

A clinical evaluation of Saptaparna (*Alstonia scholaris* L., R. Br.) on Essential Hypertension

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ABSTRACT : The tribal people of Sikkim prescribe the decoction of bark of Saptaparna for the symptomatic relief in Hypertension and other Cardiac disease. Hypertension is one of the racial health problems in present era. No system of the medicine has succeeded to give complete relief in Hypertension. Based upon the tribal claim, the present clinical study was carried out on 30 patients of Essential Hypertension (EHT) in the O.P.D. of I.P.G.T. & R.A, Jamnagar. They were equally divided in two groups. In group-1 decoction of bark of *Alstonia scholaris* (L.) R. Br. was administered to 15 patients of essential hypertension in a dose of 15gm. twice daily for 21 days; whereas in group-2, 15 patients were administered with 250mg of Sarpagandha (*Rauwolfia serpentina*) Ghanavati twice daily. The result shows Saptaparna is relieving elevated Diastolic Blood Pressure (DBP) & somatic symptoms, where as Sarpagandha is more beneficial in reducing elevated Systolic Blood Pressure (SBP) & psychological symptoms.

Key words : Saptaparna, *Alstonia scholaris*, Essential hypertension, Ethnobotany.

INTRODUCTION

Saptaparna (*Alstonia scholaris* R. Br) has been reported to be used in the management of Hypertension by tribal people of Sikkim¹ & also as one of the hypotensive drug.^{2,3} Hypertension, being one of the burning problem in present era, no system of the medicine has been succeeded to give complete relief in Hypertension. Sarpagandha (*Rauwolfia serpentina* Benth.) is reported in Indian system of medicine for the management of Hypertension⁴.

The present clinical study was planned to evaluate Antihypertensive activity of *Alstonia scholaris* R. Br. to compare the efficacy with reported Antihypertensive drug i.e. *Rauwolfia serpentina* Benth.

MATERIAL AND METHODS

Selection of Patients : The newly detected patients having complaints of EHT were randomly selected irrespective of their sex religion, occupation etc. from O.P.D. section of Department of Dravyaguna, I.P.G.T. & R.A. Hospital, G.A.U., Jamnagar for the present study.

Exclusion Criteria :

The patients suffering from severe and very severe Hypertension⁵, Patients who were already dependent on allopathy antihypertensive medicines,

known cases of Cardiac disorders, Diabetes Melitas, Tubercnlasis, AIDS, Cancer, acute & chronic Renal failure were excluded from the study. Patients from age group below 30 & above 70 years were also excluded from the study.

Plan of Work : The selected patients were examined & assessed through specially prepared research proforma containing detail history of the patient.

Grouping : The patients were equally divided into two groups viz. Group-1 and Group-2. In first group, 15 patients were given decoction of bark of Saptaparna in a dose of 15 gram twice daily for 21 days. In second group, other 15 patients were administered Sarpagandha Ghanavati 250 mg twice daily for 21 days.

Criteria for Assessment : The improvement provided by the therapy assessed based on clinical signs & symptoms of EHT.

Cured : 100% relief in the signs & symptoms.

Marked Improvement : 76% to 99% relief in the signs & symptoms.

Moderate Improvement : 51% to 75% relief in the signs & symptoms.

Mild Improvement : 26 to 50% relief in the signs & symptoms.

Unchanged : Up to 25% relief in the signs & symptoms.

Management : Total 30 patients of EHT were equally divided in two groups for the present study.

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OBSERVATION & RESULTS**TABLE NO. 1 : GROUPING WITH POSOLOGY :**

	Group-1 (n=15)	Group-2 (n=15)
Drug	Saptaparna Twaka	Sarpagandha
Formulation	Yavakoota	Ghanavati
Dose	15 gm orally twice a day	250 mg orally twice a day ¹⁴
Duration-	21 days	21 days
Anupana	Sukhoshna Jala	Sukhoshna Jala

TABLE NO. 2 : EFFECT OF SAPTAPARNA TWAKA YAVAKOOT ON 15 PATIENTS OF EHT :

No.	Symptoms	n	Mean score		Relief in %	± SD	± SE	t value	p value
			B.T.	A.T.					
(1)	Shirah shool	14	2.50	0.28	88.57	0.80	0.21	10.33	>0.001
(2)	Anidra	13	2.38	0.46	80.64	0.75	0.21	09.12	>0.001
(3)	Daurabalya	13	2.61	0.61	76.47	0.81	0.22	08.83	>0.001
(4)	Bhrama	13	2.69	0.38	85.71	0.63	0.17	13.19	>0.001
(5)	Tama	09	2.44	0.33	86.36	0.60	0.20	10.53	>0.001
(6)	Urah shool	06	2.00	0.33	83.33	1.03	0.42	03.95	>0.05
(7)	Shwasakashtata	08	2.37	0.87	63.15	1.06	0.37	03.96	>0.01
(8)	Pindikodweshtan	12	2.33	0.08	100.0	0.49	0.14	16.41	>0.001
(9)	Vibandha	11	2.36	0.54	76.92	0.60	0.18	10.00	>0.001
(10)	Sweda pravrtuti	10	2.10	0.50	76.19	0.84	0.26	06.00	>0.001
(11)	Shirogaurav	13	2.53	0.23	90.90	0.63	0.17	13.19	>0.001
(12)	Urogaurav	04	2.50	0.25	90.00	0.50	0.25	09.00	>0.01
(13)	Arati	10	2.60	1.00	61.53	0.51	0.46	09.79	>0.001
(14)	Aalsya	05	2.80	0.60	78.57	0.83	0.37	05.87	>0.01
(15)	Hruddratva	08	2.37	0.50	78.94	0.83	0.29	06.35	>0.001
(16)	Akshiraga	03	2.66	0.66	75.00	1.00	0.57	03.46	<0.05
(17)	Krodha prachurata	08	2.37	0.87	63.15	1.06	0.37	03.96	>0.01

TABLE NO. 3 : EFFECT OF SARPAGANDHA GHAN VATI ON 15 PATIENTS OF EHT :

No.	Symptoms	n	Mean score		Relief in %	± SD	± SE	t value	p value
			B.T.	A.T.					
(1)	Shirah shool	12	2.41	0.41	82.75	0.85	0.24	08.12	>0.001
(2)	Anidra	13	2.84	0.38	86.48	0.77	0.21	11.43	>0.001
(3)	Daurabalya	10	2.70	1.00	62.90	0.48	0.15	11.12	>0.001
(4)	Bhrama	12	2.66	0.33	67.50	0.65	0.18	12.40	>0.001
(5)	Tama	10	1.90	0.30	84.21	0.51	0.16	09.79	>0.001
(6)	Urah shool	03	3.00	1.33	55.55	0.57	0.33	05.00	>0.05
(7)	Shwasakashtata	06	2.28	0.66	65.62	0.54	0.22	06.70	>0.01
(8)	Pindikodweshtan	10	2.50	0.70	72.00	0.63	0.20	09.00	>0.001
(9)	Vibandha	09	2.44	1.11	54.54	0.70	0.23	05.65	>0.001
(10)	Sweda pravrtuti	08	2.62	0.62	76.19	1.12	0.39	05.01	>0.001
(11)	Shirogaurav	11	2.81	0.45	83.87	0.50	0.15	15.53	>0.001
(12)	Urogaurav	05	2.60	0.40	84.61	0.44	0.20	11.00	>0.01
(13)	Arati	10	1.90	0.30	84.21	0.51	0.16	09.79	>0.001
(14)	Aalsya	05	2.40	1.00	58.33	0.54	0.24	05.71	>0.01
(15)	Hruddratva	09	2.55	0.77	69.56	0.44	0.14	12.09	>0.001
(16)	Akshiraga	04	2.75	1.00	63.63	0.50	0.25	07.00	>0.01
(17)	Krodha prachurata	05	2.60	0.40	84.61	0.44	0.20	11.00	>0.01

TABLE NO. 4 : EFFECT OF THERAPY (SAPTAPARNA) ON BLOOD PRESSURE ON 15 PATIENTS OF EHT :

Blood pressure	n	Mean score		Relief in %	± SD	± SE	t value	p value
		B.T.	A.T.					
Systolic B.P. (sitting position)	15	2.53	1.40	44.73	0.51	0.13	08.50	>0.001
Diastolic B.P. (sitting position)	15	2.80	1.13	58.62	0.74	0.19	05.90	>0.001
Systolic B.P. (supine position)	15	2.66	1.33	50.00	0.48	0.12	10.58	>0.001
Diastolic B.P. (supine position)	15	1.93	0.73	62.00	0.67	0.17	06.87	>0.001

TABLE NO. 5 : EFFECT OF SARPAGANDHA GHAN VATI IN BLOOD PRESSURE ON 15 PATIENTS OF EHT :

Blood pressure	n	Mean score		Relief in %	± SD	± SE	t value	p value
		B.T.	A.T.					
Systolic B.P. (sitting position)	15	2.73	0.40	85.36	0.48	0.12	18.52	>0.001
Diastolic B.P. (sitting position)	15	2.33	1.00	45.71	0.45	0.11	09.02	>0.001
Systolic B.P. (supine position)	15	2.46	0.80	67.56	0.89	0.23	07.17	>0.001
Diastolic B.P. (supine position)	15	2.40	1.13	52.77	0.07	0.18	06.97	>0.001

TABLE NO. 6 : TOTAL EFFECT OF THERAPY :

Total effect of therapy	Group-1		Group-2	
	No. of Patients	%	No. of Patients	%
Complete Relief	01	06.66	00	00.00
Markedly Improved	04	26.66	02	13.12
Moderately Improved	09	60.00	10	66.66
Improved	01	06.66	02	13.12
Unchanged	00	00.00	01	06.66

TABLE NO. 7 : INVOLVEMENT OF DOSHA, DHATU & AGNI IN THE PATHOGENESIS OF EHT :

No.	Phenomena involved in pathogenesis of EHT	Dominant Doshadi
(1)	Hyperactivity of the heart	Vata Vriddhi
(2)	Increased Peripheral resistance	Kapha Vata Vriddhi
(3)	Decreased Elasticity of blood vessels	
(4)	Increased Volume of circulating blood	Rasa/Rakta
(5)	Increased Viscosity of the blood	Dhatwagni Mandya

DISCUSSION

Highly Significant reduction has been observed in Shirah shool, Bhrama, Tama, Shirogaurav, Urogaurav in both the groups. In the symptoms like Pindikodweshtan, Vibandha, Urahshool, Hrud dravatva, Aalsya, Akshiraga, Daurbalya, group-1 i.e. Saptaparna Group was found more effective, while in Sweda pravritti, both groups had almost same result. Better improvement was reported in group-2 i.e. Sarpagandha Group in the symptoms like Arati, Anidra, Krodhprachurata & Shwasakashtata.

In Pittaja Shiroroga and Pittaja Hridroga, Charaka has enunciated Bhrama as a common symptom (Cha. Su. 17/23 & 33)⁶. Raja (Manasa Dosha) and Pitta-Vata⁷ (Sharira Dosha) are responsible factors in

the manifestation of Bhrama. Hence patients of Bhrama with EHT got better results in Saptaparna group as Tikta & Kashaya Rasa & Ushna Veerya⁸ were indicated as specific properties for the Pitta & Vata dominated diseases respectively, which ultimately gave the better results in Bhrama.

Disturbed sleep or delayed onset of sleep is another clinical entity of the disease hypertension. Tama and Kapha Doshas are very essential for Nidra. If these Doshas are not in proper condition, they may facilitate to provoke the opposite Doshas i.e. Raja, Vata and Pitta. The drug Sarpagandha has Tikta Rasa & Ushna Veerya⁹ which subside the increased Pitta & Vata Doshas respectively. Sarpagandha has also Nidrajanana Prabhava¹⁰.

After the observations, the data shows both the groups have highly significant result in systolic and diastolic blood pressure in both sitting and supine position. But in Saptaparna Group better improvement has been noted in diastolic blood pressure in both the position, while in Sarpagandha group, result is better particularly in systolic blood pressure than Saptaparna group.

After comparison of two groups, it was found that 06.66 % patients got complete relief in Saptaparna group while No patient got complete relief in Sarpagandha group. Only 26.66 % were relieved markedly in Saptaparna group and 13.12 % patients were improved in Sarpagandha group. The 60% patients got moderate relief in Saptaparna group, while 66.66 % patient got moderate relief in Sarpagandha group. The 6.66 % patients improved in Saptaparna group and 13.12 % patients improved in Sarpagandha group. No patient remain unchanged in Saptaparna group and only 6.66% patients remained unchanged in Sarpagandha group.

Probable Mode of Action :

Regarding manifestation of EHT, many theories and hypothesis have explained in modern medical science^{11, 12, 13}. After concussing them, it is observed that mainly five phenomena take part in the pathogenesis of EHT. Table no.7 shows manifestation of Hypertension & its co-relation with Dosha and Agni. On the basis of observation, it can be concluded that most of the patients in this study were having Vata & Kapha Dushti Lakshana.

At the level of Dosha : Kashaya Rasa and Katu Vipaka of Saptaparna are responsible for Kapha Shamana, Tikta Rasa acts as a Pitta Shamaka Rasa while because of having opposite quality of Ruksha & Sheeta Guna of Vata Dosha,, Snigdha Guna & Ushna Veerya of Saptaparna perform the role as Vata Shamaka Dravya.

At the level of Dhatu : Because of having Vayu & Akash Mahabhoota, Tikta Rasa acts as Aamapachana of Rasa & Rakta Dhatu. Thus, it helps for proper Rasa - Rakta Samvahana.

At the level of Mala : Ushna Veerya and Snigdha & Sara Guna of Saptaparna are responsible for Vatanulomana property of the trial drug.

At the level of Agni : Ushna Veerya & Katu Vipaka Dravyas having Agni & Agni + Vayu Mahabhoota dominancy. Vayu Mahabhoota stimulate Agni Mahabhoota due to its Chala Guna. And ultimately it increases Jatharagni.

At the level of Srotas : Ushnatva, Tikshnatva and Sukshmatva like Gunas of Agni & Vayu Mahabhoota of Saptaparna remove Srotosanga and thus, Srotoshodhana occurs. Vivikta, the quality of Akash Mahabhoota in Tikta Rasa not only removes the obstructions from Srotas but also responsible for Srotoprasarana. Finally, Samyaka Rasa-Rakta Samvahana occurs.

CONCLUSION

Sarpagadha Ghanavati is found more effective in Systolic Blood Pressure (SBP) in both position with the involvement of psychological symptom like Anidra, Arati, Krodhaprachurata etc. Though the study was carried out with small sample size, and for short duration of therapy, it shows encouraging results. It may be suggested that the combination of both drugs should be studied for chronic hypertension, which may provide easier and more effective treatment of EHT as a whole.

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हिन्दी सारांश

सप्तपर्ण (आलस्टोनीया स्कॉलारीस) का उच्चरक्तचाप पर चिकित्सकीय अध्ययन

कमलेश भोगायता, पी. पी. शर्मा एवं बी. आर. पटेल

सिक्किम के आदिवासी लोग कुछ शतक से उच्चरक्तचाप एवं हृदयरोगों में सप्तपर्णत्वक् के काढ़े का उपयोग कर रहे हैं। उच्चरक्तचाप वर्तमान समय में सर्वाधिक प्रमाण में पाये जानेवाला मनोशारीरिक व्याधि है। और आज पर्यंत कोई भी चिकित्सा विज्ञान उसकी पूर्ण चिकित्सा में सफल नहीं हुआ है। इसीलिए इस अनुसन्धान कार्य अंतर्गत सप्तपर्ण का प्रायोगिक अध्ययन एवं सर्पगन्धा घनवटी का तुलनात्मक अध्ययन किया गया है। प्राप्त परिणामों से यह सूचित हुआ कि सप्तपर्ण डायस्टोलिक रक्तचाप एवं शारीरिक लक्षणों में अधिक लाभकारी है जबकि सर्पगन्धा सीस्टोलिक रक्तचाप एवं मानसिक लक्षणों में अधिक लाभकारी है।

