Preliminary Study of Prevalence of Coronary Heart Disease amongst the Civil Servants, Employees of Corporation and Academic Institutions in Nepal

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Introduction

While the coronary heart disease is declining in the developed countries, there is an increasing trend or this disease in developing countries. If this trend continues, coronary heart disease will be a major public health problem in the developing world by the turn of the century. So, if we are to achieve the goal of "Health for all by 2000" immediate steps should be taken to control this disease.

There has been very few studies about the magnitude of CAD problem in Nepal. Analysis of 12, 215 cases admitted in the medical ward of Bir Hospital from 1969 – 1975 showed that 14.5% of the cases were due to heart diseases and of this 8% were due to CAD. It has been the impression of many physicians in Nepal that this disease is rapidly increasing specially amongst the higher socio-economic group. But no definite study has yet been done to find out the prevalence of this disease in Nepal.

Objectives

Recently there has been many studies showing the efficacy of preventive measures using both the mass and the high risk strategy in controlling CAD and many countries have successfully launched National coronary prevention programme. For scientific planning of community control of CAD in Nepal, one should know the magnitude of the problem. So the present study has been designed with the following objectives:

1. To find out the prevalence of CAD amongst the civil servants, employees of corporations and academic institutions in Nepal.
2. To find out if there is any difference in the prevalence amongst the gazatted officers or equivalent and non-gazetted employees.
3. To assess the role of the risk factors like tobacco smoking, high blood pressure, diabetes and lipid abnormalities.

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Methods:

Our study population consisted of 321 employees working in different institutions e.g. Agriculture Development Bank, Royal Nepal Academy of Science and Technology (RONAST), and Public Service Commission. They were subjected to an interview with a questionnaire developed by London School of Hygiene for detection of CAD (Annex I). History of smoking, alcohol intake, dietary habits, family history of CAD and associated diseases were also taken.

Physical examination was done with special attention to the recording of Blood Pressure which was done according to the WHO standardized methods. The presence of any cardiac abnormalities, Xanthelasma, Xanthomata and arcus senilis were noted. All the employees had undergone blood sugar and serum cholesterol estimations.

ECG was also done of all the employees.

Results:

Total of 321 employees of 30 years and above were examined, of them 300 were male and 21 were female, gazetted officers were 179 (55.76%) and 142 (44.23%) were of non-gazetted rank. Our study covered 85% of the target population of employees in the above mentioned institutions.

Risk factor analysis showed the following:

- Smokers were 148 (46.1%) of them officers were 65, and non officers were 78. We found no female smokers in our smokers group.
- Khaini consumption was found in 42 (13.08%), there were no female khaini users.
- Alcohol consumption was seen in total of 170 (52.9%) among them 2 were female.
- Among our study group 7 employees were found to be diabetic (4 officers and 3 non-officers rank).

In our study angina suggestive from the questionnaires was found in 11 (3.42%) employees, of them 7 were of non officer rank and 4 of officer rank.

- Angina with resting ECG changes was found in 1 male officer of 49-59 age group.
- History of previous MI was noted in 3 cases, which was confirmed by ECG an discharge summary. All 3 were male officers (1 in 40-49 age group and 2 in 50-59 age group).
- Altogether in our study 15 cases were found to have coronary artery disease which makes the prevalence rate of 4.67% among which officers were 10 (5.58%) and non officers were 5 (3.52%).

Discussion:

As evident from our small study, prevalence of coronary artery disease (CAD) is about 4.67% which is rather a high figure and is comparable with the figure from India. Studies done in India had showed prevalence rate of CAD ranging from 2.1% to 1.5%. Sapru who reviewed all available date from India suggested that an average figure of 2.5% for CAD in the entire Indian population aged 40 years or above would appear to be a reasonable estimate. Our study also showed the pattern of risk factors for CAD e.g. smoking (46.10%), cholesterol value above 250 mg/dl (26.47%) and hypertension (10.9%). Smoking rate among the non-gazetted employees were higher than in the officer rank employees. It has been repeatedly shown in studies of smoking pattern in our country and abroad that smoking rate differs among urban and rural dwellers and also among those with education and without education. This is specially marked in case of female smokers. Also worth mentioning in our study was the prevalence of hypertension which is 10.9% and more among employees of officer rank. Other community based studies of hypertension has yielded figures ranging from 7 to 11%.

Prevalence of CAD which is at 4.47% in our study is higher than that of some communicable diseases like tuberculosis for which there is already a separate national programme, national and regional centers. It has already been proved by the experience of some developed countries that the prevalence of CAD can be reduced by concerted effort targeted on risk factors reduction and education. So in our country also there should be no delay in recognizing CAD as a common problem and implementing proper measure for its control and treatment.

Limitations of the study:

Resource constraint was the main limitation. Without the availability of adequate resources, we could not perform proper lipid profile for all our study population. For the same reason we had to restrict ourselves to the relatively small sample size. Another restricting factor was the start of the very welcome movement for democracy and subsequent events e.g. civil servants strike in our country. It caused disruption in our study routine and inevitable delay in its completion. Last but not the least was the manpower constraint. Investigators had hard time in organizing this study and fulfilling routine duties at the hospital.

With all the limitations, it is hoped that this study will provide some of the much sought after information and insight into the magnitude of CAD in our country.

References:

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Annex 1

Name ……..... Age …… Sex ……
Date of Birth …….. Height …… Weight ……..
Institutions ……. Position ……..
Salary ……..

Have you ever smoked ? Duration
No …… Yes …….
Type: Cigarettes ……
Bidi ……
Hookah ……
Daily …… No …….. / day
Occasionally ……. No …….. /week
Stopped
No …….
Yes ……. Weeks/months/years
Have you ever consumed khaini/jarda?
No …… Yes …….. …… Standard pegs/week
Ex ……

London School of hygiene Cardiovascular
Questionnaire (Rose)
(For Administration by an Interviewer)

Section A: Chest Pain on Effort

1. Have you ever had any pain or discomfort in your chest ?
   Yes ……. No ……
   If "Yes" ask next question (If during the remainder of section A an answer is recoded in a box marked, proceed to section B).
2. Do you get it when you walk uphill or hurry ?
   Yes …… No ……
   Never hurries or walks uphill ……
3. Do you get it when you walk at an ordinary pace on the level ?
   Yes …….. No …….
4. What do you do if you get it while you are walking ?
   Stop or slow down …….. Carry on ……
   (Record 'Stop or slow down' if subject carries on after taking nitroglycerine.
5. If you stand still, what happen to it ?
   Relieved …… Not relieved …….
6. How soon ?
   10 minutes or less …… More than 10 minutes …….
7. Will you show me where it was ?
   Sternum (upper or middle) ……
   Sternum (lower) ……..
   Left anterior chest ……
   Left arm …… Other …….

8. Do you feel it anywhere else ?
   Yes …….
   No …….
   (if 'yes', record additional information above)

Section B: Possible Infarction

9. Have you ever had a severe pain across the front of your chest …….. for half an hour or more?
   Yes ……..
   No ……..

   Present History:

   Past History:

   Family History:
   Sudden death ……
   IHD ……
   Hypertension ……..
   Diabetes ……
   Gout ……

   General Examination:
   Pallor …….. Cyanosic …….. Clubbing …… Arcus ……
   High arch palate …… Xanthema …….. Xanthelesma ……

   Cardiovascular Examination:
   Pulse ……/min Peripheral pulses ……..
   BP …….. / / /mm of Hg Supine
   Standing
   Carotids ……..
   Lower limbs ……..
   Heart sounds ……
   Pericardial rub ……

   Other positive findings:

   Investigation:
   Blood: Hb…….. Sugar……. gm/dl
   Cholesterol
   Triglycerides
   HDL Cholesterol
   Uric acid
   X-ray chest PA View

Annex I (continued)

The diagnosis of coronary heart disease will be made according to the following criteria:

I. Pain of angina:
   a) Question 1 yes
      Question 2 or 3 yes
      Question 4 stop or slow down
      Question 5 received
      Question 6 10 minutes or less
      Question 7 (i) sternum (upper or middle or lower) or (ii) left interior chest and left arm or (iii) pain of possible infarction
   b) Question 9 yes

II. Definite ECG evidence of myocardial infarction

III. Positive exercise ECG test as shown by horizontal or down slopping ST segment depression of 1.5 mm or more.

Table 1

Smoking Pattern:

30 – 39 yrs		40 – 49 yrs		50 – 59 yrs		Above 60	
Officer	Non-officer	Officer	Non-officer	Officer	Non-officer	Officer	Non-officer
27	17	40	35	11	17	1	

Total = 148 (46.1%)

Table 2

Alcohol Consumption Pattern:

	30 – 39 yrs	40 – 49 yrs	50 – 59 yrs	Above 60
Officer	21	79	18	--
Non-officer	26	23	2	1

Table 3

Cholesterol Values:

Mg/dl	30 – 39 yrs	40 – 49 yrs	50 – 59 yrs	Above 60
Less than 200	40	53	18	1
200 – 249	38	69	19	--
250 and above	16	47	20	--

Smoking pattern in Neg. Cases

Smoke	30 – 39 yrs	40 – 49 yrs	50 – 59 yrs	Above 60
	41	72	25	1

Total = 139 (33.33)