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REVERSING GLOBAL BURDEN OF HYPERTENSION THROUGH PREKSHA MEDITATION & YOGIC LIFESTYLE

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ABSTRACT

Background: The present study was main aimed to find out the effect of *Preksha Meditation (PM)* and *Yogic* lifestyle Intervention on Hypertensive patients. Essential hypertension is the one of lifestyle disorder which is spreading year by year and becoming more severe than before. One of them essential hypertension is most common due to stressful competitive, irregular lifestyle. World data about the prevalence of hypertension suggested that by the year 2025, the load of hypertension patients will increase to around 1 billion to 1.56 billion. Non communicable diseases (NCDs) main four cause is tobacco, physical inactivity, unhealthy diet, harmful use of alcohol. **Aim:** Aim of the present study is to evaluate the effect of four month yoga practice on reversing hypertension through *PM* and *Yogic* lifestyle. **Materials and Methods:** The present study was conducted to determine the effect of *Preksha Meditation (PM)* and *Yogic* lifestyle modules on 30 participants (Experimental Group/EG) whereas the results were compared with 30 subject of control group (CG). We examined the effects of yoga on physiological parameter in a four month randomized study. Experimental group participants were practiced yoga for one hour daily six days in the week for four month in the morning. Yoga and PM done in supervision of expert yoga instructor. Blood pressure was studied before practice, two month and after four month of yoga practice. **Results**: Yoga practice causes decreased systolic blood pressure Mean ± SD (from 167.93 ± 13.64 to 136.67 ± 10.28 mmHg) and diastolic blood pressure Mean ± SD (from 93.87 ± 3.15 to 81.53 ± 2.39 mmHg) and p value is less than 0.001($p<0.001$). On the other hand, no significant changes

were observed in hypertension of control group. **Conclusion:** This study concludes that yoga practice has potential to control hypertension without taking any medication.

KEYWORDS: Hypertension, *Anuloma viloma*, Systolic blood pressure, *Yogic* lifestyle, *Preksha Meditation*, PM, Diastolic blood pressure.

INTRODUCTION

Hypertension is an independent risk factor for cardiovascular complications including coronary heart disease, angina pectoris, stroke, ischemia, and atherosclerosis and it is linked with cardiovascular morbidity and mortality.[1,2] Many factors are responsible for hypertension like lifestyle, biological, social and psychological. Yoga is an effective, low costing and time tested method for improving our health as well as prevention and cure of the disease like Asthma, Diabetes, Hypertension established by the scientific studies.[3] Hypertension and diabetes are associated co-morbid diseases which share common metabolic pathways such as obesity, insulin resistance, oxidative stress, inflammation, and genetics.[4] Essential hypertension is the one of lifestyle disorder which is spreading year by year and becoming more severe than before. It is most common due to stressful competitive, irregular lifestyle. Luxury life and unhealthy life is two side of coin. Luxury life is a bright side of mankind, to get a luxurious life humans are working hard every time but a continuous chronic change in the lifestyle pattern of individuals to live a luxurious life is leading other hand irreversible loss of Human health due to appearance of different disorder and disorders.[5] An estimate of World Health Organization (WHO) revealed that around 9.4 million of deaths occur per year because of hypertension alone.[6]

Anti Hypertension therapy prescription is also becoming more complex and costly there for *Preksha Meditation (PM)* and *Yogic* lifestyle is cost bearing more effective alternate therapy for essential hypertension. Essential hypertension is one of the lifestyle disorders with a high mortality rate.[7,8,9] Almost 25% of urban and 33% rural Indian population are suffering from metabolic disorder i.e. essential hypertension.[10] Essential hypertension alone is considered as the risk factor for various cardiovascular diseases, kidney disorders including new onset of diabetes. Hypertension and diabetes mellitus are reported to affect the Pathophysiology of each other and hence the mutual risk factor.[11,12] Around one third essential hypertensive patients are reported to develop diabetes in later stages of hypertension which make then 75% more dangerous than that of the single disease.[13,14,15] World data about the prevalence of hypertension suggested that by the year 2025, the load of hypertension patients will increase

to around 1 billion to 1.56 billion.[16] An important way to control hypertension is to focus on reducing the risk factors related with these diseases. Hypertension decrease life span of human being associate with other communicable and non communicable diseases (NCDs). According to WHO Global Health Observatory (GHO) In India (2016) Life expectancy is 68.8 years, highest is Japan 84.2 years and lowest is Lesotho 52.9 years. NCDs kill 41 Million people each year, equivalent to 71% of all deaths globally. Each year, 15 million people die from NCDs between the age of 30 and 69 years over 85% of these "premature" deaths occur in low and middle income countries. Cardiovascular disease account for most NCDs deaths or 17.9 million people annually, followed by cancers (9.0 Million), respiratory disease (3.9 million) and diabetes (1.6 million). These four group of disease account for over 80% of all premature NCDS deaths. Globalization of unhealthy diets, lack of physical activity, tobacco use, harmful use of alcohol, rapid unplanned urbanization, population ageing increase stress, tension, depression, blood pressure, elevated blood lipid, glucose and obesity these are metabolic risk factor. These factors increase the force of hypertension. Tobacco account for over 7.2 million death every year and is increased markedly over the coming years. 4.1 Million annual death have been attributed to excess salt diet/sodium intact, 3.3 million death due to alcohol and cancer, 1.6 million death annually can be attributed to insufficient physical activity. Hypertension is main metabolic risk factors of NCDs and other risk factors are overweight (obesity), hyperglycemia (high blood glucose level), hyperlipidemia (high level of lipid in blood), poverty and agriculture.

AIM AND OBJECTIVE

The objective of the present study was to assess the combination effect of *Preksha* Meditation and *Yogic* lifestyle on high blood pressure in hypertensive patients. In reference to *PM*, the physical and clinical problem seems unchecked, and still, there is a possibility to prevent them through *PM* and *Yogic life style*.

METERIAL AND METHOD

Study design: - This study was randomized clinical study conducted across two sites in Rajasthan, India, namely Govt. Naturopathy Hospital, Udaipur (Site-1) and Govt. Adarsh Ayurved Aushdhalaya, Sindhi Bazar, Udaipur (Site-2) in subject presenting with hypertension. This study was performed in the period spanning 1 August 2015 to 30 Nov. 2015. The study was initiated after sixty subjects give written informed consent.

Subject:- Sample included were male and female. Subject aged between 30 to 60 years who were suffering from systolic or diastolic hypertension. Subject who could take oral medication, were willing to participate in the study and undertake all the study-related procedure. Subject having the history of drug addiction, chronic alcoholics, immunologically compromised subjects, hepatitis B, C, uncontrolled diabetes, unstable Angina, Subject who had participated in any other clinical trial within 3 months before recruitment in this study, pregnant or lactating female, subject having any other severe disease were excluded.(show in consort flow diagram).

Methodology:- A written informed consent was obtained from subjects. On the screening visit and subjects were evaluated for eligibility to participate as per inclusion and exclusion criteria. Subjects were demographic detail, address, physical examination, blood pressure, heart rate, height, weight, Laboratory investigation for lipid profile (Triglyceride, Low density lipoprotein/LDL, High density lipoprotein/HDL) and Electrocardiogram (E.C.G.) for R-R interval was done.

Interventions:- Subject confirming eligibility criteria were divided in two group by randomization 1:1 at day 0 (baseline). One group is experimental group (n=30, 12 Male and 18 Female). Subjects of E.G. took part in every day's one hour intervention module for six days in a week. Although the subjects of the control group (n=30, 17 Male and 13 Female) did not participate in any of the above practice they were kept under careful measure. The total duration of the study after randomization was 120 days. Subjects were followed up after 2 months and 4 months. The practice session of yogic practices (*Sukshma Yogic Kriyas*: 10 Minutes, Yogasana Standing Posture: *Tadasana, Konasana, Variksasana, Garudasana*. Sitting Posture: *Janusirsasana, Paschimottanasana, Ustrasana, Sasankasana, Yoga mudra, Vakrasana, Gomukhasana.* Prone Posture: *Salabhasana, Bhujangasana* Supine Posture : *Uttanpadasana, Pavanmuktasana.* All asanas: 20 Minutes, *Kayotsarga*: 20 Minutes, *Anuloma-Viloma*: 10 Minutes) were given in the morning. A standard digital multi-parameter cardiac monitor (BPL Co.) of ISI mark was used to assess blood pressure and heart rate. A standard weighing machine (made in U.K.) was used for measuring body weight Tester's reliability ranged from 0.86 to 0.94. A standard E.C.G. machine was used for E.C.G., Blood pressure (BP) was measure in the right arm in the sitting positions. All the participants were made to rest for at least 15 min before taking the readings.

Enrollment

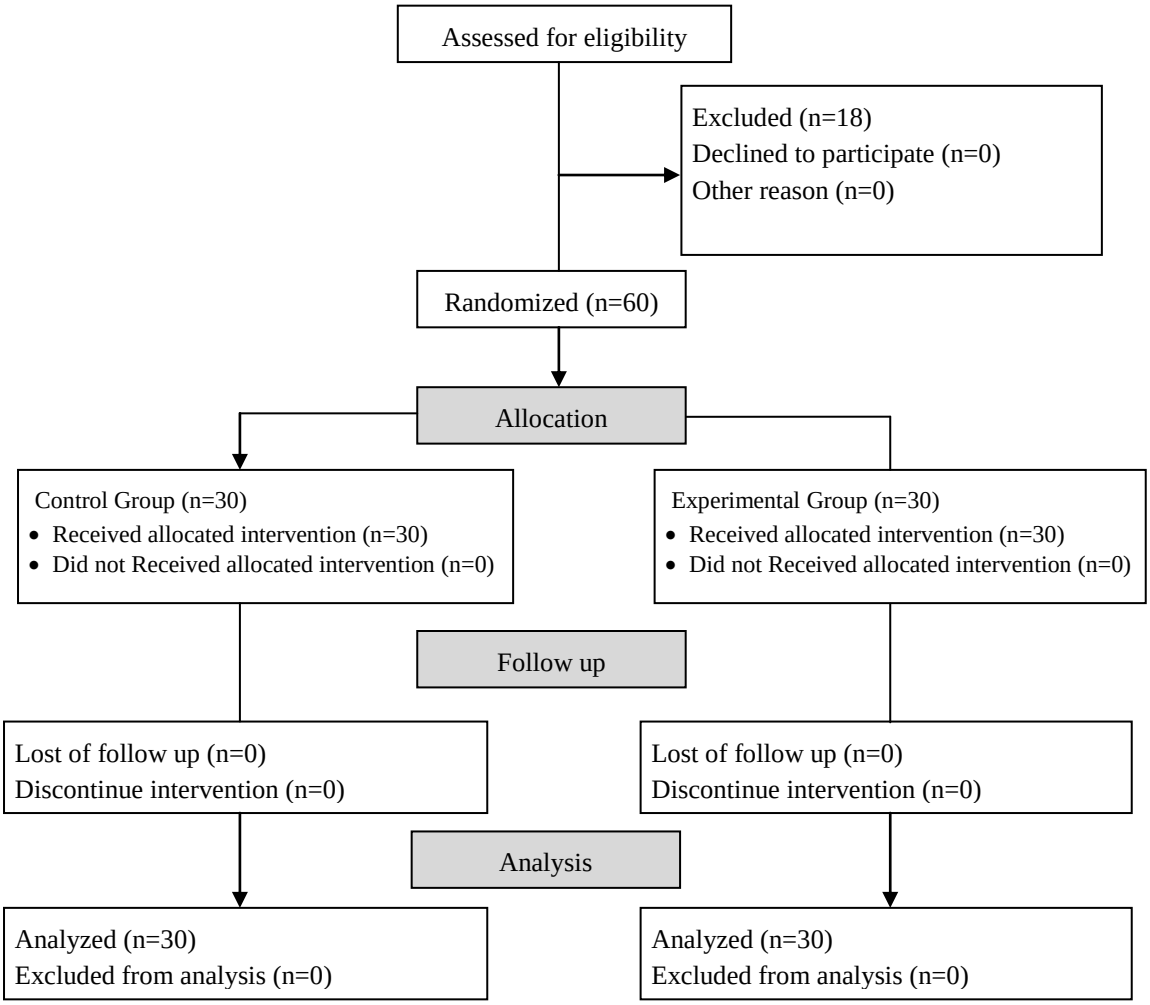

Fig. Consort flow diagram.

STATISTICAL ANALYSIS

Outcome was analyzed by applying appropriate statistical method. The value of $P<0.05$ was considered statistically significant. Data is expressed as a mean and standard error.

Table no.-1: Systolic Blood Pressure (mmHg) in Control Group.

Observation of Systolic B.P.	Mean	SD	R	S.E.D.	t-Value	P-Value	Significance
PRE	183.03	11.48	0.88	1.01	0.96	0.17	NS
POST 1	182.07	11.13					
PRE	183.03	11.48	0.89	1.05	0.92	0.18	NS
POST 2	182.07	12.30					
POST 1	182.07	11.13	0.91	0.91	0.00	0.50	NS
POST 2	182.07	12.30					
df=29							

Table no.-2: Diastolic Blood Pressure (mmHg) in Control Group.

Observation of Diastolic B.P.	Mean	SD	R	S.E.D.	t-Value	p-Value	Significance
PRE	88.90	9.60	0.25	1.71	0.12	0.45	NS
POST 1	89.10	3.36					
PRE	88.90	9.60	0.12	1.76	0.36	0.36	NS
POST 2	89.53	2.57					
POST 1	89.10	3.36	0.64	0.48	0.91	0.19	NS
POST 2	89.53	2.57					
df=29							

Table no.-3: Systolic Blood Pressure (mmHg) in Experimental Group.

Observation of Systolic B.P.	Mean	SD	R	S.E.D.	t-Value	P-Value	Significance
PRE	167.93	13.64	0.86	1.30	15.45	<0.001	ES
POST 1	147.87	10.01					
PRE	167.93	13.64	0.57	2.10	14.92	<0.001	ES
POST 2	136.67	10.28					
POST 1	147.87	10.01	0.82	1.10	10.14	<0.001	ES
POST 2	136.67	10.28					
df= 29							

Table no.-4: Diastolic Blood Pressure (mmHg) in Experimental Group.

Observation of Diastolic B.P.	Mean	SD	R	S.E.D.	t-Value	p-Value	Significance
PRE	93.87	3.15	0.35	0.67	9.98	<0.001	ES
POST 1	87.13	3.31					
PRE	93.87	3.15	0.23	0.64	19.37	<0.001	ES
POST 2	81.53	2.39					
POST 1	87.13	3.31	0.51	0.54	10.42	<0.001	ES
POST 2	81.53	2.39					
df= 29							

Table no.-5: Systolic Blood Pressure (mmHg) in Inter Group Comparison.

Group	Mean	SD	S.E.D.	t-Value	p-Value	Significance
Ex_Post1	147.87	10.01	27.00	12.52	<0.001	ES
Con_Post1	182.07	11.13	33.24			
Ex_Post2	136.67	10.28	24.95	15.51	<0.001	ES
Con_Post2	182.07	12.30	33.24			
df= 58						

Table no.-6: Diastolic Blood Pressure (mmHg) in Inter Group Comparison.

Group	Mean	SD	S.E.D.	t-Value	p-Value	Significance
Ex_Post1	87.13	3.31	15.91	2.29	0.03	S
Con_Post1	89.10	3.36	16.27			
Ex_Post2	81.53	2.39	14.89	12.49	<0.001	ES
Con_Post2	89.53	2.57	16.35			
df= 58						

(S-Significant; ES-Extremely Significant; NS-Non Significant)

RESULT

Preksha Meditation (PM) and *Yogic* lifestyle decreased systolic blood pressure Mean ± SD (from 167.93 ± 13.64 to 136.67 ± 10.28 mmHg) and diastolic blood pressure Mean ± SD (from 93.87 ± 3.15 to 81.53 ± 2.39 mmHg). The value of "p" is less than 0.001 ($p<0.001$). On the other hand, no significant changes were observed in hypertension of control group. Table's shows that *Preksha* Meditation and *Yogic* lifestyle intervention was more effective as compared to control group to reduce the systolic blood pressure (SBP) and diastolic blood Pressure (DBP) in the subjects of experimental group.

DISCUSSION

Through our intervention of *Preksha* Mediation and *Yogic* Lifestyle modifications in hypertensive patients we found significant improvement in all the subjective and objective parameters rather than control group. It reduces stress and anxiety through *Kayotsarga(PM)* and controls the risk factors for hypertension through different *Aasans*, which works on essential hypertension developed from unknown reason. Mild and moderate cases of hypertension may be controlled easily without drugs. Severe case may head Pharmacological intervention. Several previous researches observed that mild and moderate cases of hypertension control easily by yoga without any kind of drugs. In Early detection of hypertensive patients yoga can reduce the need for more expensive treatment.

CONCLUSION

Although there has been remarkable progress in discovering treatment of hypertension over the last century, most of the therapies have not yielded satisfactory outcomes at time, the available synthetic drugs to treat hypertension may cause further other unwanted effect on body. The cost of conventional drug, adverse drug reactions and there in efficacy has further limited their use. [17] *Preksha* Mediation and *Yogic* Lifestyle showed significant improvement in laboratory parameters and symptoms of hypertension and was found to be safe in all age group. It is concluded from the present study that *Preksha Meditation* and *Yogic* Lifestyle effective in hypertension. In case of stress related hypertension, yoga might modify the states of anxiety thus reducing hypertension.[18]

CONFLICTS OF INTEREST / ACKNOWLEDGEMENT

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