Effect of Audio Assisted Relaxation Therapy on Level of Blood Pressure among Mothers with Pregnancy Induced Hypertension

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Abstract

Introduction: The incidence of PIH is about 8-10% of pregnancies. Hypertensive disorder of pregnancy if unchecked will result in eclampsia with generalized convulsions, HELLP syndrome etc. It is usually managed with medicines. There are various non-pharmacological treatment like muscle relaxation, meditation, breathing etc. which are used to control of hypertension. Present study was aimed to assess the effectiveness of audio assisted relaxation therapy on level of blood pressure among mother with pregnancy induced hypertension.

Method: Experimental approach with one group pretest- posttest design was used for the study. Study was conducted among 30 antenatal mothers diagnosed with PIH admitted in Kamla Nehru Hospital, Shimla H.P, selected by using convenience sampling technique. Semi structured interview schedule is used to collect background information and sphygmomanometer was used to measure the level of blood pressure. The blood pressure (BP) was monitored three times a day for two days to obtain a baseline data and average of it was considered as pre-test. Audio assisted relaxation therapy was then administered for 20 minutes per sessions, two times a day for three days. The blood pressure (BP) was monitored before and after each session of relaxation therapy

Results: The mean posttest systolic is BP, 139.81 mm of Hg was significantly lower than the mean pretest systolic BP, 146.45 mm of Hg. The mean posttest diastolic BP, 87.63 mm of Hg was also lower than the mean pretest diastolic BP, 92.06 mm. Both differences were significant at the level of <0.001.

Discussion: The result of present study shows there is a significant difference in BP before and after intervention. So audio assisted relaxation therapy can be used as an effective add on intervention for the management of with women hypertension during pregnancy.

Key words: *Pregnancy induced hypertension, Audio Assisted relaxation Therapy, Pregnant Mothers, blood pressure.*

Introduction

Pregnancy-induced hypertension (PIH) is a condition which present with high blood pressure with or without proteinuria and edema, with other clinical manifestation usually occurring late in pregnancy and regressing after delivery of the conceptus[1].

According to American College of Obstetricians and Gynecologists (ACOG) 2013 guidelines, the criteria for PIH is systolic blood pressure of 140 mm Hg or higher, or diastolic blood pressure of 90 mm Hg or higher occurring after 20 weeks of gestation in a pregnant mother whose blood pressure (BP) has previously been normal. Preeclampsia is diagnosed by persistent high BP that develops during pregnancy or during the postpartum period that is associated with a lot of protein in the urine or visual disturbances[2,3]. Indian scenario the incidence of PIH ranges from 5-15% in the

primi gravid mothers, whereas it is 16% in multigravida mothers[4]. Several epidemiological studies have been performed to determine the prevalence and risk factors of hypertensive disorder of pregnancy (HDP) as well as its subtypes. It was found in a study taht prevalence of HDP is 5.2–8.2%, gestational hypertension 1.8–4.4%, and preeclampsia is 0.2–9.2%, respectively[5]. WHO estimates that out of 5,29,000 maternal death reported globally each year, 1,36,000 (25.7%) was contributed by India. Among these 16% are due to pregnancy related complications. According to WHO census 2010 the risk of a woman dying from a pregnancy-related cause is about 36 times higher during her lifetime in a developing country as compared to a woman living in a developed country.[6] According to WHO censes 2013 every year Nearly 76,000 women die globally due to preeclampsia[7]. Global scenario incidence of PIH is range from 1 to 35%. WHO estimates the incidence of preeclampsia to be seven times higher in developing countries[8]. Incidence rate of PIH is 8-10% in India[9].

According to WHO expert committee and Joint National Committee recommends non pharmacological treatment like muscle relaxation, meditation, breathing therapy as the first measure used to control of hypertension. Relaxation therapy is beneficial as it counteracts the physiological effects of stress and fight or flight response[10, 11, 12]. Present study was aimed to assess the effectiveness of audio assisted relaxation therapy on level of blood pressure among mother with pregnancy induced hypertension.

Materials and Method

The aim of the study was to find **out** the effectiveness of audio assisted relaxation therapy on level of blood pressure. So an experimental approach was appropriate for the study. One group pretest- posttest design with multiple observations is used for this study. As BP is a variable which is subject to variations due to the effect of many external and internal factors, average of three observations per day for two days was obtained to get the baseline blood pressure. The average of baseline measures is considered as pretest. Average of three observations on the last day was considered as the posttest. Intervention included the administration of audio assisted relaxation for 20 minutes two times a day for three days. In order to find the immediate effect of each session of audio assisted relaxation, the blood pressure level before and after intervention was measured.

The setting of the study was Kamala Nehru Hospital, Shimla Himachal Pradesh (KNH). A sample of 30 antenatal mothers diagnosed with PIH admitted in Kamala Nehru Hospital District Shimla, Himachal Pradesh was recruited for the study by using convenience sampling technique. The study included mothers who are willing to take part in the study, diagnosed with PIH and admitted in KNH and understand Hindi or English. The study excluded the mothers whose medication or dose changed in the past three days, variability in BP more than ten mm hg between mean of first and second day, having complications like eclampsia, HELLP syndrome, and having mental illness.

A detailed explanation was given to participants about the purpose of the study and intervention and it was informed that intervention does not cause any harm to them. Participation was based on their willingness and written informed consent was obtained from each participant prior to data collection and they were allowed to withdraw from the study at any point. On recruitment Semi-structured interview schedule was used to collect Background information. Sphygmomanometer was used to measure the Level of blood pressure at the specified intervals and and blood pressure was recorded in a flow sheet.

Audio assisted relaxation therapy (AART) was given to antenatal mothers along with routine medication and care. AART included sessions of guided relaxation of 20 minutes duration administered to mothers with PIH, with the help of prerecorded instructions by using headset for three continuous. It was developed and validated by experts in relaxation therapy. The intervention was administered in a separate quite room and was guided by prerecorded instructions. The mother was allowed to assume a sitting or side lying position as per her comfort and preference. The technique used for relaxation is focused attention. It is a prerequisite for meditation as a person is required to channelize all his attention to a specific sound and his breath. Focused attention helps in keeping the mind free from any distractions and channelizing thoughts in one direction towards slow breathing

The data was analyzed using frequency and percentage for distribution of background information. Mean and standard deviation and Paired t test to compare pretest and posttest level of blood pressure.

Results

Background information:

Based on demographic variables majority 73.3% of mothers were in age between 19-30 years, 43.3% of them having diploma or degree and 76.6% of mothers were homemaker. Majority 53.3% of women's were belongs to joint family. Majority 30% of mothers were having monthly income of 10001-20000 monthly family income. About 66.6% of mothers were primigravidae and 46.6% of them were in gestational week between 36-40 weeks. None of them from any coexisting complications during pregnancy.

Based on PIH related data 40% of mothers were diagnosed with pregnancy induced hypertension at 31-35 weeks of pregnancy. Majority 60% of mothers were taking Labetalol for the treatment of PIH and also among them 51% of mothers used 50 mg dose for once a day. Majority, 87% of mothers were not received any teaching regarding relaxation therapy. About 20% of mothers reported to receive some informal teaching regarding management of PIH by restriction in diet like salt and oil free diet, avoid stress, positioning, fluid intake etc. None of them were not using any Non Pharmacological method.

Baseline Level of Blood Pressure:

Table 1. Frequency and Percentage Distributions based on baseline level of Blood Pressure:

N=30

Variables	**BP in mm of Hg**	**Frequency**	**Percentage**
Level of systolic BP at the time of diagnosis	Less than 140	1	3%
	141-150	20	67%
	151-160	7	23%
	161-170	2	7%
Level of diastolic BP at the time of diagnosis	Less than 90	3	10%
	91-95	17	57%
	96-100	8	27%
	101-110	2	7%
Level of systolic BP on the day of recruitment.	130-140	5	17%
	141-150	14	46.6%
	151-160	11	36.4%
Level of Diastolic BP on the day of recruitment.	86-90	2	7%
	90-95	12	40%
	96-100	16	53%

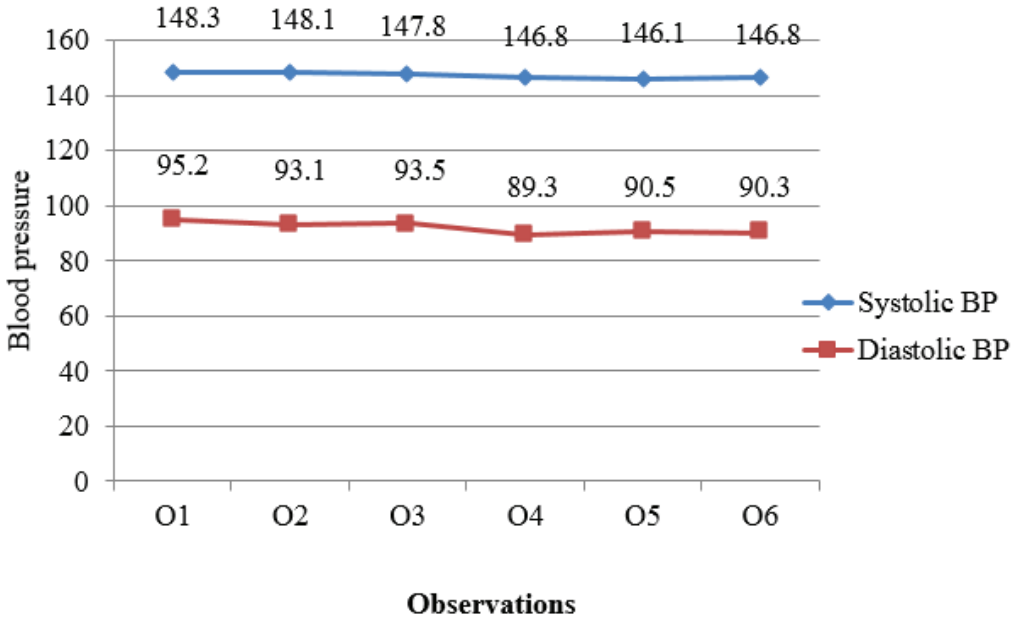

Fig 1: Line graph showing the mean blood pressure on first and second Day (N=30)

Figure no 1 shows that systolic and diastolic BP in first and second day was stable. Systolic BP of first and second day ranges from 148.3 mm of Hg to 146.8 mm of Hg and diastolic BP ranges from 95.2 mm of Hg to 90.3 mm of Hg.

Effect of Audio assisted relaxation therapy on level of blood Pressure

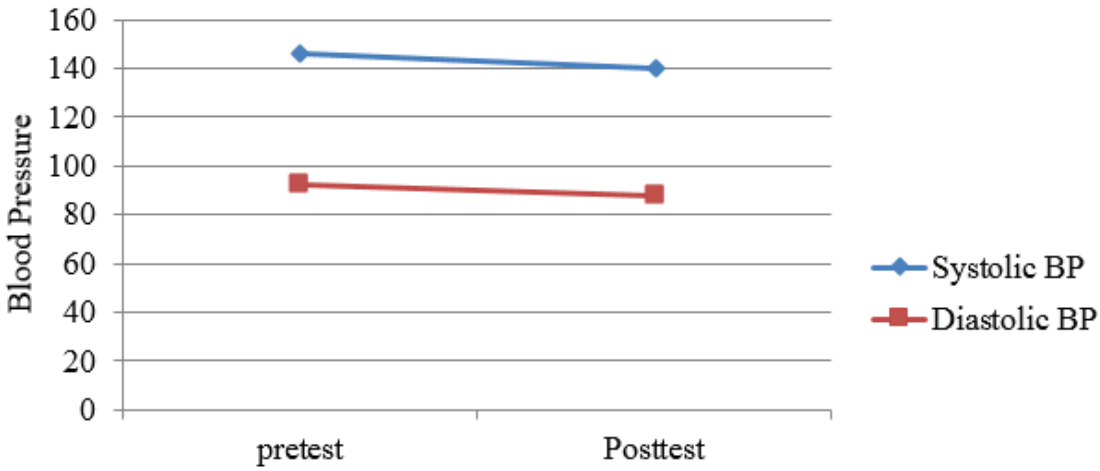

Fig.2 Line graph showing the mean of pretest and posttest Systolic and Diastolic BP (N=30)

The fig. 2 shows that the mean systolic and diastolic BP is lower in posttest than the pretest. The pre-test systolic and diastolic BP is lower than the prestest with each session of the interventions (Fig.3).

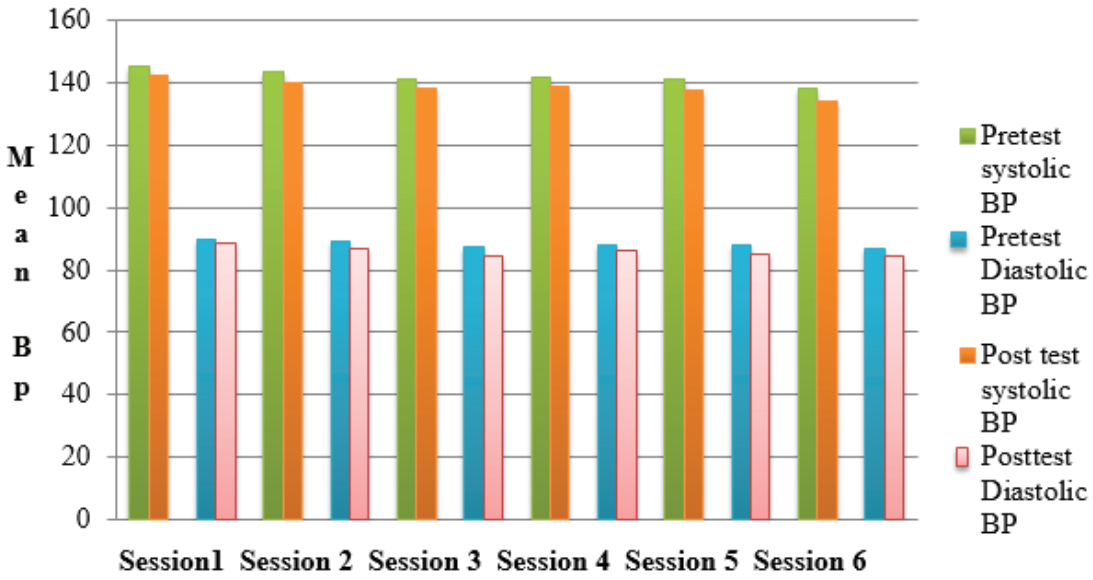

Fig. 3. Bar diagramme showing the immediate pretest and posttest systolic and diastolic blood pressure with each session of audio assisted relaxation (N=30)

Table: 2. Comparison of pretest and posttest Systolic and Diastolic blood pressure. N=30

	Pretest BP Mean± S.D.	Posttest BP Mean± S.D.	Mean Difference	t value	P value
Systolic BP	146.45±7.846	139.81±8.103	6.643	5.314	<0.001**
Diastolic BP	92.06±3.820	87.63±5.581	4.427	5.101	<0.001**

** Highly significant at P<0.001

Table 2 shows that there was significant (P<0.001) difference in the systolic blood pressure and diastolic blood pressure in pre-test and post- test. The mean pre-test scores of Systolic BP was 146.45 & diastolic BP was 92.06 significantly higher than the mean of post -test scores of Systolic BP was 139.81 & diastolic BP was 87.63.

Table: 3. Comparison of pre-test and post-test Systolic blood pressure for mothers receiving medications (group 1) and not taking any medications (group 2)

N=30

		Pretest BP Mean± S.D.	Posttest BP Mean± S.D.	Mean Difference	t value	P value
Systolic BP	Group 1	149.23±4.47	142.06±7.48	7.17	5.17	<0.001**
	Group 2	143.76±4.88	137.24± 8.66	6.51	4.29	<0.001**
Diastolic BP	Group 1	92.34±3.45	87.94±6.36	4.39	3.40	<0.001**
	Group 2	91.06±4.257	86.06±4.40	4.00	5.52	<0.001**

Discussion

The present study was aimed to assess an effect of Audio assisted relaxation therapy on level of blood pressure among mothers with pregnancy induced hypertension. Findings of the study showed that AART was a safe method and helps to reduce systolic and diastolic BP and there was a positive strong correlation between AART and level of BP. So there is need to focus on use of non-pharmacological methods to manage PIH and it can be implemented throughout the pregnancy.

Research studies conducted on effectiveness of interventions focusing on level of BP has shown to improve BP among mothers with PIH. A quasi experimental study was conducted at Government hospital and A.J Hospital, Mangalore in India in 2012 to evaluate the effectiveness of relaxation therapy on Mild Pregnancy Induced Hypertension. The results showed that the mean of pre-relaxation score (17.40) was significantly higher than the mean of post relaxation score (7.17). Since the difference in mean post therapy score is evident[13]. A study was conducted to assess the effectiveness of guided imagery on level of blood pressure among PIH mothers in selected hospital in Pankajam Sitharam hospital at Trichy District, Tamilnadu 2015. A quantitative approach using quasi experimental pre-test post-test design with control group. Study sample is 60 PIH mothers were selected using Non-probability purposive sampling technique was used. Guided imagery was given to the mothers in experimental group for 10 minutes duration twice a day for 3 days. Sphygmomanometer was used to assess the level of blood pressure. Analysis using paired't' test was obtained for level of blood pressure in control group was 0.84 which is not significant at $p<0.05$. For experimental group, the t value obtained was 22.52, which is highly significant at $p<0.05$ level. The findings of the study revealed that Guided Imagery helps in reducing blood pressure among PIH mothers[14]. In present study there was a significant difference in level of systolic and diastolic BP in pretest and posttest at level of 0.001.

So Audio assisted relaxation therapy can be used as an add on therapy for the management of mothers with pregnancy induced hypertension.

Conflict of Interest: The investigator has no conflict of interest.

Source of Funding: The study is funded by self.

Ethical Clearance: Ethical clearance was obtained from the institutional Ethics committee of Akal College of Nursing. Participation was based on willingness and written informed consent was obtained from all participants.

References

1. Darvil. R, Skirton. H, Farrand. P. Psychological factors that impact on women's experiences of first-time motherhood: a qualitative study of the transition. Midwifery.2010;26 (3): 357 – 66. Available from: https://www.ncbi.nlm.nih.gov/pubmed/18783860.
2. Lo. Mission, JF. Caughey, AB (April 2013). "Hypertensive disease of pregnancy and maternal mortality". Current Opinion in Obstetrics and Gynecology. 25 (2): 124–32. Available From: doi:10.1097/gco.0b013e32835e0ef5. PMID 23403779.
3. Preeclampsia/Eclampsia" at Dorland's Medical Dictionary.
4. Latha k. Pregnancy induced hypertension among antenatal mothers. Nightingale nursing times: July 2011;7(4) :52-54. Available From: www.ncbi.nlm.nih.gov /pmc/articles/PMC 4061123/.
5. https://scholar.google.co.in/scholar?hl=en&as_sdt=0%2C5&q=https%3A%2F%2F nursingcrib.com%2Fpathophysiology%2Fpathoyphysiology-of-pregnancyinduced-hypertension-pih%2F&btnG= .
6. Rani PR, Begum J. Recent Advances in the Management of Major Postpartum Haemorrhage-A Review. Journal of clinical and diagnostic research: JCDR. 2017 Feb;11(2):QE01. Available From: https://scholar.google.co.in/scholar? hl=en & as_sdt=0%2C5 & q=+WHO+estimates+that+out+of+5%2C29%2C000+maternal+death+reported+ globally+each+year%2C+1%2C36%2C000+%2825.7%25%29+was+contributed+by++India.+Among+these+16%25+are+ due+to+pregnancy+related+complications+%28WHO%2C+ 2004%29.& btnG.
7. Kuklina EV. Hypertensive Disorders and Severe Obstetric Morbidity in the United States. ObstetGynecol 2009; 113:1299-306. Available From: http://www. preeclampsia.org/health-information/149- advocacy-awareness/332-preeclampsiaand-maternal-mortality-a-global-

burden.

8. Chesley LC. Hypertensive Disorders in Pregnancy. New York: Appleton-Century- Crofts; 1978. Available From: http://ijprs.com/abstract.php?id=745&aid=777.
9. Mohanty. S, Sahu P.K, Mandal M.K . Evaluation of oxidative stress in pregnancy induced hypertension. Indian Journal of Clinical Biochemistry. [on line] 2006.[cited on Oct15] 21 (1) 101-10. Available from URL:http:// medind.nic.in/iaf/t06/i1/iaft06i1p101.pdf.
10. David. R, Mercado MA. Breathing Exercises: Chapter 92,Life style exercises: part 3 991-996. Available From:www.rguhs.ac.in/cdc/onlinecdc/uploads/ 05_N002_ 28737.
11. Rakhshani A, Nagarathna R, Mhaskar R, Mhaskar A, Thomas A, Gunasheela S. The effects of yoga in prevention of pregnancy complications in high-risk pregnancies: a randomized controlled trial. Preventive medicine. 2012 Oct 1;55(4):333-40. Available From: https://www.sciencedirect.com/science/article/ pii/S0091743512003301 .
12. World Health Organization. The world health report 2002: reducing risks, promoting healthy life. World Health Organization; 2006. Available From: https://scholar.google.co.in/ scholar?hl=en&as_sdt=0%2C5&q= Global+Scenario+Maternal+death+and+disability+are+the+leading+causes+of+healthy++life+years+lost+for+ developing+ country+women+of+reproductive+age%2C++ accounting+for+more+than+28+ million+ disability+adjusted+life+years++%28DALYS%29+lost+and+at+least+18%25+of+the+bur+in+obs+gynae+PIH&btnG=#d=gs_cit&p=&u= %2Fscholar%3Fq%3 Dinfo%3ATs Onx0x KfcJ%3 Ascholar.google.com%2F%26out put%3 Dcite% 26scirp%3D1%26hl%3Den.
13. Reshma SS, Salins A, Kiron SS and Saritha M. Effect of Relaxation Therapy on Mild Pregnancy Induced Hypertension.International Journal Of Pharmaceutical And Chemical Sciences. 2012 Jul-Sep;1 (3):1428-1437.Available From:http://www.ijpcsonline.com/files/72-228.pdf.
14. Kintiraki E, Papakatsika S, Kotronis G. Pregnancy-Induced hypertension.NCBI. 2015 Apr-Jun;14(2):211-23. Available From: https:// www.ncbi.nlm.nih.gov/ pubmed/ 26158653.