Original Article

Incidence Rate of Asymptomatic Hypertension Among Early Middle Age People

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Abstract

Background: One of the key risk factors for the severity of cardiovascular nontransmitted diseases such as renal failure, coronary heart disease, and stroke is hypertension. Only stable patients with no indications or symptoms of end-organ injury experience asymptomatic hypertension. **Objectives:** To estimate the incidence rate of asymptomatic hypertension among early middle age people. **Materials and Methods:** A cross-sectional design was utilized and a nonprobability (convenience approach) sampling technique with a size of sample 270 subjects who visited Merjan and AL Imam AL Sadiq teaching hospitals from December 1, 2022, to March 30, 2023. Data was gathered by two techniques, an interview, and a questionnaire, and taking two different blood pressure readings by a mercury Sphygmomanometer for every participant. **Results:** Overall incidence rate of asymptomatic hypertension was 16.584% with rates for females 9.52% and males 7.063%. There is a high percentage of women aged 46 and more (32.9) in urban areas (67.4) with low monthly income (41.4) additionally housewives (46.3) and primary school graduates (32.9) and there hve a family history of hypertension (92.9%) and had not diabetes mellitus, renal disease and heart disease. A high percentage of using mixed drugs (53.4) including contraceptives, herbs, and NSAIDs with high percentage cholesterol and triglyceride levels. **Conclusion:** High incidence rate of asymptomatic hypertension and it is more common in females than males among early middle age people.

Keywords: Asymptomatic hypertension, early middle age people, incidence rate

Introduction

Individuals living in urban areas are susceptible to epidemiological changes, particularly related to health problems, as a result of the world's current rapid advances in technology and growing urban population, this will likely bring noncommunicable diseases like hypertension.[1] The World Health Organization predicts that hypertension contributes to 7.1 million deaths yearly, or 13% of all fatalities worldwide, making it a significant public health concern.[2] Achieving optimal blood pressure control is crucial for public health because hypertension nowadays affects one out of every four American adults and may affect more than 90% of persons over their lifetimes.[3] Asymptomatic hypertension is when a person has high blood pressure but shows no outward signs of it. If left untreated, this ailment can result in major health issues like stroke, heart disease, and damaged kidneys. A study published in the Journal of the American Medical Association found that 16% of Americans with hypertension are asymptomatic and that roughly one-third of individuals in America had the condition.[4] It has been extensively documented that hypertension is common in many parts of the world. However, the incidence of newly established hypertension is significantly less well understood than the frequency of the condition.[5] The World Health Organization has divided the main hazard for hypertension into cardiovascular disease-related risk factors as well as behavioral, metabolic, and social determinants. The metabolic risk factors for hypertension include diabetes, obesity, and hyperlipidemia, whereas the behavioral risk factors include poor eating, tobacco use, inactivity, and problematic alcohol use.[6] Iraq has

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been one of the Eastern Mediterranean nations involved in a whirlwind of war, instability, and a variety of armed conflicts over the past 10 years that has resulted in an additional burden of mental and health strains, there were several social and health issues during and after the conflicts, and unstable circumstances exhibited by the devastation of the healthcare sector, a lack of medical attention, and a loss of health services may be a role in the steadily rising prevalence of high blood pressure in Iraq.[7] Hypertension is regarded as the sixth most common cause of mortality in Iraq with a prevalence of between 35.6% and 40%, where 6535 fatalities occurred in 2015.[8]

Materials and Methods

Design of the study

A cross-sectional study design is conducted to estimate the incidence of asymptomatic hypertension among early middle age people, are aged between 25 and 51 years according to Dash *et al*.[9] The study process has been extended from December 1, 2022, to March 30, 2023.

Sample of study

The study involved a nonprobability (convenience approach) sampling technique for 270 participants who visited Merjan and AL Imam AL Sadiq teaching hospitals in the emergency and outpatients' consultation areas and revealed asymptomatic hypertension early middle age ranged from 25 to 51 years.

Instrument of the study

The instrument of study includes a mercury Sphygmomanometer and questionnaire, the final instrument included two parts:

Part I: The socio-demographic data consists of nine elements including (age, gender, residence, monthly income, level of education, occupation, marital status, weight, and length/height).

Part II: Medical and family history which consists of five elements including (a family history of hypertension, diabetic mellitus, renal disease, heart disease, and drugs that contributed to occur hypertension. And clinical data including laboratory investigation (complete blood account, random blood sugar, lipid profile, serum urea, serum creatinine, and glycated hemoglobin A1C (HbA1C).

The validity of the instrument study is performed by 14 experts. Sphygmomanometer reliability is conducted and shows the same reading for the same patient and questionnaire reliability is also conducted by test–retest.

Data collection

Data was gathered by interview and questionnaire and taking two different readings of blood pressure for the same patient by using a mercury Sphygmomanometer, one reading was taken in the morning and another second was taken in the afternoon of the same day after the patient completeed all laboratory investigation.

Statistical analysis

Data analysis by using the statistical package of social sciences version 20, including one kind of statistic. Descriptive Statistical: presented by percentages (%), frequencies, mean, stander deviation, and equation incidence rate.

Ethical consideration

The most crucial concern in the research of nursing is ethical consideration, which attempts to protect the rights of both the researcher and the participant. Obtaining approval from the Ethical Committee of Kufa University/ Faculty of Medicine. Prior oral informed permission was also taken from each participant.

Results

Table 1 shows that the total incidence rate of asymptomatic hypertension was 16.584% which females were more rate than males (9.52% and 7.063%), respectively, among early middle age people.

Table 2 displays the statistical distribution of the study sample by their socio-demographic data. It states that the percentage of the early middle-aged people are ages 46 and more (32.96%), females (57.41%), those living in urban areas (67.41%), those who have 250,000 to 499,999 IQD income (41.48%), those with primary school graduate (32.96%), their occupation is mostly housewife (46.30%), those with married marital status (87.41%), and who have obesity (84.44%).

Table 3 displays the statistical distribution of the study sample by their medical and family history characteristics, it states that a high percentage of the

Table 1: Incidence rate of asymptomatic hypertension of participants Incidence Rate (%) = No. of new cases/total population at risk within a given period of time × 100

Gender	Asymptomatic hypertension	Total population at risk	Incidence rate %
Male	125	1628	7.063%
Female	155	1628	9.52%
Total	270	1628	16.584%

Table 2: The socio-demographic characteristics

Socio-demographic characteristics	Freq.	%
Age groups (years)		
≤30	58	21.48
31–35	27	10.00
36–40	52	19.26
41–45	44	16.30
≥46	89	32.96
Mean ± SD	39.86 ± 8.2	
Gender		
Females	155	57.41
Males	115	42.59
Residence		
Rural	88	32.59
Urban	182	67.41
Monthly income		
<250,000 IQD	63	23.33
250,000–499,999 IQD	112	41.48
500,000–749.999 IQD	56	20.74
750,000–999.999 IQD	28	10.37
1,000,000–1,499,999 IQD	7	2.59
≥1,500,000 IQD	4	1.48
Level of education		
Illiterate	18	6.67
Read and write	22	8.15
Primary school graduate	89	32.96
Intermediate school graduate	49	18.15
Secondary school graduate	31	11.48
Institute graduate	32	11.85
University graduate and above	29	10.74
Occupation		
Employed governmental	73	27.04
Free business	72	26.67
Housewife	125	46.30
Marital status		
Unmarried	22	8.15
Married	236	87.41
Divorced	5	1.85
Widowed	7	2.59
BMI		
Normal	5	1.85
Overweight	37	13.70
Obese	228	84.44
Mean ± SD	31.07 ± 3.25	
Total = 270		

Table 3: The medical and family history characteristics

Medical and family history characteristics	Freq.	%
Do you have a family history of hypertension?		
Yes	251	92.96
No	19	7.04
Do you have diabetes mellitus?		
Yes	59	21.85
No	211	78.15
Do you have kidney disease?		
Yes	14	5.19
No	256	94.81
Do you have heart disease?		
Yes	40	14.81
No	230	85.19
If yes, what are these diseases?		
Valves heart diseases	29	72.50
Heart defect	1	2.50
Others	10	25.00
Do you use medication that participates to hypertension?		
Yes	187	69.26
No	83	30.74
If yes, what are these medications?		
Hormones	5	2.67
Contraceptive	27	14.44
Herbal drugs	53	28.34
NSAID	2	1.07
Mixed drugs	100	53.48
Total	270	100%

family history have hypertension (92.96%), with have not diabetes mellitus (78.15%), as well as kidney diseases and heart disease were 94.81% and 85.19%, respectively, and most percentage of use medication that participate to hypertension (69.26%).

Table 4 shows the medical laboratory parameters data of the early middle age people; it reveals that most medical laboratory parameters were within normal levels according to World Health Organization range values, except total cholesterol and triglyceride, it was high levels of about 63.7 and 61.85, respectively.

Discussion

The present study demonstrates that the overall incidence rate of asymptomatic hypertension in AL-Hilla City is 16.584% with rates of 9.52% for females and 7.063% for males during the period from December 1, 2022, to May 30, 2023. It was found that 16.5% of 1628 people has asymptomatic hypertension, which means that it is a percentage that draws attention to the spread of this dangerous disease between these ages, and the highest percentage was among women because it is usually protected by hormones like estrogen in premenopausal period so they do not show signs and symptoms.[10] This result agrees with studies.[11-13]

Table 2 presents that more than one-third (32.96%) were age 46 and more had asymptomatic hypertension. This result may be due to epidemiological status and the nature of the disease, which often spreads at this age. In addition, people at this age practice unhealthy eating habits while neglecting periodic blood pressure checkup. Our findings agree with the studies.[14,15] The outcome shows that females are more than males in the percentage

Table 4: The medical laboratory parameters data

Medical laboratory parameters	Freq.	%	Mean ± SD
Random blood sugar (mmol/L)			
Low	2	0.74	6.01 ± 1.43
Normal	214	79.26	
High	54	20.00	
HbA1C (%)			
Low	17	6.30	5.78 ± 1.77
Normal	199	73.70	
High	54	20.00	
Blood urea (mmol/L)			
Low	1	0.37	5.45 ± 1.20
Normal	260	96.30	
High	9	3.33	
Serum creatinine (mmol/L)			
Low	4	1.48	81.16 ± 12.16
Normal	264	97.78	
High	2	0.74	
Wight blood cells (10^9/L)			
Low	3	1.11	11.59 ± 5.58
Normal	256	94.81	
High	11	4.07	
Red blood cells (10^{12}/L)			
Low	54	20.00	4.55 ± 1.33
Normal	178	65.93	
High	38	14.07	
Platelets (10^9/L)			
Low	5	1.85	223.15 ± 59.28
Normal	256	94.81	
High	9	3.33	
Hemoglobin (g/dL)			
Low	45	16.67	13.3 ± 2.65
Normal	194	71.85	
High	31	11.48	
Hematocrit (%)			
Low	46	17.04	40.12 ± 6.80
Normal	193	71.48	
High	31	11.48	
Total cholesterol (mmol/L)			
Low	3	1.11	5.79 ± 1.40
Normal	95	35.19	
High	172	63.70	
Low-density lipoprotein (mmol/L)			
Low	4	1.48	3.55 ± 0.98
Normal	170	62.96	
High	96	35.56	
High-density lipoprotein (mmol/L)			
Low	8	2.96	1.20 ± 0.37
Normal	229	84.81	
High	33	12.22	
Triglycerides (mmol/L)			
Low	0	0.00	2.27 ± 0.99
Normal	103	38.15	
High	167	61.85	

of 57.41 and 42.59, respectively. This result reflects that these women are in the early period of menopause in addition to the factors of obesity, lack of movement, and the phenomenon of smoking. These results agree with the study of Almomani *et al.*[16] in Jordan. Asymptomatic hypertension in urban areas has a percentage than in rural areas (67.41 and 32.59, respectively). This reflects that the setting of the study sample was in the city center and it is obvious that most of the sample are from urban areas. This result agrees with studies.[17,18] Regarding the monthly income state less than 250 IQD (41.48%), primary school graduate (32.96%), housewife (46.30%), and married (87.41%). These results state that there is a correspondence for the factors of monthly income, educational level, employment status, and marital status for this sample, in which women predominate, preferring marriage over completing education. This outcome is similar to that of Alnasrawi *et al.*'s[19] study in Al-Imam Al-Hussein Medical City in Kerbala, Iraq in monthly income, and the studies agree[16,17,20,21] in primary graduates and housewives and marital status. The study results demonstrate that the majority of respondents were obese (84.44%), this corresponds to the most in our study being housewives' women. The issue of obesity and hypertension may be influenced by the lack of physical activity, a sedentary lifestyle, unhealthy food, changing hormones, and the use of contraceptive medication. This outcome agrees with.[20,22] Table 3 demonstrates that the great majority of study respondents were with a family history of hypertension (92.96%), This explains that there is scientific evidence proving that genes play a major role in hereditary and chronic diseases, including hypertension. This finding agrees with studies,[8,23] whereas the study[24] contrasts with our finding. According to diabetes mellitus, renal, and heart diseases states that the subjects had no DM, renal and heart diseases about a percentage of 78.15, 94.81, and 85.19, respectively, these results can be interpreted by the development of DM, renal, and heart diseases are earlier at this age. These results agree with studies assumed by Mahdi and Al-Humairi[6] and Chobufo *et al.*[21] The study outcome demonstrates that more than half (69.26%) use drugs, especially mixed drugs (53.48%) including hormones, contraceptives, herbal drugs, and NSAIDs, this result may be due to a lot of Iraqi society especially those who suffer from pain and headache has a tendency to take drugs without a doctor's prescription and women use frequently contraceptives in a young age. This result is in line with Nguyen *et al.*,[25] who reached that contraceptive is a factor in hypertension incidence, and Liew *et al.*[26] who reached that continuous use of NSAIDs was linked to the development incident HTN. Medical laboratory tests have the normal result of complete blood account, RBS, HbA1c, Blood urea, and creatinine except the total cholesterol and triglyceride has a percentage of about 63.7 and 61.85, this is the biggest cause of high blood pressure,

these results may be due to high smokers of sample study and low of activity, obesity. This finding was compatible with the results obtained by Mamdouh *et al.*[27] and other several authors worldwide[28-30]

Conclusion

A high incidence rate of asymptomatic hypertension among early middle age in Hilla City, total cholesterol and triglyceride play a major role in developing asymptomatic hypertension, and a majority of participants suffer from obesity.

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Conflicts of interest

There are no conflicts of interest.

References

1. Nawi M, Mohammad A, Jetly Z, Abd Razak K, Ramli MA, Ibadullah NSW. The prevalence and risk factors of hypertension among the urban population in southeast Asian countries: A systematic review and meta-analysis. Int J Hypertens 2021;2021:6657003.
2. Ismael DH, Qadir CS. Factors affecting treatment compliance of hypertensive patients in Erbil city. Kufa J Nurs Sci 2015;5:1-8.
3. Khidder BB, Ismail KH. Uncontrolled hypertension in a group of hypertensive patients in Erbil. Kufa J Nurs Sci 2013;3:127-33.
4. Muntner P, Carey RM, Gidding S, Jones DW, Taler SJ, Wrightjr JT. Potential US population impact on the 2017 ACC/AHA high blood pressure guideline. Circulation 2018;138:109-18.
5. Lee JH, Yang DH, Park HS, Cho Y, Jun JE, Park WH, *et al*.; HYpertension-Diabetes Daegu Initiative Study Investigators. Incidence of hypertension in Korea: 5-year follow-up study. J Korean Med Sci 2011;26:1286-92.
6. Mahdi HA, Al-Humairi AK. Assessment of knowledge about hypertension among hypertensive patients in Babylon province. Med J Babylon 2022;19:31-6.
7. Amen SO, Rasoo BQ, Muhammad HM. Hypertension in Iraq. Med J Babylon 2021;18:275.
8. Sadeq R, Lafta RK. Knowledge, attitude, and practice about hypertension in hypertensive patients attending hospitals in Baghdad, Iraq. South East Asia Journal of Public Health 2017;7:29-34.
9. Dash SR, Hoare E, Varsamis P, Jennings GL, Kingwell BA. Sex-specific lifestyle and biomedical risk factors for chronic disease among early-middle, middle and older aged Australian adults. Int J Environ Res Public Health 2019;16:224.
10. Khalil RA. Estrogen, vascular estrogen receptor and hormone therapy in postmenopausal vascular disease. Biochem Pharmacol 2013;86:1627-42.
11. AL-Isawi Z, Kadhim S, Yahya Y, Hadi NR. Stress as a possible cause of a high incidence of hypertension and diabetes and a low incidence of asthma in the Iraqi population. J Med Life 2023;16:434-41.
12. Arici M, Turgan C, Altun B, Sindel S, Erbay B, Derici U, *et al*; Turkish Society of Hypertension and Renal Diseases. Hypertension incidence in Turkey (HinT): A population-based study. J Hypertens 2010;28:240-4.
13. Pakhare AP, Lahiri A, Shrivastava N, Joshi A, Khadanga S, Joshi R. Incident hypertension in urban slums of central India: A prospective cohort study. Open Heart 2021;8:1-7.
14. Lopes JAS, Giatti L, Griep RH, Lopes AADS, Matos SMA, Chor D, *et al*. Life course socioeconomic position, intergenerational social mobility, and hypertension incidence in ELSA-Brasil. Am J Hypertens 2021;34:801-9.
15. Souffront K, Gestal C, Melkus GDE, Richardson L. Recognition of asymptomatic hypertension in an urban emergency department: Where are we now? Adv Emerg Nurs J 2016;38:320-6.
16. Almomani MH, Akhu-Zaheya L, Alsayyed M, Alloubani A. Public's knowledge of hypertension and its associated factors: A cross-sectional study. Open Nurs J 2022;16.
17. Ali MAK, AL Badri HJA, Mousa NA. Hypertension control among adult Iraqis. J Faculty Med Baghdad 2022;64:145-52.
18. Rajati F, Hamzeh B, Pasdar Y, Safari R, Moradinazar M, Shakiba E, *et al*. Prevalence, awareness, treatment, and control of hypertension and their determinants: Results from the first cohort of non-communicable diseases in a Kurdish settlement. Sci Rep 2019;9:1-10.
19. Alnasrawi AMZI, Al Jobori SS, Nassrallah HAA. Compliance of hypertensive patients to medication in AL-Imam AL-Hussein medical city-Kerbala-2018. Kerbala J Med 2018;11.
20. Saka M, Shabu S, Shabila N. Prevalence of hypertension and associated risk factors in older adults in Kurdistan, Iraq. East Mediterr Health J 2020;26:268-75.
21. Chobufo MD, Rahman EU, Farah F, Suliman M, Mansoor K, Elhamdani A, *et al*. 10-Year community prevalence and trends of severe asymptomatic hypertension among patients with hypertension in the USA: 2007–2016. Int Jof Cardiol Hypertens 2020;7:1-5.
22. Al-Taee WGA. Assessing risk factors for hypertension among adults in Mosul a case-control study. Iraqi J Community Med 2010;23.
23. Anto EO, Owiredu WKBA, Adua E, Obirikorang C, Fondjo LA, Annani-Akollor ME, *et al*. Prevalence and lifestyle-related risk factors of obesity and unrecognized hypertension among bus drivers in Ghana. Heliyon 2020;6:e03147.
24. Yagoub U, Saiyed NS, Al Qahtani B, Al Zahrani AM, Birema Y, Al Hariri I. Investigating the incidence and risk factors of hypertension: A multicenter retrospective cohort study in Tabuk, Saudi Arabia. PLoS One 2022;17:e0262259.
25. Nguyen B, Bauman A, Ding D. Association between lifestyle risk factors and incident hypertension among middle-aged and older Australians. Prev Med 2019;118:73-80.
26. Liew JW, Ward MM, Reveille JD, Weisman M, Brown MA, Lee M, *et al*. Nonsteroidal anti-inflammatory drug use and association with incident hypertension in ankylosing spondylitis. Arthritis Care Res 2020;72:1645-52.
27. Mamdouh H, Alnakhi WK, Hussain HY, Ibrahim GM, Hussein A, Mahmoud I, *et al*. Prevalence and associated risk factors of hypertension and pre-hypertension among the adult population: Findings from the Dubai household survey, 2019. BMC Cardiovasc Disord 2022;22:18.
28. Mahapatro AK, Chandrika S, Chepuru R. A study of lipid profile abnormalities among patients with essential hypertension attending tertiary care center. Int Jof Contemp Med Res 2020;7:A1-4.
29. Alabdaly MA, Ahmed HM, Thanoun BI, Al Ashow SAM, Ahmad WG. Frequency of stroke and distribution of its subtypes in Nineveh, Iraq, related to risk factors. Med J Babylon 2024;21(Suppl 2):S234-7.
30. Ubeid MH. Pregnant women with type 2 diabetes mellitus and hypertension: A physiological overview. Med J Babylon 2024;21:944-50.