

ARTICLES

Detecting and preventing hypertension in remote areas

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Abstract

This article discusses the findings of a decade-old study on blood pressure among a tribal population in north Sikkim. These findings continue to be relevant today. Hypertension is a significant problem in this region. However, the local health institutions do not identify this as an important health problem and do not include it in their regular preventive and curative health care agenda. Community-based primary health care in India in such a situation must formulate innovative approaches to address the major health needs of the community. The ethics of primary health care rest on this approach.

An epidemiological study of blood pressure was conducted in the year 1994 to identify significant predictors of blood pressure among the Lepchas, a tribal (*adivasi*) population in the Dzongu area in north Sikkim. A total of 205 adults (19 years and older) of both sexes (male: 115, female: 90) participated in the study after verbal consent. The study was the first of its kind among the Lepchas and some were measuring their blood pressure for the first time.

Dzongu is a remote rural area in the lower ranges of Kunchenjunga, about 75 kilometres north of Gangtok, the state capital. This area of 13 revenue blocks (cluster of villages) in the northern district is a Lepcha reserve. Lepchas are the permanent inhabitants and owners of this land. No other communities are allowed to permanently settle here or own land. The Lepchas of Dzongu are settled agriculturists; they cultivate maize, paddy, millet, buckwheat, wheat, pulses, and vegetables. Cardamom and ginger are the main cash crops. Animal husbandry also plays an important economic role.

The diet of the Dzongu Lepchas includes cereals (such as rice and maize), millets, roots and tubers, green leafy and other vegetables, milk and milk products, and red and lean meats (beef, pork, chicken, and occasionally fish). Salt is regularly consumed with tea and used in cooked food. Animal fat is often used as a cooking medium.

Drinking alcoholic beverages is common among the Lepchas. They usually but not exclusively consume an indigenous millet beer called *chi*. Consumption of alcohol is a traditional practice here and the preparation or procurement of *chi* is a cultural norm, irrespective of a family's economic status. Most adults drink *chi* every day and the beverage is consumed in larger quantities during all social and religious ceremonies. The Lepchas believe that *chi* has medicinal qualities. All the households grow millets

on their dry lands and a sizeable portion of the annual yield is used to prepare *chi*.

At the time of the study, there was only one primary health centre (PHC) in Dzongu and nine primary health sub-centres (PHSCs) in different villages. When necessary, the Dzongu PHC gave referrals to the district hospital located in Mangan, the north district's headquarters. A few Lepcha lamas or priests prescribed indigenous medicines.

What the study showed

A single investigator measured the systolic and diastolic blood pressure of all the participants in the study. Two consecutive blood pressure readings were taken on the left arm of each participant. The measurements were taken when participants were at home and in a sitting position. There was a 10-minute rest between the readings, most of which were taken between 8 a m and 2 p m. The investigator was careful to establish familiarity with the participants and ensure that they were not unnecessarily stressed before the measurement.

If an accurate age record did not exist, the participant's age was estimated with the help of the Lepcha calendar that follows a twelve-year cycle with one-year periods. The mean age and standard deviation of the male participants were 34.43 and 12.55 years respectively, and they were 33.45 and 12.78 years respectively of the female participants.

Many participants in the study were identified as hypertensive following WHO (1962) criteria: systolic pressure at 160 mmHg and above, diastolic pressure at 95 mmHg and above. Participants who were identified as hypertensive were requested to immediately consult the doctor at the PHC.

The important findings of the study were (1):

- (a) The mean systolic and diastolic blood pressures (measured in mmHg) were conspicuously high when compared with other ethno-culturally distinct rural Indian populations, for instance, the coastal fishing community of Digha, West Bengal (2). The measurements for males were: systolic 131.62 with a standard deviation of 20.06 and a range between 99 and 230; diastolic 88.90 with a standard deviation of 14.69 and a range between 59 and 141. For females the measurements were: systolic 127.65 with a standard deviation of 18.35 and a range between 98 and 188; diastolic: 84.97 with a standard deviation of 13.08 and a range between 60 and 119.

- (b) The prevalence of essential hypertension defined in terms of WHO criteria (3) was remarkably high at 30.77 per cent for males and 25.77 per cent for females. This prevalence could be higher if the recent criteria for diagnosis of essential hypertension following the seventh report of the joint national committee on prevention, detection, evaluation and treatment of high blood pressure of the National Heart, Lung and Blood Institute, USA are considered (4). These are systolic: 140 mmHg and over and/or diastolic: 90 mmHg or over.
- (c) The intake of alcohol had a statistically significant effect on systolic pressure among males, as revealed through stepwise multiple regression analysis. Mean age adjusted systolic pressure was found to increase with increasing intake of alcohol, measured in terms of the number of drinks consumed per day. This trend, albeit statistically insignificant, was also present for diastolic pressure among males and for both systolic and diastolic pressures among females. On an average both sexes smoked five cigarettes, chewed tobacco 10 times, had two alcoholic drinks and three cups of tea every day.

The ethics of primary health care

The investigator also looked at the incidence of reporting this problem to the PHC. I noted the prevalence and incidence of all the ailments diagnosed in the Dzongu PHC in 1993, the year before the study was done. The incidence of hypertension as diagnosed at the PHC was as low as 0.60 per cent among the adults (or one out of 166 adults who reported with a new ailment). This indicated that many cases of hypertension were not diagnosed, let alone treated.

Hypertension does not always show obvious symptoms and it may therefore not have been frequently reported. Cultural norms among the Lepchas may have inhibited their willingness to visit the PHCs. Traditional or herbal medicines did not seem to be of use in treating hypertension.

The findings demonstrated that high blood pressure was a

significant problem among the Lepcha adults of Dzongu. If blood pressure remains elevated for long (which may have been the case for many in this community) and hypertension persists without any remedial measures, the cardiovascular health of many Lepcha adults would have been adversely affected. Their heart health crucially depended on preventing essential hypertension.

The PHC and PHSCs in Sikkim gave treatment to local people for reported ailments, handled medical emergencies, gave reproductive health support, ante-natal care, and supported national disease eradication programmes as instructed by the state health department. There was no scope for the PHC personnel to become aware of the epidemiological scenario described above because such investigation was not in their purview.

The Dzongu Lepchas inhabit a remote area where socio-cultural, dietary and behavioural traits could elevate blood pressure even at a young age. If the local health institutions are unable to identify this as an important health problem and cannot include it in their regular preventive and curative health care agenda, it is unethical in terms of the primary health care of the community. Community-based primary health care in India in such a situation must formulate innovative approaches to address the major health needs of the community. The ethics of primary health care rest on this approach.

References

1. Mukhopadhyay B, Mukhopadhyay S and Majumder P P. Blood pressure profile of Lepchas of the Sikkim Himalayas: epidemiological study. *Hum Biol* 1996; 68: 131-145.
2. Mukherjee, B N, Byard, P J, Bhattacharya, S K et al. Blood pressure in a rural West Bengal fishing community: an epidemiological profile. *Hum Biol* 1988; 60: 69-79.
3. World Health Organisation. *Arterial hypertension and Ischemic heart disease: preventive aspects*. WHO Technical Report Series 231. Geneva: WHO; 1962.
4. Chobanian AV et al. Seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Hypertension* 2003 Dec; 42(6): 1206-52.

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