

PREVALENCE OF SOME RISK FACTORS OF ATHEROSCLEROSIS IN A RURAL COMMUNITY

D. B. Nugegoda¹ and U. Illangasekera²

Summary: The prevalence of some risk factors of atherosclerosis, which is responsible for the first two leading causes of hospital deaths in Sri Lanka, namely ischaemic heart disease and cerebrovascular disease, was studied in a rural community. The prevalence of hypertension, diabetes and obesity was low. More than one fifth of the subjects were vegetarians. Among males, the prevalence of tobacco smoking, a key risk factor in ischaemic heart disease and cerebrovascular disease, was high (76%).

Key Words: Hypertension, diabetes, obesity, tobacco smoking, rural community.

INTRODUCTION

In Sri Lanka, the leading cause of hospital deaths among adults is ischaemic heart disease (IHD), with cerebrovascular disease (CVD) taking second place (1).

This study is an attempt to identify the prevalence of some of the commonly accepted risk factors of IHD and CVD such as cigarette smoking, hypertension, diabetes mellitus, diet and obesity.

MATERIALS AND METHODS

The study was conducted in September 1990 in the 13 rural Grama Niladhari divisions in the Hindagala Community Health Project area situated near the University of Peradeniya. According to the 1988 electoral register the Sinhalese adult population of these 13 divisions was 7140. A random sample of 200 individuals was selected from this population, as listed in the electoral register, no attempt being made to differentiate between the genders. The subjects were requested to assemble at a central location at 8 a. m. after an overnight fast, no food, drink or water being taken after 10 p. m. the previous evening.

An oral glucose tolerance test (OGTT) was performed on all subjects using a method recommended by the WHO (2).

Subjects were questioned regarding their diet and smoking habits. Height (using a Microtoise Somatometer) and weight (using a platform scale, which was checked at regular intervals with standard weights) of

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1. Senior Lecturer in Community Medicine, Department of Community Medicine, Faculty of Medicine, University of Peradeniya.
 2. Senior Lecturer in Medicine, Department of Medicine, Faculty of Medicine, University of Peradeniya.

all subjects were measured and Quetelet's body mass index (BMI) calculated. After a minimum of 15 minutes rest period, a single recording of the blood pressure was taken on each subject in the seated position using a sphygmomanometer, all measurements being taken by one of the authors (U. I.). Diastolic blood pressure was taken at the disappearance of the sound. The subjects with a systolic blood pressure of 160 mm Hg and / or diastolic blood pressure of 95 mm Hg were classified as having hypertension.

RESULTS

Table 1 presents the age / gender distribution of subjects while Table 2 gives the blood pressure recordings.

Prevalence of hypertension, smoking, diabetes mellitus, obesity and type of diet by gender is presented in Table 3. A person with BMI > 25 was considered obese. Diabetes mellitus was identified according to criteria suggested by the WHO (3).

DISCUSSION

With an expected low prevalence of diabetes, the sample size of 200 was statistically justifiable (4).

Attendance of 99 % of the selectees was a very good response.

Community prevalence of hypertension based on single recordings of blood pressure tend to give inflated rates (5). Yet the 4% prevalence of hypertension (based on a single recording of blood pressure) is low, compared with a prevalence of 10 - 20% claimed for most parts of the world (6, 7). Wikramanayake et al (1991), studying an isolated rural population at Talkote, also found the prevalence of hypertension to be very low (8).

However Mendis, Ranasinghe and Dharmasena, studying visitors of in-patients at the Teaching Hospital, Peradeniya (9) found a prevalence of hypertension of 13.6% (DBP ≥ 95 mm Hg.)

The fact that 75.9% of males in the present study are current tobacco smokers is disturbing. The quantity smoked and duration of smoking were not recorded. Such information would in any case be unreliable. The females were not questioned on tobacco smoking, a phenomenon which is, in any case, extremely rare in Sri Lanka (10,11). Despite this difference in smoking habits the incidence of hypertension is similar in males and females.

Table 1. Age/Gender distribution of the sample.

Age groups	Males	Females
18 - 29	22	29
30 - 49	35	56
50 - 79	20	32
≥ 80	02	02
Total	79	119

Table 2. Blood pressure of the subjects by age and gender

Age groups (Yrs)	Males					Females				
	SBP		DBP		% Hypertension	SBP		DBP		% Hypertension
	\bar{X}	SD	\bar{X}	SD		\bar{X}	SD	\bar{X}	SD	
18 - 29	114.5	10.6	70.6	7.6	0	113.2	15.7	67.0	9.0	0
30 - 49	108.7	13.3	69.3	10.3	0	113.4	12.3	68.6	8.6	0
≥ 50	128.2	23.5	74.5	12.1	13.6	131.6	23.2	75.2	11.7	14.7

Table 3. Prevalence of risk factors by gender.

Risk factor	Males		Females		Total	
	No.	(%)	No.	(%)	No.	(%)
Hypertension	3	(3.8)	5	(4.2)	8	(4.0)
Smoking	60	(75.9)	—	—	—	—
Diabetes	2	(2.5)	3	(2.5)	5	(2.5)
Obesity	0	(0.0)	6	(5.1)	6	(3.1)
Non-vegetarian diet	67	(87.0)	88	(73.9)	155	(79.1)

Studies on the prevalence of smoking in different Sri Lankan populations give rates of 48.2% for an urban population in 1971 (11), and 57.3% for a rural adult population in 1988 (9). The spread of smoking is said to have reached epidemic proportions, especially, in the developing countries (12).

The 2.5% prevalence of diabetes mellitus is close to the lower range of the 2-5% prevalence reported by the WHO for adult populations (3).

Obesity was non-existent among males, while only 3.1% of the females were obese. These figures are very low compared to those of developed countries (13).

About one fifth of the subjects did not consume animal protein or fats.

It appears that the risk of developing atherosclerosis in this community due to diabetes, hypertension, obesity and consumption of animal fat is very low. Among males the prevalence of smoking, a key risk factor of atherosclerosis (12) is high. However the prevalence of hypertension, which is the same among males and females over 50 years of age, may not be due to smoking.

Studying 159 cases of coronary heart disease, Mendis (14) found that in 27% of the cases, the only risk factor was tobacco smoking.

It is recommended that active health education measures be taken to discourage smoking among rural communities in Sri Lanka.

ACKNOWLEDGEMENTS

This study was carried out with the aid of a Research Grant from the University of Peradeniya. We are grateful to Miss P. Peiris for secretarial assistance.

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