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Hot Flashes associated with Higher Blood Pressure among Early & Late Postmenopausal Women: A Cross-sectional Design

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Abstract

The occurrence of hot flashes amid Early and Late menopause has been portrayed as up to 80% in many societies. Hypertension is by far the most significant menace factor that distresses ladies at the early postmenopausal years. Around 30 to 50%of ladies develop hypertension before the age of 60 and the onset of hypertension can bring about an assortment of symptoms that are regularly credited to menopause.[1, 2]
Aim of the study was to analyze the Association of Hot Flashes with Higher Blood Pressure among early and late Postmenopausal Women. The study was directed at Maternal and child health care center (MCH) Gynecology Clinics and in two urban communities Jarash City and Amman/Jordan amid the period from (August 2014 to August 2015). Suitable examining procedure was utilized. The present study included 200 postmenopausal ladies somewhere around 45 and 60 years, isolated into two groups: (Early post menopause [EPM], <10 y, n = 100) and (Late post menopause [LPM], ≥ 10 y, n = 100) and symptomatic (self-reported score >3 on a scale from 0 to 10 for hot flashes force) and asymptomatic (review ≤3) [14] inside every post menopause ladies group. **The result** of the study demonstrates that the relationship between blood pressure amongst symptomatic and asymptomatic ladies inside EPM and LPM. The SBP and DBP were constantly higher in symptomatic contrasted with asymptomatic ladies: in the EPM group, there is no significant contrast with respect to age, height, and weight between the two groups (P > 0.05). Age, height, and weight of the symptomatic group were 52. 52 (49–55) years, 1.6 (1.5–1.6) m, and 76.7 (60.5–89.8) kg, individually. **Conclusion:** Hot flashes relationship with hypertension that may lead to complains that are frequently credited to early and late menopause, encourage ladies to change their way of life by consistent aerobic exercises can adjust the blood pressure level or defer the start of hypertension.

Keywords: Hot Flashes, Higher Blood Pressure, Early & Late Postmenopausal

Introduction

Hot flashes are a standout amongst the most well-known unpalatable symptoms amid menopausal period whose physiological reason is not precisely recognized. They are experienced as a sensation of sudden heat in the upper part of the body, including the face, neck, midsection, and arms. They additionally include widening of veins in the skin and increased heartbeat.[1,2] Hypertension is by a wide margin an essential risk factor or that affects ladies in the early post menopausal years. Around 30 to 50% of ladies develop hypertension (RR >140/90 mmHg) before the age of 60 and the onset of hypertension can bring about an assortment of symptoms that are frequently credited to menopause.[3,4].

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In menopause transition, numerous ladies have vasomotor symptoms which may affect their normal daily activities. With the decrease in estrogen levels, a risk element for hypertension. The onset of hypertension can bring about an assortment of the dissensions that are regularly ascribed to the menopause. The risk element distinguishing proof is ineffectively overseen in moderately aged ladies and ought to be the initial phase in the assessment and treatment of ladies with per menopausal indications[5,6.] The loss of ovarian hormones around menopause has numerous unfavorable consequences of hypertension and coronary heart disease (CHD) risk components. Clinical indication of CHD happens ten years after the fact in ladies contrasted and men and the risk increments quickly after the age of 63 years.[7,8,28]New studies have reported that ladies with hot flashes have an expanded danger of hypertension and subclinical cardiovascular (CV) disease and in addition of CV events.[9,10.] Cardiologists and gynecologists have as of late achieved accord on the significance of blood pressure and C V risk element appraisal as the initial phase in overseeing ladies with premenopausal symptoms.[11, 12]

Subject and Method

Aim of the study:

The aim of the study was to inspect the Association of Hot Flashes with Higher Blood Pressure among Early and Late Postmenopausal ladies.

Designs: A cross-sectional with purposive sample was utilized as a part of this study

Participants and setting

The study was directed at Maternal and child health care center (MCH) Gynecology Clinics and in two urban communities Jarrahs City and Amman/Jordan amid the period from (August 2014 to August 2015).

Convenience sampling technique was used.

Sample size: The present study included 200 postmenopausal ladies somewhere around 45 and 60 years, without hormonal treatment (HT) in the previous 6 months separated into two groups: (early post menopause [EPM], <10 y, n = 100) and (late post menopause [LPM], ≥ 10 y, n = 100) and symptomatic (self-reported scores>3 on a scale from 0 to 10 for hot flashes intensity) and asymptomatic (review ≤3)[14] inside every post menopause group.

Exclusion criteria were current smokers, psychiatric malady, cardiovascular (CV) disease, uncontrolled hypertension (SBP > 160 mm Hg or DBP > 100 mm Hg), thyroid-stimulating hormone (TSH), past analysis of polycystic ovary disorder or any sort of amenorrhea amid reproductive years, and utilization of medications that could impact the presence of hot flashes or potentially hormone treatment (HT).

Data collection tools: An organized questionnaire was developed by the scientist grounded on the literature review considering the aim of the study and the data should have been collected. The questionnaire was directed in simple, clear Arabic language. It contained two main sections:

a. Socio-demographic data: recorded the accompanying data: age, training level, occupation and marital status and obstetric and Gynecological history.

b. Indications and attributes of menopause: Type of menopause, Physical activity was considered as no less than 150 minutes a week; time of hypoestrogenism was characterized as years, since the last menstrual period less HT duration, and sexual activity was found out amid the previous 2 months. Sleep maladies included difficulties to fall asleep and nighttime awakening.

c. Medical history and physical examination included weight and height held in a computerized scale (Filizola, Personal, São Paulo, SP, Brazil), .BMI was calculated as weight divided by height in meters squared. After the calculation of BMI, Systolic and diastolic blood weights (SBP and DBP) and heart rate (HR) were recorded from the normal of the two estimations no less than 10 minutes separated, taken following 10 minutes of convenience with the participant lying down.

Data collection procedure:- A welcome letter and data sheet with specialist's contact details were sent to the expected participants. Ladies who indicated interest contacted the specialist. An interview was done with interested participants who met the incorporated criteria to answer their inquiries and to affirm their rights (i.e. deliberate cooperation, withdrawal from the study, secrecy and security). After that, an assent form was obtained.

- The specialist attended to MCH center two days per week till the programmed numbers were collected. The specialist met around 2-3 ladies each day. Every meeting was concluded with a time of 25-30 minutes.

- Physical examination included weight and height held on a computerized scale (Filizola, Personal, São Paulo, SP, Brazil), Their blood pressure was then measured 5 and 15 minutes subsequent to sleeping in a sitting position utilizing a mercury sphygmomanometer with cuffs appropriate for each patient. Ladies with blood pressure higher than 140/90 mm Hg were prohibited from the study.

- BMI was ascertained as weight partitioned by height in meters squared. After the figuring of BMI, Systolic and diastolic blood weights (SBP and DBP) and heart rate (HR) were recorded from the normal of the two estimations no less than 10 minutes separated, taken following 10 minutes of accommodation with the participant lying down.

Human Rights and Ethical Considerations

The ethical endorsement was acquired from the ministry of health Jordan and MCH centers that incorporated into the study. An informed assent was obtained. Participants signed the informed assent form and were welcome to go to the Clinical Laboratory.

Data analysis :

Data was entered into the PC, the SPSS Statistics 19 (IBM, SPSS items, Chertsey, UK) were utilized for the investigation. Hot flashes intensity (0–10) was corresponded with various factors to measure the association of hot flashes status as independent variables and BP as dependent variables at the level of significance where $P < 0.05$. IBM chi-square test, $P<0.05$.

Results

Figure (1): The circulation of the study sample with respect to symptomatic and asymptomatic for hot flashes. In the EPM and LPM amass (n = 100), 63 ladies were symptomatic and 37 were asymptomatic, though in the LPM group (n = 100), 70 were symptomatic and 30 asymptomatic for hot flashes.

This study has no significant difference with regards to age, height and weight between the two groups ($P > 0.05$). The age, height, and weight of the symptomatic group were 52. 52 (49–55) years, 1.6 (1.5–1.6) m, and 76.7 (60.5–89.8) kg, respectively Table (1).

Symptomatic ladies reporting more present touchiness and sleeplessness, more extraordinary per menopausal hot flashes, contrasted and asymptomatic ones. The sleep disorder was accounted for in 85.00% of symptomatic versus 15.00% of asymptomatic ladies ($P < 0.0001$) in the EPM group; and in 60.00 of symptomatic versus 30.00% of touchiness regarding asymptomatic LPM group. Figure (2)

Show that association between blood pressure among symptomatic and asymptomatic women within EPM and LPM. The SBP and DBP were invariably higher in symptomatic compared with asymptomatic women: in the EPM group, SBP was 140.0 (128.5–142.0) versus 128.0 (117.5–129.0) mm Hg. In the LPM group, SBP was 138.0 (128.0–146.0) versus 129.0 (120.5–136.0) mm Hg. Similarly, DBP was 83.0 (74.0–84.0) versus 71.0 (68.8–81.3) mm Hg in the EPM group and in the LPM group, DBP was 82.5 (74.8–87.0) versus 75.0 (70.5–83.5) mm Hg .Table (3).

In every group, EPM and LPM, there was no contrast amongst symptomatic and asymptomatic ladies in connection to risk components, such as age, past smoking, physical activity, table (2). In the present study, there is no critical contrast amongst symptomatic and asymptomatic ladies in connection to BMI, history of diabetes mellitus and research facility examination table (4)

Figure 1: Distribution of the study sample regarding symptomatic and asymptomatic for hot flashes.

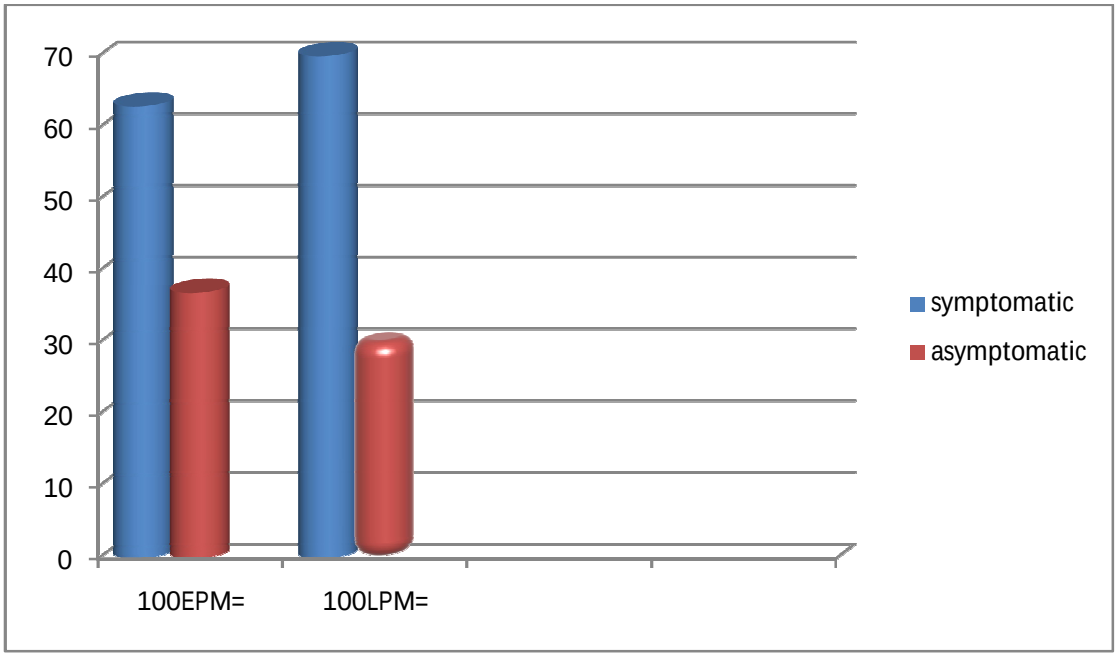

Figure 2: Distribution of the study sample regarding Menopausal symptoms (n=200)

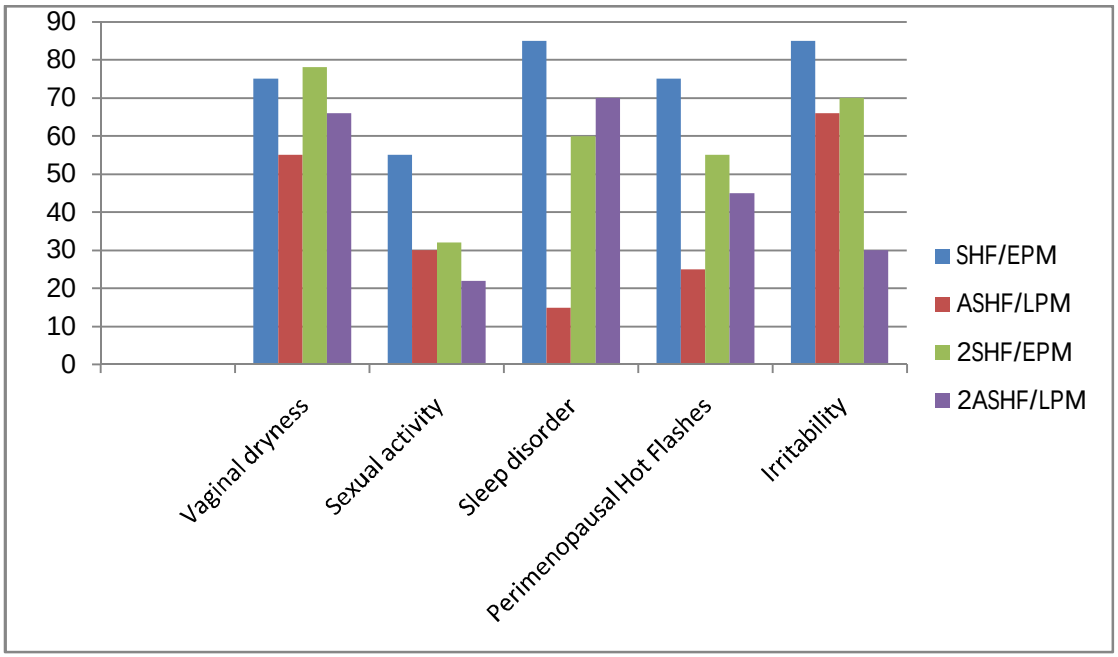

Table 1: Distribution of the study sample regarding socio-demographic characteristics (n=200)

Variable	EPM (n= 100)			LPM (n=100)		
Hote flashes	Symptomatic (n=63)	Asymptomatic (n=37)	P	Symptomatic (n=70)	Asymptomatic (n=30)	P
Age/ y	52 (49–55)	53 (50–56)	0.5117	59.5 (57–64)	61 (59–64)	0.1772
Weight/ kg	76.7 (60.5–89.8)	69.4 (63.3–80.9)	0.5540	65.5 (61.1–76.6)	64.2 (57.0–73.6)	0.281
Height, m	1.6 (1.5–1.6)	1.56 (1.52–1.60)	0.3740	1.55 (1.5–1.6)	1.6 (1.5–1.6)	0.5611
Marital status						
Married	30(47.62)	15(40.54)	0.5957	35(50.00)	15(50.00)	0.9209
Single	15(23.81)	10(27.03)		15(21.42)	10(33.33)	
Divorced	8(12.70)	5(13.51)		10(14.29)	1(3.33)	
Widowed	10(15.87)	7(18.92)		10(14.29)	4(13.33)	
Level of Education						
Primary	10 (15.87)	8 (21.62)	0.6520	12(17.14)	7(23.33)	0.6266
Secondary	25 (39,68)	10 (27.03)		30(42.86)	10(33.33)	
University	33 (52.38)	19 (51.35)		28(40.00)	13(43.33)	
Occupation						
Yes	40(63.49)	24(64.86)	0.6276	45(64.29)	15(50.00)	0.9343
No	13(20.63)	6(16.21)		10(14.29)	5(16.67)	
Retired	10(15.87)	7(18.92)		15(21.42)	10(33.33)	

Table 2: Distribution of the study sample regarding medical& Gynecological history (n=200)

Variables	EPM= 100			LPM= 100		
Thyroid disease	Symptomatic (n=63)	Asymptomatic (n=37)	P	Symptomatic (n=70)	Asymptomatic (n=30)	P
Yes	10 (24.2)	6 (20)	0.7674	10 (14.29)	7 (23.33)	1.0000
No	53 (75.8)	31 (80)		60 (85.71)	23 (76.67)	
DM						
Yes	5 (7.94)	2 (5.41)	1.0000	8 (11.43)	5 (16.67)	0.7225
No	58 (92.06)	35 (94.59)		62 (88.57)	25 (83.33)	
Physical activity						
Yes	9 (14.29)	5 (13.51)	0.4616	10 (14.29)	3 (10.00)	1.0000
No	54 (85.71)	32 (86.49)		60 (85.71)	27 (90.00)	
Smoking						
Yes	37 (58.73)	17 (45.95)	0.3118	25 (35.71)	15 (50.00)	1.0000
No	26 (41.27)	20 (54.05)		45 (64.29)	15 (50.00)	
Age at menarche/ y	14 (12–15)	13 (12–14)	0.6798	13.5 (12.0–13.3)	13 (12–15)	0.0651
Age of menopause/y	50 (45.5–51.0)	49 (44.8–52.0)	0.7770	48 (40.8–49.0)	49 (41–50)	0.6899
Years since menopause	5 (2–6)	6 (2–7)	0.4250	15 (10.8–17.0)	14 (12–20)	0.2286
Hysterectomy						
Yes	25(39.68)	10 (27.03)	0.7938	33(47.14)	5(16.67)	0.3145
No	38(60.32)	27(72.97)		37(52.86)	25(83.33)	
Previous HT						
Yes	21(33.33)	10(27.03)	0.3078	25(35.71)	10(33.33)	0.6069
No	42(66.67)	27(72.97)		45(64.29)	20(66.67)	

Table 3: Association of hot flashes with blood pressure between symptomatic and asymptomatic women within EPM and LPM groups

Variables	EPM= 100			LPM= 100		
	Symptomatic (n=63)	Asymptomatic (n=37)	P	Symptomatic (n=70)	Asymptomatic (n=30)	P
Previous BP						
Yes	37 (58.73)	20(54.05)	0.8150	60 (85.71)	19 (63.33)	0.0092a
No	23 (36.50)	17 (45.94)		10 (14.29)	11 (36.67)	
Previous OC						
Yes	50(79.37)	20 (54.05)	0.0001*	55(78.57)	25 (83.33)	0.00140*
No	13 (20.63)	17 (45..94)		15 (21.43)	5 (16.67)	
SPB, mm Hg	140 (128.5–142.0)	128 (117.5–129.0)	<0.0001a	138 (128–146)	129 (120.5–136.0)	0.0013a
DPB, mm Hg	83 (74–84)	71 (68.8–81.3)	0.0005a	82.5 (74.8–87.0)	75 (70.5–83.5)	0.0272a

Table 4: Distribution of the study sample regarding laboratory examination (n=200)

Variables	EPM= 100			LPM= 100		
	Symptomatic (n=63)	Asymptomatic (n=37)	P	Symptomatic (n=70)	Asymptomatic (n=30)	P
BMI, kg/m2	29.9 (25.4–34.8)	29.2 (26.3–33.6)	0.7937	27.4 (24.9–30.2)	27.4 (24.6–30.2)	0.5747
HR, bpm/min	66 (58–70)	64.5 (59.5–70.3)	0.6740	63 (60.0–70.3)	62 (59.0–66.5)	0.4713
Glucose, mg/dL	94 (88–101)	92 (86–99)	0.1674	99 (86.2–105.5)	95 (89.8–103.0)	0.5759
Cholesterol, mg/dL	206 (184–233)	202 (179.3–231.8)	0.8317	207 (168.3–233.0)	206 (182.3–236.0)	0.3998
Triglycerides, mg/dL	136 (85–171)	113 (64.5–160.0)	0.3090	112 (87.3–14.3)	99 (77.3–128.8)	0.2855
Albumin, g/dL	4.4 (4.2–4.6)	4.4 (4.2–4.6)	0.6405	4.3 (4.2–4.6)	4.4 (3.9–4.7)	0.8507
LH, mUI/mL	27.1 (19.9–36.6)	31.1 (16.0–41.3)	0.8081	25.2 (18.6–31.6)	27 (19.9–33.8)	0.6868
FSH, mUI/mL	52.4 (35.3–73.2)	60.8 (33.5–89.2)	0.6875	62.3 (46.9–72.8)	67.2 (58.2–77.8)	0.3153

Discussion

Symptoms of vasomotor desruption ('hot flushes') happen in 50 to 70% of ladies in the menopausal transition time frame and are specifically identified with the decrease in endogenous estrogen creation. It is expected that these hormonal changes affect the levels of the neurotransmitters nor epinephrine and serotonin, which meddle with the thermoregulation in the hypothalamus.[13,14,]

The present study demonstrated that the prevalence of sleep disorder was higher in symptomatic versus asymptomatic ladies in both EPM and LPM groups, in concurrence with different studies that discovered relative dangers of 2.1 (95% CI, 1.4–3.2)[36] and 5.28 (95% CI, 4.44–6.28; P < 0.0001).[15,16,]The trouble to sleep in ladies who reported hot flashes contrasted with individuals who are not having the indication. Numerous forthcoming studies have related sleep aggravations with more regrettable endothelial function,[17, 18] expanded risk for hypertension.

Hot flashes intensity, however, positively associated with past OC duration only in the EPM group. Ladies in the LPM group were no less than 10 years of OCs, and this reality may have favored estrogen receptor methylation upon neglect. [19,20] or may have impacted the data about the correct number of years of past utilize in light of the fact that the data were reviewed.

The present study indicated a relationship with hot flashes in our study. Symptomatic ladies in the LPM group had a higher prevalence of past hypertension analysis, liken to the study by Erkal et al,[1,20,21]where ladies up to 65 years with hot flashes demonstrated the higher pervasiveness of key hypertension (affirmed by 24 h ambulance monitoring) contrasted with the asymptomatic ones.

On the other hand, they reported that hypertensive ladies had more regular hot flashes than normotensive ones. In our study, symptomatic ladies of RPM and LPM group indicated higher, albeit generally in the ordinary range, SBP and DBP contrasted and asymptomatic ones. Gast et al,. [17,22]

Examining 5,523 ladies somewhere around 46 and 57 years, participating in the Eindhoven Premenopausal Osteoporosis Study, likewise discovered 1.92 (0.87–2.97) and 1.25 (0.66–1.84) mm Hg higher SBP and DBP, respectively, in ladies with hot flashes contrasted and those without hot flashes. Another study, analyzing ladies who were 45.6 ± 10.4 years of age by ambulatory blood pressure, also discovered higher SBP in the ladies with hot flashes contrasted with those without hot flashes, when awake and amid sleep, and independent of time since menopause.[1,2,23]

In fact, the relationship between hot flashes and higher SBP may happen through the autonomic nervous system, as sympathetic stimulation is by all accounts related to both. In spite of the fact that the connection between the sympathetic nervous system (SNS) and hypertension is well recorded, SNS and hot flashes aspects are unfolding as of late: expanded nor epinephrine decreases the thermo neutral zone in the brain;[24]

a clinical study portrayed elevated nor epinephrine in the brain of ladies with hot flashes contrasted with asymptomatic ones;[1,15]

In this way, the sympathetic tonus expanded by hot flashes and aging could potentiate the risk of creating hypertension. Particularly the time since menopause enabled the expanded risk of arterial hypertension diagnosis to be confirmed in the LPM group.[22]

Symptomatic ladies in the present study reported a longer span of earlier OC use, both in EPM and LPM groups, contrasted with the asymptomatic ones. Comparable discoveries are in concurrence with a recent publication by Gallicchio et al,[15,21]examining 732 ladies, 45 to 54 years of age, from the Midlife Women's Health Study, demonstrating an OR of 1.89 (95% CI, 1.16–3.08) for hot flashes in connection to earlier history of OC use, by means of higher duration and dosage of OCs, activates the estrogen receptor amid regenerative life; subsequently estrogens fall after menopause might be more significant for these ladies, adding to the presence of hot flashes .[24]

Conclusion

Hot flashes and expanded systolic blood pressure happen when the sympathetic activity increases. So the increase in blood pressure and the prevalence of hypertension that may prompt to complaints that are frequently ascribed to menopause. Encourage ladies to change their way of life by consistent aerobic exercises can adjust blood pressure level or postpone the start of hypertension.

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