A PROPOSED STUDY OF RISK FACTORS OF HEART DISEASE IN RURAL POPULATION OF PUNJAB (PAKISTAN) — TIME TO ACT!

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SUMMARY

In Pakistan, not only the urban but also the rural population has a high risk potential for cardiovascular diseases (CVD). But, unfortunately the identification of risk factors in the rural population and the rural health education regarding CVDs has not been a hallmark of our health promoting efforts. As a matter of fact, there is little population-based data available in Pakistan.

Now is the time to focus our attention and resources on the identification and the prevalence of major risk factors like tobacco consumption, hypertension and obesity in our rural population, which constitutes more than half of the country's population. A pilot project is designed to fulfill the need of the hour. Moreover, various strategies and methodologies are recommended for the prevention and control, thereby emphasizing upon the fact that "PREVENTION IS BETTER THAN CURE".

INTRODUCTION

Cardiovascular diseases (CVD) are one of the commonest causes of morbidity and mortality not only in the developed but also in the developing world. CVD made up 16.7 million, or 29.2% of total global deaths in 2003, 80% of which took place in the developing world[1]. If the incidence goes on unchecked CVD will be the leading cause of death in developing world by 2010[2]. In United States more than 900,000 deaths occur annually due to CVD[3].

In India it is the leading cause of death and deaths due to CVD in India are expected to double between 1985-2015[4]. There is a high prevalence of CVD risk factors in Pakistan with more than 30% of population over 45 years of age is affected by the disease[5].

The common risk factors like smoking[6], high cholesterol diet[7], lack of physical activity[8], hypertension[9] and obesity[10] need to be identified in our rural population and adopt a combination of simple, cost effective individual and national efforts to reduce the incidence of CVD in our country.

An effort in the same direction is being planned in a rural village of Punjab (Talagang). A team of health care workers shall initially survey the population, identify the risk factors, plan an interventional strategy and monitor its efficacy.

REVIEW:

Tobacco Consumption:

The relation ship between tobacco use (cigarette, hukka, beeri, niswar) and CVD is well known. It is estimated that 4 million deaths from tobacco occurred in 1999 and that the annual number of deaths is likely to rise to 10 million by 2030[31]. The WHO predicts that tobacco deaths in India may exceed 1.5 million annually by 2020[32]. Cigarette smoking increases the risk of CVD death by 70 % compared with not smoking.

In India approximately 194 million people aged 15 years and older (150 million men and 44 million women) consumed some form of tobacco. Almost 79% of tobacco consumers lived in rural areas[33]. In 2000, 4.83 million premature deaths in the world were attributable to smoking with 2.41 million deaths in developing world[34]. In US there is a strong evidence base for the effectiveness of community based interventions such as running sustained mass media campaigns, raising tobacco prices, reducing

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the cost of treatment and establishing telephone quit lines[35].

Hypertension:
High levels of systolic and diastolic blood pressures have a strong relation ship with CVD. The estimated total number of adults with hypertension in 2000 was 972 million(957-987 million) ; 333 million (329-336 million) in economically developed countries and 639 million in developing countries .The number of adults with hypertension in 2025 was predicted to increase by about 60% to a total of 1.56 billion (1.54-1.58 billion)[11]. The overall prevalence in China with threshold values of 140/90 mm Hg was 12.5 % in adults aged 35-64 years. Recent Indian studies estimate a prevalence of adult hypertension to be 27.3% in urban setting and 12.2% in rural setting. Based on these estimates the number of adults with hypertension in India and China together would exceed 100 million[12].

Obesity:
Globally, there are more than 1 billion overweight adults, at least 300 million of them obese[13]. The world health report 2002 estimated that worldwide > 2.5 million deaths per year are weight related- 220,000 per year in Europe and > 300,000 per year in USA[14]. In the US, adult obesity rates rose from 14.25% in 1978 to 31% in 2000.In the UK adult obesity rates rose from 6% of men and 8% of women in 1980 to 21% of men and 23.5% of women in 2001[15]. The obesity epidemic is not restricted to industrialized societies; this increase is often faster in developing countries than in the developed world[16]. In large cities of India overweight and obesity ranges between 33 and 51% and there is a rapid increase in its prevalence over the last decade[17].

Many of the lifestyle factors associated with overweight and obesity are found in urban areas[18]. Recent projections for central South Asia suggest that urbanization will continue to grow with 49% of the population living in urban areas by 2030[19].

The key causes are increased consumption of energy-dense foods high in saturated fats and sugars, and reduced physical activity[20]. The World Development Report showed an increase in the consumption of fat, saturated fat, sugar, salt and vegetable ghee (clarified butter) in India[21]. In parts of India, trans fats from hydrogenated vegetable oil in the form of vanaspati are consumed in greater quantity than in US[22]. Several studies have confirmed the overall benefit of physical activity in reducing the risk of CHD[23] Still, more than 60% of American adults are not regularly active[24]. Based on the available metabolic studies, approximately 30,000 premature coronary heart disease deaths annually could be attributable to consumption of trans fatty acids[25].

Under new FDA guidelines, as of January 1, 2006, trans fat must be listed on food labels in the U.S. Replacement of partially hydrogenated fat in the U.S. diet with natural unhydrogenated vegetable oils would prevent approximately 30,000 premature coronary deaths per year, and epidemiologic evidence suggests this number is closer to 100,0000 premature deaths annually. These reductions are higher than what could be achieved with realistic reductions in saturated fat intake[26].

Recent statements from the Surgeon General, the National Institutes of Health Consensus Development Panel on Physical Activity and Cardiovascular Health, and the Centers for Disease Control and Prevention and the American College of Sports Medicine[27] recommend that every adult should accumulate at least 30 minutes of moderate-intensity physical activity on most, preferably all, days of the week to prevent CHD and other chronic diseases. Clinical studies have demonstrated that exercise lowers blood pressure[28] and improves body composition,[29] glucose tolerance, and insulin sensitivity[30].

RECOMMENDATIONS / STRATEGIES:

1. Need to identify major risk factors in our rural population.
2. Need to identify lifestyles of rural population and the factors bringing about change in living pattern and how to cope with them.
3. Using different approach to educate different classes of society.
4. Modifications of strategies adopted by developed countries to fit in our needs and confining to our resources.
5. Population based studies to identify the

prevalence and extent of risk factors in different sets of population.

6. Adopting primordial prevention-focusing on children and younger age group.

a. Imparting health education particularly focusing on healthy dietary habits, smoking and importance of physical exercise.

b. Conducting workshops and quiz competitions at school level to educate children about cardiovascular diseases.

7. Identifying influential people in villages, imparting adequate knowledge of prevention of CVDs to them and gaining their support and confidence to educate the people of that village.

8. Influential people in villages to be focused on:
   a. Imam masjid
   b. School teacher
   c. Doctor
   d. Lady health workers
   e. Maids (dai's)
   f. Landlords
   g. Head of families
   h. Barbers (Naeye)

9. Role of mass media
   a. T.V
   b. Radio
   c. Dramas
   d. News papers
   e. Advertisement

10. Using public heroes (cricketers, actors…) as a tool of bringing change in community by imparting knowledge of preventing CVD to public by them.

CONCLUSION:

CVD are and will be the main cause of mortality in years to come in Pakistan. Various risk factors need to be identified in order of importance and various strategies to be employed by the government and health care workers in order to change the situation.
A pilot project to identify the risk factors will be surveyed in a sample village of Punjab. After having interviewed the population and identified the major risk factors, a set of recommendations will be prepared and implementation shall be carried out on a self-help basis. Periodic review shall also be carried out to monitor the efficacy of the programme.
This pilot project shall highlight the need for a countrywide campaign against one of the biggest killer of population.

QUESTIONNAIRE:

STUDY OF THE RISK FACTORS FOR CORONARY ARTERY DISEASE IN RURAL PAKISTANI POPULATION 31

Date:

Personal Information

1. Name:
2. Date of birth:
3. Gender:
4. Occupation (Start with most recent one last):
   Occupation Years
5. Address:
6. Tel.no.
8. Accommodation:
   Kacha ghar Pakka ghar
9. Ethnic identity (as identified by the person concerned):
   (Punjabi, Pathan, Baloch, Sindhi, Mohajir/ other)

10. Religion: Islam Other (specify):
11. Place of birth:

Education

12. How many years of schooling have you had?
    Social Habits
13. Do you take tobacco in any form?
    Cigarette Beeri Naswar Huqqah Other:
14. If NO, have you ever done so?
15. How many years ago did you stop?
16. How often? Units/day:
17. For how many years?
18. Have you used any specific drugs of addiction?
    *Specific type
    *Frequency of use per week
    *Duration of use in years
    *If stopped, how many years ago?

Physical Activity

19. How many hours a day you spend on your feet?
20. How many miles do you walk daily?
21. Do you take exercise over and above the activities of the daily living?

22. Physical activity is it:
    Once a week Twice a week Thrice a week Daily
23. How long you usually exercise at any one time?
24. What type of exercise do you do? Specify
    Diet
25. About how many times do you eat a serving of any of the following foods?
    beef lamb/mutton chicken fish other
26. About how many times a week do you eat a serving of the following foods?
    Vegetable curry Fried foods
    (samosas and pakoras) Cooked breakfast
    Dal Confectionary
    Kheer/ Mithai/ Halwa
27. What sort of fat do you use for frying or cooking curries? Desi ghee Vegetable ghee
    Vegetable oil Corn oil Sunflower oil
    Others:
28. Did you shift from ghee to oil? Yes No
    If yes, how many years ago? ----------
29. How much ghee/oil do you use for cooing curry (per person)?
    (tablespoon per person per day =
    total tablespoons used per day for cooking divided by total number of people eating in the house) =
    tbspn/n = ___ /___ = ___tbsp per person per day
30. What sort of fat do you use for cooking e.g., paratha? (choose from the above mentioned types)_____
31. What types of other fats do you use daily?
    Specify type: Desi butter Commercial butter
    Other: Amount: Fibber Intake
32. How many pieces of Chapaati, Roti, Paratha, Nan, or other breads do you eat in a usual day?
33. About how many times do you eat a serving of the following foods?
34. About how many times a day do you have a bowl of cereal of porridge and which one?
35. Whole eggs consumed per week_____
    Egg whites only consumed per week_____
36. How much salt do you use in a day?
    1 tsp 2 tsp 3 tsp
    more (specify)
37. Do you add salt to your food?
    Yes No
38. Do you use aluminium saucepans for cooking?
    Yes No
39. What type of spoon do you use?
    Metal Wooden

Medical Section

40. Do you suffer from high blood pressure?
    Y N DNK
41. If yes, for how many years?
42. What were your last three blood pressure readings
    a. _____ mm Hg b. _____ mm Hg
    c. _____ mm Hg
43. Do you suffer from diabetes mellitus?
    Y N DNK
44. If yes, for how many years? _____
45. How do you get your blood glucose monitored?
    Self Lab Both
46. How many times did you get your blood sugar checked in the last three months?_____
47. What were your last three fasting blood sugars?
    A. _____ B. _____ C. _____
48. What were your last three random blood sugar levels?
49. What is your current treatment for diabetes?
    Oral Insulin
50. If insulin, since how many years have you been using it:
51. Have you even had the "fats" in your blood checked? Y N DNK
52. If so, when was the last time they were checked?____ yrs ago
53. Which component was in excess:
    Cholesterol triglycerides VLDL LDL HDL
54. Do your parents, brothers and sisters have any of the following:
    Hypertension Ischemic heart disease
    Diabetes mellitus Stroke
    Sudden death
55. Have you ever had a stroke? Yes No
56. Have you ever had a transient ischemic attack?
    Yes No
57. Have you had your menopause?
    Yes No
58. If yes, are you currently on HRT?
    Yes No
59. Which medications are you currently taking?
    _____
    _____
    _____

60. Do you suffer from any of the following complaints? PND Palpitations Syncope Tingling of feet Nocturia Chest pain at rest Chest pain on exertion

Perceptions of health

61. What do you believe causes: High blood pressure Obesity or overweight

Heart attack

62. What are the 3 most important things that you do to keep or improve your health?
    A. B. C.
63. Are there any things that you would like do to keep yourself healthy but don't?
64. Do you feel stressed?
    Yes No
65. Have you experienced any of the following a year prior to the onset of the illness?
    Death of the spouse Death in immediate family
    Marital separation Loss of crop
    Voilence Divorce
    Loss of job Business failure
    Personal injury
66. How active are you at work and at your leisure time?
    Mainly sedentary
    Walking on one level occasionally Mainly Walking
    Uphill walk & weight lifting
    Heavy physical labour
    (Modified from The Riskcorn Study by Dr.Sania Nishtar)59

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