Hypertension management in Zimbabwe — awareness, treatment and blood pressure control

A community-based study

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Objective. To evaluate the level of awareness of hypertension, treatment and blood pressure control in rural and urban communities in Zimbabwe.

Design. Community-based cross-sectional survey.

Subjects and setting. 749 male and female heads of households aged > 34 years recruited from alternate households of randomly selected villages in two adjacent rural areas and randomly selected streets in an urban area.

Main outcome measures. Blood pressure, awareness of hypertension, treatment and control for those on drug therapy.

Results. 250 subjects were found to have a diastolic blood pressure (DBP) > 94 mmHg or were on treatment with a DBP < 95 mmHg. Only 56 (22.4%) were on treatment. Of those not on treatment, 73.9% were not aware that they were hypertensive, while only 26.1% were aware but were untreated. Of those on treatment, control was inadequate in 24 (52.2%).

Conclusion. Awareness is low and treatment and control of hypertension are inadequate in this population. There is an urgent need to set up a national policy for the prevention and control of hypertension in Zimbabwe. The main focus should be on prevention, as this may be more cost-effective for a developing country with limited resources.

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Hypertension and its complications constitute over 60% of all cardiovascular disease among adults of most developing countries.[1,2] Although there is a wide variation in blood

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pressure prevalence between rural and urban communities in Africa,[2-4] the prevalence rates are high, reaching up to 20 - 25%.[1,5] Given the serious renal, cardiac and central nervous complications, hypertension should be regarded as a major public health problem in this region.

Unlike developed countries where hypertension control has contributed to a 50% decline in national age-adjusted stroke mortality,[6] the situation in sub-Saharan Africa is less optimistic as default rates are high[7,8] and most hypertensives still present for the first time when one of the major complications has developed.[9] Data on the level of awareness of hypertension are lacking. Against the background of economic instability and meagre resources in most developing countries, the number of people on treatment is likely to be small and control poor.

This community-based survey was undertaken to assess the degree of awareness, treatment and control of hypertension in urban and rural settings in Zimbabwe.

Method

This was part of a large study of cardiovascular risk factor prevalence in communities with different levels of socio-economic development. One head of a household aged over 34 years was recruited from alternate households in randomly selected village development units in two adjacent rural areas. These two rural areas were inhabited by peasant farmers of the same ethnic group and under the same administrative structure. However, they differed in respect of their agricultural performance with one area showing better performance as evidenced by greater grain delivery to the Grain Marketing Board. This area would be regarded as more affluent than the other by rural standards. The urban study sample was recruited by a similar method of alternate household visits in randomly selected streets of a small town 93 km from Harare. The town of Marondera is a commercial centre for a very rich agricultural area and is also a satellite of Harare.

Apart from the standard demographic questions, the questionnaire contained specific questions on whether the subject had ever had his or her blood pressure (BP) measured. If the answer was yes, had he or she ever been told by a health worker that he or she had elevated BP? Those who admitted to being on treatment had to produce evidence in the form of pills or outpatient cards. BP was measured at home in the sitting position by two trained nurses using a mercury sphygmomanometer. Three measurements were taken in the right arm with the diastolic BP being recorded at the fifth phase. Five minutes were allowed between measurements and all measurements were done between 08h00 and 11h00 to minimise the influence of extreme temperature changes on BP, given that the study was undertaken between October and early December. A large cuff was used for obese subjects.

Case definition

The mean of the three BP measurements was used to diagnose normotension or hypertension. A subject was classified as hypertensive at screening if he had documentary evidence of receiving drugs or had a mean DBP > 94 mmHg. Controlled blood pressure at screening was defined as a mean DBP < 95 mmHg while on drug treatment. A subject who admitted to previous BP measurement by a health worker and to being told that the BP was high was considered to be aware of being hypertensive if on screening the mean DBP was > 94 mmHg. The data were analysed by means of the Epi-Info statistical package.

Results

Of the 749 subjects screened, 265 were men and 484 were women. Fifty-eight per cent were aged 55 years and over (Table I).

Table I. Age and sex distribution of subjects

Age (yrs)	Men	Women	Total
35 - 44	32	142	174
45 - 54	38	99	137
55 - 64	67	88	155
> 64	128	155	283
Total	265	484	749

A total of 250 (77 men and 173 women) were hypertensive, defined as a DBP > 94 mmHg untreated or on drug treatment at screening. After 10 subjects with inadequate information about previous BP measurement had been excluded, only 48 (26.2%) of 184 subjects with DBP > 94 mmHg were found ever to have had their BP measured and to be aware that they had high blood pressure. One hundred and fifty-nine (74.3%) of the newly diagnosed hypertensives had a DBP between 95 and 110 mmHg while 55 (25.7%) had a DBP > 110 mmHg (Table II). Not surprisingly the poor remote rural area had the lowest level of awareness of only 11.9%, with the rate rising to 42% in the urban area ($P < 0.001$) (Table III).

Table II. DBP levels in untreated hypertensives according to age

	DBP 95 - 110 mmHg	DBP > 110 mmHg	
Age (yrs)	No. (%)	No. (%)	Total
35 - 44	34 (83)	7 (17)	41
45 - 54	28 (78)	8 (22)	36
55 - 64	39 (76)	12 (24)	51
> 64	58 (67)	28 (33)	86
Total	159 (74)	55 (26)	214

Table III. Hypertension awareness

	Subjects with mean DBP > 94 mmHg*	Previously measured and aware of hypertension
Area I	42	5 (11.9%)
Area II	85	19 (22.4%)
Urban area	57	24 (42.0%)
Total	184†	48 (26.1%)

* Screened subjects with a mean DBP > 94 mmHg and not on treatment.
† 10 subjects excluded because of inadequate information about previous BP measurement.
χ^2 for trend = 12.0.
$P = < 0.001$.

Out of the 250 hypertensives found on screening, only 56 (22.4%) were on drug treatment. Of those on treatment, a total of 24 (42.9%) had a DBP > 94 mmHg, suggesting inadequate control (Table IV). Contrary to expectations, the proportion of

hypertensives not on treatment and the proportion of those on drug treatment but still with a DBP > 94 mmHg were higher in the urban area than in the rural area, where resources and access to health centres are limited.

Table IV. Drug treatment and BP control by area

	On treatment	DBP > 94 mmHg
Area I	7	2 (28.6%)
Area II	10	4 (40%)
Urban	39	18 (46.1%)
Total	56	24 (42.90%)

χ^2 for trend = 0.76.
$P = 0.385$.

Discussion

Our study focused on mild hypertension and above, defined as DBP > 94 mmHg as used in the Australian study,[10] and also stipulated by the American Hypertension Society[11] and the WHO.[12] Studies and reports on treatment and control of BP from this region have been mainly hospital-based.[7,8,13] These reports have a severe limitation as they can only focus on BP control and compliance with treatment. Because the study subjects were from hospital-based follow-up clinics, no conclusion can be drawn about the general community awareness of hypertension from these reports. This study is unique because it was designed to look at the level of awareness of hypertension, treatment and BP control in the community. The findings of 26.1% aware and 22.4% on treatment are similar to those reported by Pobee in a community survey in Ghana where only 24% of hypertensives were aware and 17% of those aware were actually on treatment.[14] The two studies differ substantially, however, as the former used a definition of 140/90 mmHg for hypertension. Awareness, treatment and blood pressure control are much better in developed countries such as Finland where up to 67% of hypertensives are aware and 52% are on treatment.[15] Similar high levels of awareness have been reported in China and the Philippines, while in Zaire only 30% have been reported to be aware and 17% on treatment.[15]

Because only heads of households were recruited for the study, the mean age of the study population is much higher than for prevalence studies which included subjects from the age of 15 years.[2,4] The older age group was intentionally selected to increase the chances of finding hypertensives. The importance of repeated measurements to confirm 'the usual blood pressure' cannot be over-emphasised as hypertension can be over-estimated by 30 - 50% when diagnosis is based on one rather than three consecutive measurements on different occasions.[6,12,16] The fact that hypertension was based on the mean of three measurements at screening and subjects had to be over the age of 34 years may explain the apparently large number of hypertensives found.

The levels of awareness of 26.1%, treatment of 22.4% and adequate BP control in only 47.8% paint a rather gloomy picture of the management and community control of a condition which is an important cause of morbidity in this region given the high prevalence rates among some black urban communities.[17] Problems of hypertension control in developing countries are closely linked to economic issues. Inaccessible health services and frequent drug shortages due to limited resources are generally accepted as explanations for the low treatment rates and poor control of hypertension in the region. The proportions of hypertensives not on treatment and those on treatment but not adequately controlled were higher in the urban than rural areas. These surprising findings suggest that there may be other reasons for the low awareness and poor control than accessibility of health centres and availability of resources. We can only speculate that lack of adequate health education in the community at large may partly explain these findings. Because of these inherent problems, the high-risk approach based on detection and drug treatment is unlikely to reduce morbidity or mortality from hypertension in developing countries. There is a large body of evidence linking the high prevalence of hypertension in the urban black population to possible changes in dietary habits. Recently excessive weight, salt and alcohol consumption have been implicated in a study involving 10 000 men and women from 32 countries.[18] A national effort at encouraging appropriate dietary habits and general knowledge about environmental risk factors for hypertension is likely to be more cost-effective than individual case identification and treatment in controlling and preventing complications of hypertension in the region.

Conclusion

Awareness, treatment and control of blood pressure in Zimbabwe are very poor. Given inaccessible health services and the limited resources that lead to frequent drug shortages, detection and treatment are likely to be costly and inadequate. There is an urgent need for a national policy that focuses on prevention by encouraging prudent dietary habits, controlled alcohol and salt consumption and maintenance of ideal weight.

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