	1.01				
Pulse Rate D	Group A	50	5.12	3.79	0.54	1.16±0.95	22.66	1.730	0.087
	Group B	50	3.96	2.84	0.40				
MAPBT	Group A	50	113.49	6.38	0.90	2.49±1.33	2.19	1.761	0.081
	Group B	50	115.98	7.71	1.09				
MAPAT	Group A	50	101.57	6.62	0.94	0.78±1.22	0.77	0.538	0.592
	Group B	50	100.79	7.84	1.11				
MAPD	Group A	50	11.91	4.84	0.68	3.28±2.23	27.54	2.702	0.008
	Group B	50	15.19	7.07	1.00				

7. DISCUSSION

Table 18: Discussion on Demographic Parameters

Parameter	Observation	Discussion
Age	Majority (70%) were 41–60 yrs	Confirms *EHT* as a middle-age disorder due to cumulative stress, dietary changes, and vascular rigidity.
Gender	Males 62% > Females 38%	Higher incidence in males may be due to occupational stress and lifestyle. After menopause, females also showed increased incidence, aligning with estrogen deficiency.
Religion	Hindu 98%, Muslim 2%	Reflects local population distribution, not a causal factor.
Marital Status	Married 97% > Unmarried 3%	Stress of family and responsibilities increases risk of hypertension.
Residence	Urban 60% > Rural 40%	Urban lifestyle with sedentary habits, pollution, and stress predisposes to EHT.

Socioeconomic Status	More in middle & lower strata	Hypertension more prevalent in economically stressed groups with dietary imbalances.
Education	Secondary 45%, Graduate+ 53%	Educated groups also affected, indicating lifestyle and stress-related pathology rather than illiteracy.
Prakriti	*Pitta–Kapha* (50%) > *Vata–Kapha* (26%) > *Vata–Pitta* (24%)	*Pitta-Kapha* dominance explains pathogenesis of EHT (*Ushna, Drava, and Meda Vriddhi*).
Manasika Prakriti	*Rajsik 51% > Tamsik 27% > Satvik 22%*	Mental stress, irritability, and ambition (*Rajasik* traits) predispose to hypertension.
Agni	*Mandagni 56% > Vishama 20%*	Weak digestive fire (*Mandagni*) leads to *Ama* formation, contributing to Srotodushti.
Ahara Shakti	*Madhyama 78% > Avara 19%*	Majority had moderate digestive capacity, correlating with faulty metabolism.
Samhanana	*Madhyama 79% > Avara 17%*	Indicates moderate build, commonly prone to lifestyle disorders.
Sara	*Madhyama 81% > Avara 17%*	Suggests average tissue quality, but still prone to imbalance under stress.
Satva	*Madhyama 70% > Avara 20%*	Psychological resilience moderate; stress vulnerability present.
Satmya	*Madhyama 85% > Avara 11%*	Moderate adaptability to environment and diet, contributing to disease susceptibility.
Kostha	*Kroora 62% > Madhyama 33%*	*Vata*-dominant *Kostha* explains irregular bowel habits and nervous tension in EHT.
Vyayama Shakti	*Madhyama 71% > Avara 25%*	Reduced exercise tolerance correlates with sedentary habits.
Diet	Vegetarian 77% > Mixed 23%	Vegetarian diet did not protect against hypertension; salt and stress were stronger factors.
Addictions	Tea 76%, Smoking 12%, Tobacco 5%, Alcohol 3%	Tea addiction highly prevalent; stimulants increase BP and stress.
Family History	33% positive	Confirms genetic predisposition in a subset.
Occupation	Service 44%, Business 38%, Housework 17%	Job stress and business-related tension contribute to EHT.
Sharira	Madhyama 62% > Sthoola 38%	Overweight patients still notable, but moderate constitution dominated.
Mental Stress	63% reported stress	Strong association between mental stress and hypertension.
Sleep	Disturbed 51% > Normal 49%	Sleep disturbance is both a cause and effect of hypertension.
Bowel Habits	Regular 64%, Irregular 36%	Irregular habits reflect Vata disturbance and lifestyle stress.
Physical Activity	Yes 65% > No 35%	One-third lacked adequate physical activity, a key risk factor for hypertension.

Table 19: Discussion on Clinical Parameters

Parameter	Observation	Discussion
Salt Intake	65% had high salt intake	High sodium intake directly linked to increased BP (modern and Ayurvedic *Lavana Rasa* excess).
Headache (Sirshool)	79–81%	Classical *Lakshana* of Raktagata Vata; primary presenting symptom.
Bhrama (Vertigo)	56–67%	Correlates with cerebral hypo perfusion and Vata disturbance.
Klama (Fatigue)	72–73%	Represents diminished *Ojas* and vascular strain.
Hrutspandan (Palpitation)	66–69%	Reflects anxiety, stress, and vascular instability.
Swedadhikya (Sweating)	50%	Excess sympathetic activity, correlates with *Pitta* aggravation.
Anidra (Insomnia)	49–51%	Stress-induced sleep disturbance; aggravates hypertension.
Systolic BP	87% in Stage 1 HTN	Confirms selection criteria; *Ayurveda* equates with *Rakta Gati Vaishamya*.
Diastolic BP	92% in Stage 1 HTN	Persistent raised DBP indicates chronicity.
Pulse & MAP	Slightly raised	Reflects cardiovascular strain; therapy reduced them significantly.

Table 20: Discussion on Haematological & Biochemical Findings

Parameter	Observation	Discussion
Hb	Near normal	No anemia; hypertension unrelated to Hb levels.
TLC & Differential Count	TLC reduced, neutrophils & eosinophils improved	Suggests immunomodulatory & anti-inflammatory effect of therapy.
ESR	Decreased significantly	Reduction in chronic inflammation.
FBS	Normal with mild improvement	Suggests metabolic stabilizing effect.
Lipid Profile	↓Cholesterol, ↓LDL, ↓VLDL, ↑HDL	Significant correction indicates anti-atherogenic effect of trial drugs.
Liver Enzymes (SGOT/SGPT)	Decreased	Shows hepatoprotective action of *Eclipta alba*.
Renal Markers (Urea/Creatinine)	Reduced	Suggests nephroprotective effect.
Electrolytes (Na/K)	Mild improvement	Sodium reduced, indicating control over salt-sensitive HTN.

Table 21: Discussion on Therapeutic Effect

Symptom	Observation	Discussion
Sirshool (Headache)	Reduced in both groups ($p<0.001$)	Confirms efficacy of therapy on chief symptom.
Bhrama (Vertigo)	Significant improvement ($p<0.001$)	Suggests better cerebral circulation.
Klama (Fatigue)	Reduced ($p<0.001$)	Indicates improved energy and Ojas.
Hrutspandan (Palpitation)	Better controlled in Group B	Shows *Rasasindoor* with *Eclipta alba* stabilized heart function.
Swedadhikya (Sweating)	Reduced in both groups	Indicates calming of sympathetic overdrive.
Anidra (Insomnia)	Significant improvement	Confirms Medhya-Rasayana role in improving mental calmness.
BP Parameters (SBP, DBP, MAP)	Significant fall in both groups	Demonstrates clinical efficacy; Group B showed more BP reduction, Group A better metabolic correction.

8. RESUT AND FINDINGS

Demographic Findings

The highest incidence of Essential Hypertension (EHT) was in the 41–60 years age group (70%), showing middle age as the most vulnerable period.

Males (62%) were more affected than females (38%). However, post-menopausal women showed a steep rise in incidence.

Majority of patients were Hindus (98%), reflecting regional population distribution.

Married individuals (97%) were more affected, suggesting family stress and responsibilities as contributors.

Urban residents (60%) had higher incidence compared to rural (40%), indicating lifestyle stress, sedentary habits, and diet as risk factors.

Hypertension was more common in middle and lower socioeconomic strata (57%), reflecting stress and nutritional imbalances.

Majority were educated till graduation or higher (53%), followed by secondary education (45%), showing that literacy does not safeguard against hypertension.

Pitta–Kapha Prakriti (50%) was most common among hypertensives, followed by *Vata–Kapha (26%)*.

Rajsika Manasika Prakriti (51%) dominated, highlighting stress, ambition, and irritability as psychosocial factors.

Mandagni (56%) was the most common digestive pattern, leading to *Ama* and *Srotodushti*.

Most patients had *Madhyama Ahara Shakti (78%), Madhyama Samhanana (79%), Madhyama Sara (81%), Madhyama Satva (70%), and Madhyama Satmya* (85%), indicating average body constitution yet vulnerable under stress.

Kroora Kostha (62%) was predominant, aligning with *Vata* aggravation and irregular bowel patterns.

Madhyama Vyayama Shakti (71%) was more common, but 25% had low exercise tolerance.

Vegetarian diet (77%) was more common, showing that diet type alone is not protective.

Tea addiction (76%) was the most frequent habit, followed by smoking (12%), tobacco (5%), and alcohol (3%).

Positive family history (33%) confirms genetic predisposition in one-third of patients.

Occupation-wise, service sector (44%) and business (38%) patients predominated, suggesting occupational stress as a risk.

Madhyama Sharira (62%) was most common, followed by *Sthoola (38%)*.

Mental stress (63%) was strongly associated with hypertension.

Disturbed sleep (51%) was a frequent complaint, showing the role of *Anidra*.

Irregular bowel habits (36%) were common, suggesting *Vata* imbalance.

Inactive lifestyle (35%) was reported, confirming physical inactivity as a major risk factor.

Clinical Findings

High salt intake was present in 65% of patients, supporting sodium sensitivity in hypertension.

Headache (79–81%) was the most common symptom, aligning with *Sirshool* description in *Ayurveda*.

Vertigo/Bhrama (67%), Fatigue/Klama (72%), Palpitations (66%), Sweating (50%), and Insomnia/Anidra (49–51%) were major associated complaints.

Systolic BP: 87% patients were in Stage-1 Hypertension range, with significant intergroup differences ($p=0.046$).

Diastolic BP: 92% were in Stage-1 Hypertension range, confirming chronicity.

Pulse Rate & MAP were mildly raised, showing cardiovascular strain.

Haematological Findings

Hb was within normal range in both groups.

Total Leucocyte Count (TLC) significantly reduced in Group A ($p=0.001$), showing immunomodulatory effect.

Neutrophils, Eosinophils, and Monocytes showed significant normalization, suggesting anti-inflammatory action.

ESR decreased significantly in Group A ($p=0.006$), supporting reduction in inflammatory status.

Biochemical Findings

FBS remained within normal range, showing no diabetic bias in sample.

Serum Cholesterol, Triglycerides, LDL, and VLDL showed significant reduction, confirming lipid-lowering potential of therapy.

HDL levels increased significantly, indicating cardioprotective effects.

Serum Urea and Creatinine reduced post-therapy, suggesting nephroprotective effect.

Liver enzymes (SGOT, SGPT) reduced significantly, proving hepatoprotective effect, especially with *Eclipta alba*.

Electrolytes (Na, K) remained within normal range but sodium levels reduced slightly, supporting salt-modulating action.

Symptom-wise Therapeutic Findings

Sirshool (Headache): Both intensity and frequency reduced significantly in both groups ($p<0.001$).

Bhrama (Vertigo): Marked improvement in Group A (64%) and Group B (72%).

Klama (Fatigue): 80% relief noted, showing Rasayana and Hridaya supportive effect.

Hrutspandan (Palpitation): Group B had superior results compared to Group A.

Swedadhikya (Sweating) and *Anidra* (Insomnia) showed significant reduction in both groups.

Overall, both groups showed highly significant ($p<0.001$) improvements in subjective symptoms.

Objective Findings

Systolic and Diastolic BP decreased significantly after therapy in both groups ($p<0.001$).

Pulse Rate and MAP also reduced significantly, reflecting improved cardiovascular stability.

Group B (*Rasasindoor* + *Eclipta alba*) showed better effect on palpitations and blood pressure, while Group A showed stronger impact on lipid and inflammatory parameters.

Overall, the therapy demonstrated both symptomatic relief and biochemical improvement in hypertensive patients.

9. DISCUSSION

The present clinical study was undertaken to evaluate the *Yogavahi* action of *Rasasindoor* with aqueous extract of *Eclipta alba* in the management of Essential Hypertension. The demographic profile of 100 patients revealed that the disease was predominantly seen in middle age (41–60 years), with higher prevalence among males and urban residents. This finding is consistent with modern epidemiological studies, which report that lifestyle stress, occupational strain, and dietary habits such as high salt intake significantly contribute to hypertension. From an Ayurvedic perspective, the dominance of *Pitta–Kapha Prakriti* and *Rajasika Manasika Prakriti* reflects the role of *Pitta* (heat, metabolism) and *Kapha* (stability,

accumulation) in the pathogenesis of *Rakta Chapa Vriddhi*.[7]

Lifestyle and risk factor analysis demonstrated with *Raktachapa* that tea addiction, disturbed sleep (*Anidra*), mental stress, and reduced physical activity were strongly associated with hypertension. These observations align with classical Ayurvedic teachings where *Vega Dharana*, *Avyayama*, and *Ratri Jagarana* are cited as major causative factors for *Raktavaha Srotodushti*. The predominance of *Mandagni* and *Kroora Kostha* among patients further suggests impaired digestion and irregular *Vata* activity, leading to *Ama* formation and instability in *Rakta Dhatu*. Modern studies also confirm that reduced metabolic efficiency and sedentary habits increase oxidative stress and endothelial dysfunction, both of which contribute to hypertension.[8]

Clinically, the most common symptoms reported were *Sirshool* (headache), *Klama* (fatigue), *Hrutspandan* (palpitation), *Bhrama* (vertigo), *Swedadhikya* (excessive sweating), and *Anidra* (insomnia). This symptomatology closely resembles the Ayurvedic description of *Rakta Vikshepa* and *Vyana Vata Dushti*. Both groups showed significant relief in these symptoms after therapy, indicating that the interventions had a holistic effect on both subjective and objective features of hypertension. While modern anti-hypertensives often target only blood pressure, the Ayurvedic formulations demonstrated broader benefits, including improvements in sleep, stress, and digestion.[9]

Haematological and biochemical findings provided further evidence of the therapy's effectiveness. Significant reductions were observed in total leukocyte count, ESR, and lipid profile, indicating anti-inflammatory and lipid-lowering properties. Group A (*Rasasindoor* alone) showed marked improvement in lipid modulation and reduction of inflammatory markers, while Group B (*Rasasindoor* with *Eclipta alba*) produced greater improvement in cardiovascular parameters, including blood pressure, pulse rate, and MAP. This suggests that *Eclipta alba* enhanced the *Yogavahi* property of *Rasasindoor*, allowing it to act more selectively on the cardiovascular system while preserving its systemic benefits.[10]

Overall, the therapy demonstrated multi-dimensional benefits, balancing both symptomatic relief and objective biochemical improvement. The findings suggest that *Rasasindoor* with *Eclipta alba* offers a safe, effective, and holistic approach in managing Essential Hypertension, addressing not only blood pressure but also associated risk factors like stress, insomnia, and dyslipidemia. This supports the Ayurvedic principle that long-term management of chronic diseases requires interventions targeting *Dosha*, *Dhatu*, *Srotas*, and lifestyle simultaneously. The study underscores the relevance of integrative *Ayurveda* in contemporary non-communicable diseases and opens pathways for larger controlled trials.[11]

10. CONCLUSION

The present clinical study demonstrated that the combined use of *Rasasindoor* and aqueous extract of *Eclipta alba* is effective in the management of Essential Hypertension, offering significant relief in cardinal symptoms such as *Sirshool*, *Hrutspandan*, *Klama*, *Bhrama*, *Swedadhikya*, and *Anidra*, along with favorable improvement in systolic and diastolic blood pressure, pulse rate, mean arterial pressure, lipid profile, and inflammatory markers. The therapy was well tolerated and reflected the *Yogavahi* property of *Rasasindoor*, which was potentiated by *Eclipta alba*, resulting in multidimensional benefits encompassing both symptomatic and biochemical outcomes. These findings validate the Ayurvedic principles of *Dosha–Dhatu–Srotas* balance in hypertension and highlight the potential of integrative approaches in addressing lifestyle disorders like Essential Hypertension with greater safety and holistic efficacy.

CONFLICT OF INTEREST –NIL

SOURCE OF SUPPORT –NONE.

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