

SYSTEMIC REVIEW AND ANALYSIS OF RESEARCH ON HYPERTENSION

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Abstract

Hypertension is now becomes a Global Endemic and called as silent killer. Western therapy is some sort of successful in controlling this disorder but it has its own adverse side effects. In Ayurveda there is no any direct reference of Hypertension. At I.P.G.T. & R.A. extensive research on different Ayurvedic combinations and Panchakarma procedure had been carried out to rule out their efficacy in the management of Hypertension. So here an attempt has been made to analyze the research work held at I.P.G.T. & R.A., Gujarat Ayurved University, Jamnagar. In this article systemic review of 8 research work (held in between 2001-2010 in the Department of Kayachikitsa) had been carried out.

Key words: Hypertension; Ayurveda; I.P.G.T. & R.A.

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INTRODUCTION

Anyone involved in Health Care System is going to spend a large percentage of his or her professional time managing hypertension. The tension exerted on the wall of arteries by the strength of the contraction of the heart is called Blood Pressure.^[1] In Adults, a condition in which the blood pressure is higher than 140 mm/Hg systolic or 90 mm/Hg of diastolic on three separate readings recorded several weeks apart.^[2] High blood pressure or Hypertension is a circulatory state; arise from any cause, in which the pressure of the blood in the arteries becomes elevated beyond normal limits. Blood pressure has a diurnal and random variability and the effect of age, sex and race. Since there is no dividing line between normal and high blood pressure, arbitrary levels have been established to define persons who have an increased risk of developing a morbid cardiovascular event and / or will clearly benefit from medical therapy. When the hypertension is suspected, blood pressure should be measured at least twice during two separate examinations after the initial screening.^[3]

In the elderly, systolic blood pressure is a better predictor of cardiovascular, cerebrovascular events, end stage renal disease and all-cause mortality, as compared to diastolic Blood Pressure.^[4] The prevalence of hypertension depends on both the racial composition of the population studied and the criteria used to define the condition. There are no national surveys of the prevalence of hypertension available from the Indian sub-continent.^[5] The Jaipur studies which showed a prevalence of 30% (males) and 33% (female) in an urban study and 24% (males) and 17% (female) in the rural study.^[6] Hypertension is among the most important public health issues in the world.^[7] It is suspected that heredity plays a role as a background to most of these abnormalities, along with varying contributions of

environmental factors especially sodium, stress and obesity.^[8]

Classification of Hypertension

Having a critical glimpse of previous research works, winding up thoughts of different schools i.e. Hypertension is nothing but a Vata pradhan tridoshaja vyadhi, be greatly influenced by morbid state of Mana (mind). It may therefore be considered as sharira and manasa roga (ubhayashritavyadhi).^[9] Modern science also affirms this fact, sharira (body) and mana (mind) have been designated as the habitats of vyadhi (disease) by Acharya Charaka.^[10] The symptomatology of hypertension can also be traced in different locations of avaranas (block) explained by Acharyas. The efforts for tracing hypertension gave rise to different opinions like Vyanabalavaishmya (vitiation of Vyan bala),^[11] Raktgata vata (Vata provocation in Rakta dhatu), Siragata vata (Vata provocation in vessels), Dhamanipraticaya (narrowing of vessel), Raktvata (vitiation of rakta and vata), Avrutvata (Vata provocation due to obstructive pathology), Shelmarvutvata (vata provocation due to obstruction by kapha), Raktavrut vata (vata provocation due to obstruction by rakta), Pittavrut vata (vata provocation due to obstruction by pitta), Medavrut vata (vata provocation due to obstruction by meda), mishra avarana (different obstructive pathologies).^[12] Their symptomatology, etiologies, treatment principles can also be considered for evaluating and treating hypertension according to Ayurveda. (Table 1)

At I.P.G.T. & R.A., Gujrat Ayurved University, different treatment modalities are testified to rule out their significance in controlling and curing elevated blood pressure.^[13] In this article systemic review of 8 research work (held in between 2001-2010 in the Department of Kayachikitsa) had been carried out. Out of these works few works had been carried out on Sarpagandha (*Rauwolfia*

serpentina Benth.ex. kurz. - Apocynaceae) - 3 works, on shirodhara ((pouring medicated oil on forehead) - 2 works, on virechana (purgation therapy) - 4 works, on basti karma (enema therapy) - 1 work, on Rasayana (rejuvenation therapy) -3 works.

Stuy 1: Pathania Sunil kumar (2001)^[14]

In this study patients were randomly divided into 3 groups: Gr. 1: Takradhara group (n=10). In this group Takradhara is given (3 lit/day) for the duration of 2 weeks; Gr. 2: Sarpagandha Vati group (n=9). In this group sarpagandhavati is given 1 g/day for the duration of 45 days; Gr. 3: Combined group (n=9). In this group both Takradhara and Sarpagandha vati is given to the patients. (Table 2)

The study reveals that Gr. 3 shows better results in reducing the associated symptoms.

Study 2: Bhayal Ramesh (2003)^[15]

In this study 32 patients were divided into two groups. In Gr. A (n =17) virechana procedure had been done. Virechana was done by a virechana yoga consists of Trivrit (*Operculina turpethum* Silva-Manso. - Convolvulaceae), Aargwadha (*Cassia fistula* L.- Fabaceae), with Erranda taila (seed oil of *Ricinus communis* L. Euphorbiaceae). In Gr. B Shamana therapy (palliative treatment) is given to 15 patients (n = 15) which consists of 7 herbal drugs such as Amalaki (*Emblica officinalis* Gaertn.- Euphorbiaceae.), Shashkhpushpi (*Convolvulus microphyllus* (Roth) Sieb.- Convolvulaceae), Jatamanasi (*Nardostachys grandiflora* DC. - Valerianaceae), Arjuna (*Treminalia arjuna* Roxb. - Combretaceae), Guduchi (*Tinospora cordifolia* Willd., Miers. - Menispermaceae), Gokshura (*Tribulus terrestris* L. - Zygophyllaceae), Punarnava (*Boerhavia diffusa* Linn. -Nyctaginaceae). These drugs were taken in equal quantity and processed as a Ghanvati (tablet form). (Table 3)

Gr. A -Virachana Group shows comparatively better result in all parameters with compare to Gr. B which is also statistically highly significant.

Study 3: Dhanjay Patel (2003)^[16]

30 patients of Essential Hypertension were divided into 3 groups. In Gr. A Medhya Rasayana Vati (which is made of medhya (memory booster) drugs such as Brahmi (*Bacopa monnieri* L. Wettstein.- Scrophulariaceae, Shankhpushpi (*Convolvulus microphyllus* (Roth) Sieb. - Convolvulaceae), Ashwagandha (*Withania somnifera* (L.) Dunal. - Solanaceae), Jatmanasi (*Nardostachys grandiflora* DC. - Valerianaceae), Parsikayavani (*Hyoscyamus niger* Linn. - Solanaceae) was given to 10 patients (n =10) in three divided doses with anupana (adjuvant) of cow's milk for the duration of 8 weeks. In Gr. B Kshirodhara (dhara with milk) was given to 10 patients (n=10) for 45 min daily in the morning for 21 days. 10 Patients of Gr. C (n=10) were given combined therapy consisting of both Medhya rasayana vati and Kshira dhara. (Table 4)

Gr. C showed statistically high significance in all parameters and it also showed comparatively better result in nullifying psychological factors.

Study 4: Atul Kale (2005)^[17]

Patients of essential hypertension were randomly divided into 2 groups. In group A (n=17) shamana drug Sarpagandha vati (containing Sarpandha (*Rauwolfia serpentina* Benth. ex. kurz. - Apocynaceae), Shankhpushpi (*Convolvulus microphyllus* (Roth) Sieb. - Convolvulaceae), Jatamansi (*Nardostachys grandiflora* DC.- Valerianaceae),

Table 1: Classification of Hypertension

Category	Systolic(mm Hg)	Diastolic(mm Hg)
Optimal	< 120	< 80
Normal	120-129	80-84
High Normal	130-139	85-89
Grade 1 HTN (mild)	140-159	90-99
Grade 2 HTN (moderate)	160-179	100-109
Grade 3 HTN (severe)	>or = 180	>or = 110
Isolated Systolic HTN	>or = 140	< 80

Table 2: Effect of Takradhara, Sarpagandhadi vati and both on Hypertension

Groups	Gr.1	Gr.2	Gr. 3
Systolic BP	5.25% p< 0.001	16.29% P< 0.001	15.24% P<0.01
Diastolic BP	3.52% P<0.001	11.31% P<0.001	13.33% P<0.01
Headache	56.25%	66.67%	80%
Bhrama	50%	75%	100%
Tamodarshana	p>0.001	p>0.001	100%
Atidaurblya	37.50%	50%	37.50%

Table 3: Effect of Virechan and shaman yoga in Hypertension

Cardinal Sign & Symptoms	Gr.A	Gr.B
Systolic BP	20.90%	16.97%
Diastolic BP	16.97%	18.21%
Headache	87.23%	69.02%
Bhrama	100%	64.67%
Tamodarshana	83.51%	50%
Sharama	81.05%	57.22%
Anidra	93.62%	77.55%

Table 4: Effect of Medhya rasayan vati; Kshirodhara and both on Hypertension

Cardinal Sign & Symptoms	Gr.A	Gr.B	Gr.C
Systolic BP	16.60% P<0.001	23.82%	19.78%
Diastolic BP	11.84% P<0.001	13.82%	12.63%
Headache	68.42% P<0.001	66.67%	71.43%
Bhrama	60.77% P<0.001	70.41%	67.86%
Tamodarshana	64.38%	64%	59.01%
Anidra	65.40%	72.50%	75.76%

Katuki (*Picrorrhiza kurroa* Royle ex. Benth. - Scrophulariaceae), Tagara (*Valeriana wallichii* Jones. - Valerianaceae) and Gokshura (*Tribulus terrestris* L. - Zygophyllaceae) was given for the duration of one month in dose of 4 vati

(250 mg) per day in Vyano-udana kala (after lunch and supper) with anupana of luke warm water. In group B Virechana procedure and after that Sarpagandhavati was given. For Virechana, Virechana kashaya containing

Triphala (100 g), Katuki (*Picrorrhiza kurroa* Royle ex. Benth. - Scrophulariaceae.) (50 g) with Erand taila (seed oil of *Ricinus communis* L. - Euphorbiaceae) (50 ml) was given. Normal sanjarankarma (post purification procedures) and pathya apathya (wholesome and unwholesome diets) were advised. (Table 5)

Group B shows comparatively higher improvement in all parameters and which is also statistically highly significant.

Study 5: Shah Pragna (2005)^[18]

In this clinical trial patients were divided into 2 groups. In group 1 (n=10); Virechana karma was administered. Virechana was given by Snuhibhavita katuki (Katuki - *Picrorrhiza kurroa* Royle ex. Benth. - Scrophulariaceae processed with *Euphorbia nerifolia* Roxb. - Euphorbiaceae) at the dose of 15 mg in between 9 to 10 am in the morning. Before starting Virechana karma proper purvakarma (pre purification procedure) was done. Normal sanjarankarma and pathya-apathya were advised. In group 2 (n=10); Yava (Barley) as a placebo tablet were given 2 Tab/twice in the dose of 250 mg a day after food with Luke warm water. (Table 6)

Virechana by snuhibhavita katuki showed encouraging result in the treatment of essential hypertension.

Study 6: Pravin Deshmukh (2009)^[19]

In this clinical trial patients were divided into 2 groups. In group A (n= 10), Rasayana vati containing Bramhi (*Bacopa monnieri* (L.) Wettstein. - Scrophulariaceae), Jatamansi (*Nardostachys grandiflora* DC. - Valerianaceae), Tagara mula (*Valeriana wallichii* Jones. - Valerianaceae.), Guduchi (*Tinospora cordifolia* (Willd) Miers. - Menispermaceae), Amalaki (*Embllica officinalis* Gaertn. - Euphorbiaceae), Haridra (*Curcuma longa* L. - Zingiberaceae.),

Gokshura (*Tribulus terrestris* L. - Zygophyllaceae), Bhrungraja (*Eclipta alba* (L.) Hassk. - Asteraceae) was given in the dose of 3 g/day for mild hypertension and 4 g/day for moderate hypertension for 6 weeks. In group B (n=10); Sarpangandha Ghana vati was given in the dose of 2 g/day for mild HTN (hypertension) and 3 g/day for moderate HTN for 6 weeks. (Table 7)

In this trial Rasayana vati showed better results in pacifying the entire range of symptomatology and mainly the cardinal signs in comparison to Sarpagandha Ghana vati.

Study 7: Gynendra Shukla (2010)^[20]

In this work, patients were divided into 2 groups and virechana and Basti karma were administered in both groups respectively. In Group A (n=16), Virechana was advised. Virechana was given by virechana kashaya containing Trivrut (*Operculina turpethum* Silva-Manso. - Convolvulaceae) (100 g), Aargwadha (*Cassia fistula* L.- Fabaceae) (50 g) with Erranda taila (*Ricinus communis* L. Euphorbiaceae) (30 ml). Draksha Hima (cold infusion of grapes) was given as a sahapana (drink along with). After proper sansarjan karma (post purification procedures), shamana drug (oral medication of palliative drugs), Arjunaadi vati 2 Tab/ day each of 500 mg given after meal for 30 days with anupana (adjuvant) as lukewarm water. In group B (n= 17), Kala Basti was administered. This basti containing 6 niruha (decoction enema) and 10 anuvasana basti (oil enema). After the basti procedure Arjunadi vati was given in the dose as described previously. (Table 8)

Scholar mentioned that virechana karma has shown significant decrease in fasting & post prandial blood sugar, cholesterol, Triglyceride and increase in HDL level. So, virechana treatment may be choice of therapy for essential Hypertension is associated with sthaulya (obesity), prameha (diabetes), hyperlipidemia.

Table 5: Effect of Sarpangandhadi vati and virechan on Hypertension

Cardinal Sign & Symptoms	Gr.A	Gr.B
Systolic BP	54.63%	64.5%
Diastolic BP	48.69%	66.67%
Headache	55%	100%
Bhrama	80.23%	100%
Tamodarshana	88.29%	100%
Sharama	100%	100%
Anidra	83.62%	83.5%

Table 6: Effect of Rasayan vati and Sarpangandhadi vati on Hypertension

Cardinal Sign & Symptoms	Gr.1	Gr.2
Systolic BP	80% P<0.001	30% P<0.001
Diastolic BP	50% P<0.001	30% P<0.05
Vivbandha	85.7% P<0.001	30.33% P<0.01
Daurbalya	71.4% P<0.001	66.6% P<0.05
Anidra	71.4% P<0.001	55.55% P<0.001

Table 7: Effect of Virechan and Placebo on Hypertension

Cardinal Sign & Symptoms	Group A	Group B
Systolic BP	18.33% P<0.001	13.37% P<0.01
Diastolic BP	15.84% P<0.001	11.04% P<0.001
Shirshul	84.23% P<0.001	85.92% P<0.001
Bharma	100% P<0.001	80.01% P<0.001
Tamodarshana	100% P<0.05	88.23% P<0.001
Chinta	87.5% P<0.05	66.66% P<0.05

Table 8: Effect of virechan and Basti on Hypertension

Cardinal Sign & Symptoms	Virechana group (after completion of virechana and shaman)	Basti group (after completion of basti and shaman)
Systolic BP	13.12%	12.05% (p<0.001)
Diastolic BP	14.48%	9.13%
Akshirag	54.54%	41.67%
Raktapitta	80%	80%

Basti have shown statically significant improvement in systolic BP (blood pressure), Diastolic BP and shirshula (headache), anidra (loss of sleep), santapa (burning sensation),

bhrama (giddiness) etc. So conditions where Essential Hypertension is found associated with these conditions and other vata vyadhis; Basti is first line of treatment.

Shamana drug Arjunadi vati is also shown good treatment modality.

Study 8: Madhavi Jagtap (2010)^[21]

In this study patients of Essential Hypertension were divided into 3 groups. In group A (n=16); Makandi Ghana Vati was given in the dose of 500 mg after breakfast, lunch and dinner for the duration of 2 month with Luke warm water as anupana. In group B (n=18); patients already on modern Hypertensive treatment whose BP is not well under control were added with Makandi Ghan Vati, In group C (n=14); patients were managed by Makandichurna Tab. 700 mg after breakfast, lunch and dinner for the duration of 2 month with Luke warm water as anupana. (Table 9)

Experimental study shows Makandi Churna has remarkable cardio protective activity while Ghana vati has moderate cardio protective activity. Makandi Ghana Vati has comparatively better therapeutic response in lowering BP in comparison to powder when combined with western conventional treatment. Makandi Ghan Vati has also shown encouraging results on renal functions by lowering the blood urea and serum creatinine level with improvement in HDL.

DISCUSSION

It has been found that the percentage of Essential Hypertension (EHT) patients is rising sharply. Today's man is looking towards Ayurveda in a search of perfect and safe treatment. Hence to get the perfect management of hypertension without any side effects is a need of present time. As the hypertension is novel for Ayurveda, different theoretical views are postulated to explore new theories of pathophysiology and managements on the logical basis in Ayurvedic parlance. The symptomatology quoted under Rakta pradoshaja rogas (diseases caused by the vitiation of rakta) by Charaka

almost coincides with Essential Hypertension symptomatology among those Shirahashoola (Headache), Bhrama (giddiness), Klama (fatigue), Anidra (insomnia), Arati (restlessness), Krodhaprachurata (excessive anger), Buddhisamoha (mental confusion) and Sharira gaurava (heaviness of the body) are the common symptoms. Thus Raktapradosha is the common factor which always gets involved in EHT.

For preservation of health of vital organs, the use of medicinal herbs is the need of hour. There are number of herbs which are used as home remedies for common ailments. Such herbs are easily available, eco-friendly, cost effective and toxicity free due to holistic approach.

Virechana karma is indicated for Avarana, Anyonyavarana (Vyana and Apana) and Raktapradoshaja Vikaras, hence for any probability of etiopathogenesis of Essential Hypertension, Virechana is a beneficial process. Virechana therapy provides more relief and synergistic effect in the management of essential hypertension when performed before starting the Shamana yoga.

Basti have shown statistically significant improvement in Systolic Blood Pressure, Diastolic Blood Pressure and Shirahshula, Anidra, Santap, Bhrama, Buddhi sanmoha, so the condition where Essential Hypertension is found associated with above mentioned symptoms and other Vata Vyadhi is there Basti may be selected as the first line of treatment.

Manasa bhavas like Chinta (worry), Krodh (Anger), Bhaya (Fear) etc. play an important role in the etiopathogenesis, progression and prognosis of disease as well as response to the treatment of the disease hypertension (Uccha raktachapa). Hence, that type of drug/therapy should be recommended, which pacify these disturbed Manasika bhavas to calm the mind and relaxed the entire physiology.

Table 9: Effect of Makandi ghan vati; modern therapy along with Makandi ghanvati and makandi churna Tab. on Hypertension

Cardinal Sign & Symptoms	Group A	Group B	Group C
Systolic BP	12.07% P<0.001	8.49% P<0.001	10.75% P<0.001
Diastolic BP	9.80% P<0.001	7.58% P<0.001	8.65% P<0.001
Shirshul	38% P<0.001	32% P<0.001	52% P<0.001
Akshirag	15% P<0.001	16% P<0.001	9% P<0.1
Bharma	67% P<0.001	57% P<0.001	50% P<0.01
Pulse Pressure	15.79% P<0.001	9.97% P<0.05	14.10% P<0.001

A better line of management can be offered to the patients, if stress-relieving procedure like Shirodhara is given with mental health promoting drugs like Medhya rasayana.

CONCLUSION

In this article; eight research studies on the Hypertension is reviewed. Out of these works few works had been carried out on Sarpagandha (3 works), on shirodhara (2 works), on virechana (4 works), on basti karma (1 work), on Rasayana (3 works). Review shows that shodhana therapy (purification procedure) like virechana, basti along with shamana drug (oral drug) showed better result in the management of Hypertension.

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