

The Prevalence of Hypertension among the Elderly in Fourteen Villages in Kedah, Malaysia

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ABSTRACT

Introduction: Currently, there is a dearth of research into the elderly in Malaysia. More data is needed in order to plan services for them. Hypertension is an illness whose prevalence increases with age. The objective of this study was to determine the prevalence of hypertension among the elderly population of fourteen villages in Kedah. **Methods:** A descriptive cross-sectional study was conducted on all elderly persons who consented to participate, in fourteen villages in the district of Kuala Muda in Kedah. A questionnaire was used for the data collection. Blood pressure was measured and participants were assessed for their activities of daily living using Barthel Index, cognitive impairment using Elderly Cognitive Assessment Questionnaire (ECAQ) and depression using Geriatric Depression Scale. Descriptive analysis, using SPSS version 11.0, was done to explore the data. **Results:** The total population of the villages was 3095 and 336 were 60 and above. A total of 240 elderly individuals agreed to participate giving a response rate of 71.4%. There were 138 females (57.5%) and 102 (42.45) males. Ninety-eight percent of the respondents were Malays (n=236) of which 57.2% were females and 42.8% males; the remaining 4 (1.7%) were Indians, of which 3 were females and 1 male. The prevalence of hypertension was 58.3% (n=140) in the villages. 138 (58.5%) of the Malays were hypertensive compared to 2 (50%) of the Indians. Half (51.4%) of those diagnosed as hypertensive were unaware of their condition and half (48.6%) of those known to have hypertension, the blood pressure was not controlled ($p < 0.05$). **Discussion:** The results of the study are similar to the National Health and Morbidity Survey, 1996. Though the data is from an opportunistic sample and may not represent a larger population especially by race, the findings offer data for a pooled analysis. It is also very worrying to note that 48.6% of the people knew of their condition but did not do anything to control their blood pressure.

Keywords: Hypertension, geriatric, elderly, prevalence, Malaysia

INTRODUCTION

The elderly comprised about 10% of the world's population in 2000. It is projected that in the next 50 years, the proportion of the elderly will double reaching 21%. The overall number of elderly will increase from 606 million in 2000 to 1.9 billion in 2050, where 394

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million elderly will live in the developed countries, up from 232 million in the year 2000. In the developing countries, the number will reach 1.5 billion in 2050, a four-fold increase from 375 million in 2000.^[1]

The World Health Organization predicts the number of elderly in the Western Pacific region to double over the next few decades.^[2] In Malaysia, the last four census show that the proportion of older persons is increasing. It is estimated that by the year 2050, 9.5 % of the population will be 60 years of age and above.^[3]

It is generally accepted and has been shown for many years that there is a large number of undetected diseases among the elderly^[4] and that disease prevalence increases with increasing age.^[5] Hypertension is an important problem in the elderly causing a high rate of morbidity and mortality in this group. Hypertension, particularly systolic hypertension represents a patho-physiologic manifestation of altered cardiovascular physiology and structure morbidity, ultimately manifesting as increased cardiovascular morbidity and mortality.

More than a half of the population aged 65 years or older have hypertension, defined as BP \geq 140/90.^[6] The National Health and Morbidity Survey in 1996 found the prevalence of hypertension in Malaysian adults $>$ 30 years to be 33%.^[6] Khalid *et al.*^[7] in their study among Malaysian railway workers found the prevalence of hypertension to be 37%, Narayan & Rashid^[8] found the prevalence to be 33.6% in a fisherman's village while Muna *et al.*^[9] in their study on old folk's home in Kedah found an even higher prevalence of 50.3%, whereas Mohd Yunus *et al.*^[10] found the hypertension prevalence rate to be 57% in their study of a rural community in Selangor.

The objective of this study is to determine the prevalence of hypertension in 14 villages in Kedah.

METHODS

The study was conducted as a cross-sectional study in an opportunistic sample fourteen villages in the district of Kuala Muda in Kedah. The villages were selected from a larger community survey. The major occupations of the villages are fishing, farming, working in factories and having small scale businesses. The total population of the villages is 3095, of which 336 are 60 years and above (10.85 %). The study subjects included all the elderly, defined as a person aged 60 and above who resided in the villages. All those who consented were included.

Data collection was done with an interview schedule. All elderly who consented were interviewed by trained research assistants. Blood pressure was measured with the participant sitting, having rested for 15 minutes; the arm of the participant was supported at the same level as his /her heart. Blood pressure was measured using a manual sphygmo-manometer according to WHO guidelines. Researchers were trained to use the participant's right arm, after the participant was well rested, in a sitting position. Korotkoff Phase V (complete disappearance of sounds) was considered to be the cut off diastolic pressure, except where the sounds never disappeared (which can happen in the elderly), then it was acceptable to use Korotkoff Phase IV. Blood pressure was measured on three separate occasions. A positive diagnosis of hypertension was made when the blood pressure was more than 140 mmHg systolic or more than 90 mmHg diastolic on all three occasions. This is in line with

current criteria of diagnosis of hypertension in all adults (including the elderly) by the World Health Organization and International Society of Hypertension.^[11] These cut-offs were also used to diagnose isolated systolic or diastolic hypertension. The participants were also assessed for their activities of daily living. Activities of daily living included continence, mobility, washing, dressing and feeding. These were assessed using Barthel Index, a well established and a commonly used nursing tool.^[12] The participants were assessed for cognitive impairment using Elderly Cognitive Assessment Questionnaire (ECAQ). It is a ten-item questionnaire assessing long-term memory, orientation and recall. A score below four is indicative of probable dementia. Depression was assessed using Geriatric Depression Scale.

The relationship of blood pressure to age, sex, race, living arrangements, marital status, occupation and family income were studied. Data was analysed using SPSS version 11.0

The study received the ethical clearance of the Ethical and Research Committee of the School of Medicine of AIMST University. Those diagnosed as hypertensive were referred to a doctor for commencement of anti-hypertensive medication.

RESULTS

The total population of the villages was 3095 and the population of the villagers aged 60 and above was 336. The total number of elderly who agreed to participate was 240 giving a response rate as 71.4%. Age range of the respondents was from 60 to 90 and the mean age of the respondents was 69.8. There were 138 females (57.5%) and 102 (42.5%) males. Ninety-eight percent of the respondents were Malays (n=236), of which 135 (57.2%) were females and 101 (42.8%) males; the rest were Indians 4 (1.7%), of which 3 were females and 1 was male. Eighty-six percent (n=207) were living with their families and the rest (33) were living alone. Fifty-four percent (n=130) were working and the rest were not working.

As shown in Table 1, the prevalence of hypertension was 58.3% (n=140) in the villages. 138 (58.5%) of the Malays were hypertensive compared to 2 (50%) of the Indians. The rate of hypertension among females and males was 55% and 62.7% respectively. Prevalence by age was 58.7% for those between 60 and 70, 62.1% for those between 71 and 80 and 42.1% for those above 81.

Table 2 shows the mean systolic and diastolic pressure of the population by race and sex. Though the numbers are small, the blood pressure among Indians was lower than among Malays. The difference was significant for diastolic blood pressure.

The mean systolic blood pressure of the hypertensive was 147.4 and the mean diastolic pressure was 89.8.

Half (51.4%) of those diagnosed as hypertensive were unaware of their condition and another half (48.6%) of those with hypertension, the blood pressure was not controlled ($p<0.05$).

There was no difference in prevalence by occupation and income. The difference in rates among those living with families (56%) from those living alone (72.2%) was significant. According to the assessment done using the geriatric depression scale, 55.9% with normal score were hypertensive, 65.1% of those with mild depression were hypertensive and 7.4% with major depression were hypertensive. 58.6% of those with cognitive impairment were

Table 1. Characteristics of hypertension among the elderly in 14 villages in Kedah

sr	Characteristics	Hypertension	No hypertension
1	Prevalence	140 (58.3%)	100 (41.7%)
2	Race		
	Malay	138 (58.5%)	98 (41.5%)
	Indian	2 (50%)	2 (50%)
3	Occupation		
	Working	64 (58.2%)	46 (41.8%)
	Not working	76 (58.5%)	54 (41.5%)
4	Family income		
	Less than 500	96 (58.5%)	68 (41.5%)
	More than 501	44 (57.9%)	32 (42.1%)
5	Living arrangement		
	Family	116 (56%)	91 (44.0%)
	Alone	24 (72.7%)	9 (27.3%)
6	Dependency using Barthel score		
	Dependent	7 (70%)	3 (30%)
	Independent	133 (57.8%)	97 (42.2%)
7	Depression		
	Normal	85 (55.9%)	67 (44.1%)
	Mild depression	28 (65.1%)	15 (34.9%)
	Major depression	9 (60%)	6 (940%)
8	Cognitive assessment		
	Cognitive impaired	17 (58.6%)	12 (41.45)
	Cognitive normal	123 (58.3%)	88 (41.7%)
9	Age		
	60 -70	91 (58.7%)	64 (41.3%)
	71 -80	41 (62.1%)	25 (37.9%)
	>81	8 (42.1%)	11 (57.9%)
10	Sex		
	Male	64 (62.7%)	38 (37.3%)
	Female	76 (55.1%)	62 (44.9%)

hypertensive compared to 41.45% with no cognitive impairment. In terms of dependency, 70% were found to be dependent based on the Barthel's score were hypertensive.

DISCUSSION

Though this study was done on an opportunistic sample and the race distribution is not similar to the general population, it reflects the ground realities of conducting community surveys where communities are clustered by race and socio-economic status. Within these limitations, the prevalence rate of hypertension in this study was 58.3%, higher than the

Table 2. Mean blood pressure

Sr	Characteristic	Systolic	Diastolic
1	Total elderly patients	136.05	83.77
a	Sex		
	Female	135.29	83.78
	Male	137.09	83.76
b	Race		
	Malay	136.20	83.98
	Indian	127.50	71.50
2	Among the hypertensives	147.42	89.78
a	Sex		
	Female	147.18	89.88
	Male	147.70	89.66
b	Race		
	Malay	147.59	89.93
	Indian	136	79

33% found in the National Health and Morbidity Survey, 1996^[6] as well as the study conducted by Khalid *et al.* which gave a prevalence of 37%^[7] and that by the authors.^[8] This is comparable to the study conducted by Muna *et al.*^[9] among the elderly in a government-run old folks home and 57.3% in the study conducted by Mohd Yunus *et al.*^[10] in a rural community in Mukim Dengkil, Selangor.

There was no significant difference in the rates between males and female cases which is consistent with the National Health Morbidity Survey, 1996.^[6] This is of importance as women are equally affected. As in the National Health Morbidity Survey, 1996, this study too showed that there were a high number of people who were diagnosed as hypertensive who were unaware of their condition. It is also very worrying to note that 48.6% of the people who knew of their condition, the blood pressure was not controlled which is higher than the findings of the National Health Morbidity Survey, 1996.

As in the National Health Morbidity Survey, 1996, there was no significant difference in the mean systolic and diastolic blood pressure between males and females. But this study did find a significant difference in the mean diastolic pressure between the Malays and Indians.

This study found 17.1% of the cognitively impaired to be hypertensive and 70% of those who were dependent due to disability to be hypertensive. This could pose a problem for compliance to medication.

CONCLUSION

Health screening is an important aspect of health promotion and disease prevention especially for chronic diseases and in people over 60 years. Screening can play an important role especially in the elderly which will help reduce complications of hypertension if treatment is started early. Myriad trials have shown the benefits of treating rather than ignoring the

health problems of older people. Older people are no different from younger people in their response to treatment but because of their higher levels of risks, gain greater absolute benefits from effective treatments.^[13]

This study has limitations, in that it is a small descriptive study conducted in only in fourteen villagers, but nevertheless the findings of this study can be pooled with others for a robust statistical analysis and should spur others with better resources to conduct a larger analytical study as this study has shown the high prevalence of hypertension among the elderly in the rural villages.

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