

A PROFILE OF HYPERTENSION AMONG RURAL ELDERLY MALAYSIANS

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Abstract. The main objective of this study was to survey the prevalence of hypertension in Malaysians aged 55 years and above who responded to a public health screening campaign in Kuala Langat district, Selangor, Malaysia. The relationship between the detection, treatment and control in the study population was also examined. An epidemiological survey of the elderly was conducted in Kuala Langat, a rural district in Malaysia for a consecutive period of six weeks. The survey was conducted using a standardized questionnaire and interview by trained research assistants. The medical students and nurses were trained on the correct protocol of measuring blood pressure based on the recommendations of the British Hypertension Society. Newly detected persons with blood pressure readings 160/95 mmHg and above, were given a green card to return to the nearest health center for a further 2 visits to check his/her blood pressure. A total of 1,392 people with a mean age of 65 years and comprising of 53.1% males and 46.9% females responded to the health survey. Based on the history 335 (24.1%) of the respondents were known hypertensives and 82.1% of this hypertensive group were on regular treatment. However good control of hypertension was achieved only in 161 (48.1%) of them. Newly detected hypertension was found in 204 (14.6%) of the respondents. The overall prevalence of hypertension in our sample of respondents was 25.6%. There was no significant difference between the sexes and the races in terms of their detection, treatment and control. However there was a significant difference between the persons aged less than 65 years of age and those older than 65 years. There was a large proportion of previously known hypertensives among the survey population. Of those detected, not all were on regular medications and the majority on medications were not well controlled. Education of the public through intensive public health campaigns is vital to improve their knowledge on hypertension and the need for effective control. More community studies are needed to formulate better methods in the detection, treatment and control of hypertension.

INTRODUCTION

Hypertension is one of the most important risk factors for stroke and coronary heart disease in the elderly because of its high prevalence and continuing impact into advanced age (Rabkin *et al*, 1978). Cardiovascular mortality is tripled in the hypertensive elderly compared to normotensives of the same age (Kannel *et al*, 1980). Notable and sustained declines in the cardiovascular mortality has been achieved in the USA within the last 2 decades, with the improvement and progress in the detection, treatment and control of hypertension (JNC V, 1993). Mortality due to coronary artery disease in Malaysia has increased by more than 3 fold since 1950-1989, and is still rising (Khoo *et al*, 1991).

However mortality due to hypertension fell from 16.8% in 1965 to 1.4% in 1990 (Khoo *et al*, 1991). There have been few studies on hypertension in the elderly in Malaysia, where there is an increasing aging population. Today, there are about 1.2 million or 5.9% of elderly people aged 60 years and above which is projected to increase to 6.6% in the year 2000 and 11.3% in the year 2020 (Statistics Department, 1996). The main objective of this pilot study was to survey the prevalence of hypertension in Malaysians aged 55 years and above who responded to a public health screening campaign in Kuala Langat district, Selangor, Malaysia. The relationship between the detection, treatment and control in the study population was also examined.

METHODS

An epidemiological survey of the elderly was

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conducted in Kuala Langat, a rural district in Malaysia for a period of six consecutive weeks. The elderly population aged 55 years and above were recruited by obtaining a list of names drawn up by the respective village headmen. This was achieved by announcements made at religious meetings and house to house visits by local volunteers to identify who were eligible. All ambulatory persons whose identity cards confirmed that they were 55 years and above were eligible to participate in the survey. Letters of invitation were posted to all those aged 55 years and above to attend the health survey at government health centers located in each area, local community halls or estate clinics, on specified dates. An intensive public health campaign was promoted via announcements in the local newspapers and posters and banners placed at strategic points in Banting town.

The survey was conducted using a standardized questionnaire and interview by research assistants. The research assistants were recruited from final year medical students, staff nurses, and students from the Mara Institute of Technology. All field workers were briefed on a standard procedure of interviewing. The medical students and the nurses were briefed by the authors and checked on the correct protocol of measuring blood pressure based on the recommendations of the British Hypertension Society (Petrie *et al*, 1986). Hypertension was defined as blood pressure levels of 160/95 mmHg and above. This definition has been used extensively in describing hypertension in community surveys (Rutan *et al*, 1989). All persons who were not known to be hypertensive, whether currently or previously, but having a blood pressure reading 160/95 and above at the first visit were given a green card. This green card had specific dates when

the person had to return to the nearest health center to have his blood pressure rechecked on two different occasions. The subsequent 2 readings were recorded in the green card and returned for analysis to the district health office. Anyone on screening with blood pressure readings (twice) of 180/100 or higher were referred to nearest clinic for treatment and followup. In the elderly blood pressure readings are more variable, so more readings were taken initially (two readings on two occasions) and blood pressure was measured in both the sitting and standing positions. In this survey for known hypertensives a blood pressure reading of 160/95 mmHg and above was considered as uncontrolled. If hypertension was newly diagnosed, hypertension was confirmed only after blood pressure readings of 160/95 mmHg or more on 3 different occasions. Those who were having isolated systolic hypertension *ie* systolic BP >160 mmHg but diastolic blood pressure <90 mmHg or isolated diastolic hypertension blood pressure readings were also considered hypertensive. Age, sex and race were examined in relation to those with detected or undetected hypertension, treated or untreated hypertension, controlled or uncontrolled hypertension in our survey population. All analysis was carried out using the Statistical Package for Social Sciences (SPSS).

RESULTS

The total population of the Kuala Langat district was 126,519 with the Malays, Chinese, Indians and other races comprising of 50.1%, 27.3%, 18.5% and 4.1% respectively. The listings of people aged 55 years and above in each village amounted to a total of 2,351 people. A total of 1,392 people

Table 1

Mean blood pressure according to age groups.

Age group	Mean systolic BP (SD)	Mean diastolic BP (SD)
55-59	133.7 (21.73)	81.46 (11.27)
60-64	142.1 (25.81)	82.72 (12.89)
65-69	141.5 (25.80)	81.94 (12.65)
70-74	146.9 (29.17)	82.29 (12.39)
75-79	145.9 (26.75)	80.24 (12.92)
>80	142.3 (28.45)	78.93 (11.81)

comprising of 53.1% males and 46.9% females, who responded to the public health survey, were screened for hypertension. The age of the subjects ranged from 55-95 years with a mean of 65 years. The racial distribution of the sample consisted of 973 (69.9%) Malays, 228 (16.4%) Chinese and 187 Indians (3.4%) and other races 4 (0.3%). The mean blood pressure according to the age groups are as shown in Table 1. Based on the history, 335 (24.1%) of the respondents were known hypertensives. However a total of 275 (82.1%) out of this hypertensive group were on regular treatment and 17.9% were not on treatment. Good control of hypertension (blood pressure readings <160/95 mmHg) was achieved only in 161 (48.1%) of the 335 known hypertensives. Screening of the respondents also revealed that 204 (14.6%) of them had elevated blood pressures of >160/95 mmHg and as they were suspected to be hypertensives, green cards were issued for 3 followup visits. However only 43 (21.1%) completed the minimum 3 visits and 32 (74.4%) were confirmed as newly diagnosed

hypertensives. The prevalence of hypertension in our sample of respondents was 25.6%.

Looking specifically at the elderly age group (aged 60 years >) there were 1,001 subjects of whom a total of 245 (24.5%) were known to be hypertensives. Malays, Chinese and Indians comprised of 66.9%, 20.4% and 12.7% of the known hypertensives, respectively. There was an equal distribution of males (46.9%) and females (53.1%) among our known hypertensives. The number of suspected elderly hypertensives who were given the followup green card was 170. Out of this group only 38 (22.4%) completed their followup and 29 (76.3%) were confirmed to be hypertensive. Health screening of our elderly respondents yielded 274 out of 1,001 (27.3%) who were hypertensive. There was no significant difference between sexes and races in terms of their detection, treatment and control (Tables 2,3). However there was a significant difference between the "younger" (<65 years) and the "older" (>65 years) elderly (Table 4).

Table 2

Control of hypertension among males and females.

Sex	Known hypertensive	Known but BP > 160/95 uncontrolled	Known and on medications but BP>160/95
All	18.8%	51.9%	47%
Males	16.8%	46.5%	43.3%
Females	21.1%	56.8%	50.4%
Pearsons	0.03940	0.04080	0.05192

Table 3

Control of hypertension among different ethnic groups.

Races	Known hypertensive	Known but BP > 160/95 uncontrolled	Known on medications but BP >160/95
Malays	17.5%	51.4%	51.6%
Chinese	21%	63%	63%
Indians	22.8%	40%	42.9%
Pearsons	0.15	0.05	0.05716

Table 4

Control of hypertension among persons aged <65 years and >65 years.

Age Groups	Known hypertensive	Known but BP > 160/95 uncontrolled	Known on medications but BP >160/95
All	18.8%	51.9%	47%
<65 Years	20.9%	45.7%	57.9%
>65 Years	16.5%	26.9%	35.0%
Pearsons	0.03	0.00012	0.00017

DISCUSSION

This study provides a profile of hypertension among 1,392 respondents from a rural district in Malaysia. The percentage of self-reported or known hypertension was 24.1%. The prevalence of hypertension among the elderly subjects (aged 60 years and above) was 27.3%. Few studies in Malaysia have looked at the prevalence of hypertension in the elderly population. However a community based study on the epidemiology of hypertension in Selangor, found a prevalence rate of 37.5% in the 55-64 year age group (Kandiah *et al*, 1980). In the Framingham study, it was reported that 39% of men and 48% of women over the age of 65 years were hypertensive (Dannenberg *et al*, 1988). In Singapore a nationwide epidemiologic survey of blood pressures found that the prevalence of hypertension in the age group 60-69 years was 40% (Lee *et al*, 1988). This study showed that good control of hypertension was achieved only in 48.1% of the 335 known hypertensives and 19.9% had defaulted followup and were not on any treatment. This study also revealed that 3.8% of the respondents were unaware of their hypertension. Community surveys of hypertension in the USA (Wilber *et al*, 1972) and survey of hypertension at outpatient departments (Lim *et al*, 1991) in Malaysia have shown that majority of people with elevated blood pressure levels are undetected or 'unaware' of hypertension, untreated or inadequately treated. A study of Malaysian military hypertensives (Supramaniam, 1982) showed that for 53% patient education was unsatisfactory and adherence to therapy poor with 59% non-compliant to drug therapy. The high rate of defaulting from a newly opened hypertension clinic was also highlighted

by Burns-Cox *et al* (1971). The Fifth Report of the Joint National Committee on the Detection, Evaluation and Treatment of High Blood Pressure (JNC V) showed that though the awareness of hypertension has dramatically increased in USA in the past 20 years, approximately 15% of patients with hypertension are still unaware of their condition. Moreover fewer than 75% of hypertensive patients are receiving anti-hypertensive therapy, and of these fewer than 50% have achieved blood pressure control. The study of hypertension in a community in Atlanta (Wilber *et al*, 1972) showed out of 1,358 subjects who were hypertensives 19.4% were unaware or undetected previously. Among the "aware" hypertensives, 23.3% were not receiving medication. Of those receiving treatment, 21.3% of the total hypertensive group still had elevated blood pressure despite medication.

Although the overall response rate for this public health screening survey was poor, the response rate varied by village from 12% to 71%. The sample obtained in this study appears to be comparable in terms of ethnicity and age structure with an earlier sample examined as a part of a WHO four countries study and with local census data (Andrews, 1986). This survey shows that there is a small proportion (3.8%) of undetected hypertensives amongst the elderly in our study population. Half of the study sample who were hypertensive remained poorly controlled, although 82.1% were on treatment. As in other studies (Wilber *et al*, 1972), of hypertensives detected earlier, not all were on medication and the majority on regular medication are not well controlled. In this study there were no significant differences among the 3 different ethnic groups or among the females or males with regards to the detection, treatment or control of hyperten-

sion. However the survey respondents aged 65 years and above had significantly better control of hypertension compared to the respondents aged 65 years and below.

In a community based study by (Coope *et al*, 1988) subjects aged 60-79 years who were followed up for a mean period of 2.6 years, both systolic and diastolic blood pressure were significantly related to stroke, cardiovascular disease and mortality. There is clear evidence that detection and treatment of high blood pressure in an effective means of reducing CHD risk among older people (Collins *et al*, 1988). There is certainly no doubt that many remediable problems can be identified among the apparently healthy elderly in a community geriatric screening program (Rubenstein *et al*, 1986). Opportunistic case finding methods for screening hypertension in the elderly is considered worthwhile to do (Wolf Klein, 1989). In Malaysia, the rural public health nurse does home visits in the child health and maternity programs. These nurses and the medical assistants manning the rural health clinics are ideally suited in doing screening for hypertension in the elderly and with set protocols and appropriate training, hypertensive care of the elderly can be improved (Burke *et al*, 1991).

In conclusion, as hypertension is often a silent asymptomatic disease, intense, continuous education of the public through public health campaigns and the media is vital to improve their knowledge regarding the morbid effects of hypertension and the need for effective control. Effective treatment of hypertension has shown to be a very cost effective process especially in high risk groups like the elderly, in whom the incidence of stroke is reduced by more than 40% (Guidelines for Management of Mild Hypertension, 1993). More detailed community studies both in rural and urban areas in Malaysia are needed to assess in depth the problem of hypertension among the elderly and formulate better methods in the detection, treatment and control of hypertension.

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