

Frequency of hypertension in Postmenopausal women at Kinshasa University hospital

Fréquence de l'hypertension chez la ménopausée aux Cliniques Universitaires de Kinshasa

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Résumé

Contexte. L'ampleur de l'HTA postménopausale chez la femme congolaise est très peu connue.

Objectif. Déterminer la fréquence et le type de l'Hypertension artérielle (HTA) chez la ménopausée.

Méthodes. Étude documentaire des patientes reçues en consultation ambulatoire au Département de Gynécologie et Obstétrique des Cliniques Universitaires de Kinshasa (C.U.K) entre janvier 2010 et décembre 2012. Seules les femmes déclarées ménopausées dont les valeurs de la Pression Artérielle (PA) prises étaient transcrites dans les dossiers ont été incluses.

Résultats. 127 ménopausées d'âge moyen de 58 ± 6 ans ont été répertoriées. La ménopause débutait en moyenne à l'âge de 49 ± 5 ans. La fréquence de l'HTA a été de 70,1%. L'HTA contrôlée (49,4%) et l'HTA systolo-diastolique (34,8%) étaient les types d'HTA les plus fréquents. La durée de la ménopause, l'âge à la ménarche et au début de la ménopause ne différaient pas significativement entre les ménopausées hypertendues et non hypertendues ($p > 0,05$).

Conclusion. L'hypertension artérielle est fréquente chez la ménopausée dans cette institution, concernant près de 3 sujets sur 4. Toutefois, une étude transversale ou prospective à large échelle et communautaire est à envisager afin de dégager le vrai profil de l'HTA chez la ménopausée dans notre pays.

Mots clés : Fréquence, HTA, Ménopause, Cliniques Universitaires de Kinshasa

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Summary

Context. Little is known about the burden of hypertension in postmenopausal Congolese women.

Objectives: This study aimed to determine the frequency and main types of hypertension in postmenopausal women.

Methods. Retrospective analysis of medical records of patients attending the outpatient clinic at the Department of Gynecology and Obstetrics at Kinshasa University Hospital from January 2010 to December 2012. Only self reported menopausal women having registered blood pressure measures were considered.

Results. 127 menopausal women, mean age of 58 ± 6 years were enrolled. Their mean age at the onset of menopause was 49 ± 5 years. Frequency of hypertension was 70.1%. Controlled hypertension (49.4%) and both systolic and diastolic hypertension (34.8%) were the most encountered types. No significant differences were found according to age at onset and duration of menopause as well as the age at menarche between hypertensive versus non hypertensive menopausal women ($P > 0.05$).

Conclusion. Hypertension is common in menopausal women in this institution, involving almost 3 out of 4 subjects. Otherwise, a cross sectional or longitudinal community based study is required to determine the real burden and profile of hypertension in menopausal Congolese women.

Keywords. Frequency, Hypertension, Menopause, Kinshasa University Hospital

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Introduction

Hypertension, defined as a permanent state of increased blood pressure (BP), is one of the main risk factors for cardiovascular disease (CVD) which is the leading cause of morbidity and mortality in men and women (1,2). High BP is a characteristic of aging as well as in men and women. The high prevalence of hypertension in women after menopause especially compared with in men is an evidence but the specific underlying mechanisms responsible are not yet completely elucidated in spite of many clinical trials already conducted (1-3).

Many previous studies have found that hypertension is not attributed to menopausal status but simply and completely to older age (4-7). Indeed, this situation could partially explain the difficulty to make allowances between both increases in BP-related menopause and aging. Several studies have shown that hypertension is less well controlled in aging females than in aging males, although the antihypertensive treatments are similar in both genders (1-3); the reasons of these differences are unclear. Furthermore, some studies have reported a higher prevalence of hypertension in postmenopausal women than in their premenopausal counterparts even with similar age (8-9).

In the Democratic Republic of Congo (DRC), to date, there are just a few studies linking menopause and hypertension as one of the metabolic syndrome components among postmenopausal women compared with their premenopausal counterparts (10-11). Other studies conducted on menopause or CV risks have not analyzed this approach before (12-14). Thus, the aim of the present study was to determine the frequency and main types of hypertension in menopausal women in Kinshasa University Hospital.

Methods

It was a retrospective study based on medical records of menopausal women seen in general gynecology, oncology and endocrinology units outpatient at the Department of Gynecology and Obstetrics of Kinshasa University Hospital from January 1st, 2010 to December 31st, 2012.

Inclusion criteria required subjects to be declared natural menopausal with measured BP. Exclusion criterion was considered as surgical menopause.

Available data of interest concerning demographic and clinical characteristics as current age, age at menarche, age at menopause, lifestyle (alcohol consumption and smoking

habits), past medical history of hypertension, diabetes and current use of antihypertensive medications were collected. BP measurement was also considered.

Hypertension was defined as systolic BP (SBP) ≥ 140 mmHg and/or diastolic BP (DBP) ≥ 90 mmHg or current use of antihypertensive drugs.

Menopause was defined as the permanent end of menstrual bleeding for at least 12 months self reported. Menopause duration was defined as current age of patient less age at menopause.

Mean BP was defined as result of the following formula: $(2 \times \text{DBP} + \text{SBP})/3$. Pulse pressure was defined as a difference between SBP and DBP. Controlled hypertension was defined as SBP < 140 mmHg and/or DBP < 90 mmHg under treatment.

Statistical analysis

Continuous variables were expressed as mean \pm standard deviation (SD) or median (range) as appropriate. Categorical variables were expressed as relative frequency in percent and compared using Chi square or Fisher Exact tests as appropriate. Student t test or Mann Whitney test were used for continuous variables. Statistical testing was performed at the 2-tailed α level of 0.05. Data were analyzed using the STATA software package release 10.1.

Ethical consideration

The Ethical and Research Committee of the University of Kinshasa School of Medicine approved the study.

Results

A total of 127 menopausal women were enrolled in this present study. Their mean age was 58 ± 6 years ranged from 39 years to 70 years. Demographic and clinical characteristics of the study population are reported in Table 1.

Table 1. Demographic and clinical characteristics of the study population

Variable	Study population (n=127)
Current age (years)	58 ± 6
Age at menopause (years)	49 ± 5
Age at menarche (years)	14 ± 2
Menopause duration (years)	8 (1-30)
History of diabetes mellitus,%	13.4
Antihypertensive treatment,%	45.7
Alcohol consumption,%	15.0
Smoking, %	1.6
SBP, mmHg	150 ± 22
DBP, mmHg	90 ± 12
Mean BP, mmHg	110 ± 14
PP, mmHg	60 ± 17
Heart rate, b/min	82 ± 13

Data are expressed as mean ± SD, median (range) or relative frequency in percent. Abbreviations: SBP, systolic blood pressure; DBP, diastolic blood pressure ; PP, pulse pressure ; b, beat

The mean of age at menarche and menopause was 14 ± 2 years and 49 ± 5 years, respectively. The duration of menopause ranged from 1 to 30 years (median of 8 years). More than four menopausal women out of ten (45.7%) were taking antihypertensive medications. History of diabetes mellitus, alcohol intake and smoking were reported in 13.4%, 15.0% and 1.6%, respectively.

Regarding hemodynamic parameters, levels of SBP, DBP, Mean BP, PP and heart rate were 150 ± 22 mmHg, 90 ± 12 mmHg, 110 ± 14 mmHg, 60 ± 17 mmHg and 82 ± 13 b/min, respectively.

Frequency of hypertension in the population studied was 70.1%. Demographic and clinical characteristics of menopausal women according to hypertension status are summarized in Table 2.

Table 2. Demographic and clinical characteristics of menopausal women according to hypertension status

Variables	Without hypertension (n=38)	With hypertension (n=89)	P
Current age (years)	59 ± 5	58 ± 6	0.405
Age at menopause (years)	49 ± 6	49 ± 5	0.830
Age at menarche (years)	14 ± 2	14 ± 2	0.925
Duration of menopause (years)	8 (1 – 30)	7 (1 – 28)	0.186
History of diabetes mellitus, %	10.5	14.6	0.536
Antihypertensive treatment, %	0	65.2	-
Alcohol intake,%	10.5	16.9	0.360
Smoking, %	2.6	1.1	0.511
SBP, mmHg	120 ± 22	152 ± 21	0.014
DBP, mmHg	77 ± 6	91 ± 12	0.047
Mean BP, mmHg	91 ± 4	111 ± 13	0.013
PP, mmHg	43 ± 6	61 ± 17	0.091
Pouls, b/min	74 ± 10	83 ± 13	0.292

Data are expressed as mean ± SD, median (range) or relative frequency in percent. Abbreviations: SBP, systolic blood pressure ; DBP, diastolic blood pressure ; PP, pulse pressure ; b, beat

Compared to menopausal women without hypertension, those with hypertension had significantly higher levels of SBP (152 ± 21 mmHg vs 120 ± 22 mmHg; $p=0.014$), DBP (91 ± 12 mmHg vs 77 ± 6 mmHg; $p = 0.047$) and mean BP (111 ± 13 mmHg vs 91 ± 4 mmHg; $p=0.013$). Except for levels of BP, others parameters were similar between hypertensive versus non hypertensive subjects.

The types of hypertension in relation to menopause status are described in Table 3.

Table 3. The types of hypertension in relation to menopause status

Variables	Women with hypertension (n=89)
Isolated systolic hypertension, %	12.4
Isolated diastolic hypertension. %	3.4
Both systolic and diastolic hypertension, %	34.8
Controlled hypertension, %	49.4

The types of hypertension as isolated systolic hypertension, isolated diastolic hypertension, both hypertension and controlled hypertension were observed in 12.4%, 3.4%, 34.8% and 49.4% of hypertensive menopausal women, respectively.

Discussion

The main findings of the present study are as follows. First, the frequency of hypertension was high in menopausal women; second, hypertensive menopausal women had, on average, 152 ± 21 mmHg and 91 ± 12 mmHg for systolic and diastolic BP, respectively; third, more than six hypertensive menopausal women out of ten were receiving antihypertensive drugs; fourth, the controlled hypertension and the both systolic/diastolic hypertension were the most encountered types of hypertension.

In accordance with some cross-sectional studies and a longitudinal study, the present study has shown that hypertension frequency is high in menopausal women (4-8, 15-17). Despite this evidence, all of those studies have reported a direct correlation between development of hypertension and aging as well as increasing BMI but not with menopause status (4-7, 17). In fact, menopause is associated with estrogen deficiency involved to cardiovascular protective effect withdrawal; and the mechanisms of the worst BP control resulting are thought to be multifactorial (1-3). However, surgical menopause was indicated not to have direct effect on increase in BP (5,18); and estrogen replacement therapy has been reported not to decrease BP in naturally or surgical menopausal women (1,2). Therefore, menopause may play an additive role on the worsening BP profile observed. Furthermore, high levels of BP observed in hypertensive menopausal women in the present study are slightly or widely greater than in other reports (15-16, 19). These findings are illustrated in detail in Table 4.

Table 4. Comparison of hemodynamic parameters related to hypertension and menopause status in different studies

Variables/Studies	SBP (mmHg)	DBP (mmHg)	WC (cm)
Hermida <i>et al.</i> (15)	151.5 ± 20.0	85.7 ± 10.9	
Maharlouei <i>et al.</i> (16)	117.1 ± 19.3	73.4 ± 12.3	
Franz <i>et al.</i> (19)	127.73 ± 19.07	77.68 ± 10.93	< 88
Wassertheil Smoller <i>et al.</i> (20)	130.0 ± 16.35	80.68 ± 9.18	≥ 88
Our study	152 ± 21	91 ± 12	

SBP: systolic blood pressure; DBP: diastolic blood pressure ; WC: waist circumference

Our study showed a great frequency of use of antihypertensive therapies in menopausal women. This finding is in agreement with a report by Wassertheil-Smoller and colleagues who found that the percentage of hypertensive menopausal women treated was acceptably high even if 38% of women enrolled in the study had hypertension (20). This is not similar to the finding of another study in Iran with low frequency of use of antihypertensive medications reported in postmenopausal women with metabolic syndrome (16).

In the present study, the frequency of both systolic and diastolic hypertension and that of controlled hypertension were mostly documented in menopausal women. Some cross-sectional studies in Iran have shown a high frequency of both systolic and diastolic hypertension in postmenopausal women which corroborate with our finding (21-22). Although there is a disagreement between our study and those studies which suggest that diastolic BP was significantly high among postmenopausal women with metabolic syndrome.

Concerning controlled hypertension, literature reports the improvement of control of hypertension in women, less in stemmed from minorities which frequency is an agreement with our study regardless the menopause status was not defined (23). However, our finding is not similar to those reported by Fernandez-Vega and

colleagues which showed a significant increased control of BP to 61.2% in hypertensive menopausal women (24). Furthermore, other studies conducted in United States of America and Mediterranean countries showed a lower frequency of 36.1% and 33.5% (20, 25).

The discrepancies in frequency of types of hypertension in menopausal women observed in this study may be explained by the small sample size or the difference with investigation methods and objectives assigned in other studies.

Limitations

First, the retrospective descriptive design as well as the small sample size of the present study precludes clear establishment of the real hypertension profile in menopausal women. A cross sectional or longitudinal approach would be more appropriate in this context. Second, anthropometric indices were excluded from this study because of lack of available data in medical records. However, many reports showed that high BP levels are also attributed to increased BMI and waist circumference (WC) not to menopausal status (7, 17, 19). Third, menopause was defined on basis of self-reported menstrual bleeding end declared in medical records without hormone measurements; although the menstrually defined measure of menopause correlates highly with hormone measurements (26).

Conclusion

Hypertension is common in menopausal women at Kinshasa University hospital and its main types are the controlled and both systolic and diastolic hypertension

Conflict of interest

The authors declare no conflict of interest.

Contributions of authors

Kayembe H.C.N. performed all searches, compiled the text and wrote the manuscript; Tozin RR. provided conceptual input and revised the

manuscript; Mbutiwi F.I.N. conducted data analysis and revised the manuscript. All authors approved the final version of manuscript.

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