Incidence of Cardiovascular Diseases In Relation To Age, Gender and Blood Pressure in Abbottabad KPK Pakistan

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Abstract:
Background:
Cardiovascular diseases (CVD) are considered to be the foremost basis of mortality and transience in the developing world. CVD risk factors such as diabetes, asthma, anemia, smoking, obesity and the metabolic syndrome, may reverse downward trends in CVD mortality.
Methodology:A prospective cross-sectional study was conducted at ATH on patients with CVD. Cross sectional data using constructed Performa which contains essential parameters that are specifically correlated with cardiovascular diseases. Survey based data was collected on daily basis
Results:Randomized conventional sampling of 2580 patients was done. Among 2580 Individuals 301 was positive for CVD. Out of positive patients (51.82%) were male and (48.17%) were female. In age from 40 to 70 years, CVD risk factor is relatively high for both male and female individuals. For high blood pressure, age groups (IV, V and VI) were at high risk of CVD i-e 18%, 27% and 25% respectively. Prevalence rate of 31.69% was found among positive samples size of diabetes patients for CVD risk while Asthma and Anemia patients shows 2.92% and 12.95% prevalence of CVD. Cardiovascular diseases patients 51.16% of were smokers in which 14.95% were female whereas 28.25% of the total positives samples were obsessed CVD patients.
Conclusion: Patients with CVD are often subjected to huge risk of mortality because of various diseases, smoking, obesity etc. Impediment is one of the most important prevention with the prescribed drugs to improve the quality of life as well as compliance of the patients. Hypertension, adiposity; hypercholesterolemia, diabetes, nicotine use and stress are likewise essential chances and exist in the advancement of CVD.

I.   Introduction

In recent years, the dominance of chronic diseases as major contributors to total global mortality (Adeyi et al., 2007) has risen. The report on Cardio vascular disease (CVD) showed that during 2008, approximately 17.3 million deaths by CVDs which represents 30% of entire international loss of lives (Alwan, 2011). South Asian countries, namely India, Pakistan, Sri Lanka, Bangladesh and Nepal, also play a role to the uppermost percentage of CVD load in contrast to further territories instead of quarter of the world's population (Ramaraj and Chellappa, 2008).

In Pakistan, the CVD incidence data is insubstantial (Jafaret al., 2005). According to 1965 and 1973 survey on two inhabitants which gave an idea about ischemic heart disease of 0 to 1.5% in rural and 0.7% to 3.7% in urban population of Karachi, 10% for hypertension and 4% for diabetes (Aziz et al., 2008). The traditional risk factors for CVD include life style factors like smoking (AlMaliki, 2011), diet and lack of physical activity (Goyal and Yousuf, 2006). Also age, sex, marital status, socioeconomic factors, family history and other diseases affect the prevalence of CVDs (Qidwaiet al., 2005). High blood pressure is responsible for 9.4 million deaths each year (16.5% of all deaths) (Lim et al., 2010). Tziomaloset al reported that elevated vascular risk may be due to the high frequency of insulin resistance and Type 2 diabetes mellitus in South Asians (Tziomaloset al., 2008). There is also elevated dominance of CVD risk factors in Pakistan with more than 30% of population over 45 years of age is influenced by the disease (Nuri et al., 2006).

In Abbottabad, Khyber Pakhtunkhwa (KPK) no prevalence study of cardiovascular diseases with respect to traditional risk factors has been conducted yet. This study was conducted at Ayub teaching hospital (ATH) Abbottabad, Hazara division located in KPK, Pakistan. Ayub teaching hospital (ATH) is one of the biggest hospitals in Asia in area wise and one of the best public hospital in Pakistan. In Hazara division this is

the only teaching hospital which provides tertiary care management. The main objective of the current study focuses on traditional risk factors diet, family history, socio-economic status, sex, age, blood pressure, marital status of patients and other complications like anemia, diabetes and asthma.

II. Materials And Methods

Study Design:
Prospective cross sectional data collection design was conducted. Cross sectional data collection was done using constructed self-administered questionnaire which contains essential parameters that are specifically correlated with cardiovascular diseases.
Sampling:
Site and Participants:
This current study was surveyed among the individuals both male and females from the demographic location of district Abbottabad KPK, Pakistan. Sample size of 2580 patients was collected and the variables were analyzed on general characteristic of the patient such as age, sex and co morbidities. Inclusion criteria included all males and females visiting CCU and Emergency department for CVD complaints. Exclusion criteria included all those who were less than 11 years old and more than 90 years old. It also included those patients who were not mentally coordinated and vitally stable.
Data collection tools:
Questionnaire was developed to collect the data regarding the factors correlated with the cardiovascular diseases. Survey based data was collected on daily basis for 6 months. There was full census of the hospital staff and administration and the entire group of patients who visited CCU and Emergency department if stable were asked to fill this questionnaire.
Data collection procedure:
Essential information such as age, sex, co morbidities were obtained from the patient's demographic portion and supplementary information was acquired from patient's interview. Using these data, certain diseases like Diabetes, Asthma and Anemia all co-related and relatively analyzed against non-diseased CVD patients. One of the objectives was the incidence of CVD with marital status .The detail view of married and unmarried males and females was done and analysis was done to check who is more prone to risk of cardiovascular diseases,. Smoking/snuff and obesity rate (calculated Via BMI) of patients was also observed as they are considered as the major risk factor of CVD throughout the world.

III. Results And Discussion

This current study was conducted among the individuals both male and females from the demographic location of district Abbottabad KPK, Pakistan which exist at the Northern area of KPK province.
A total of 2580 patients were screened for CVD diseases and risk factors associated with them according to the defined parameters. The overall prevalence rate obtained from current survey was 12%, which shows in 2580 Individuals, 301 were positive for CVD. Out of positive patients 156 (51.82%) were male and 145 (48.17%) were female as given in Fig A ,in contrary to prevalence of cardiovascular diseases is also highest in the North of England (4.5% in the North East) and Scotland (4.3%) and Overall, around three times as many men have had a CVD compared with women(Bhatnagar et al., 2015).
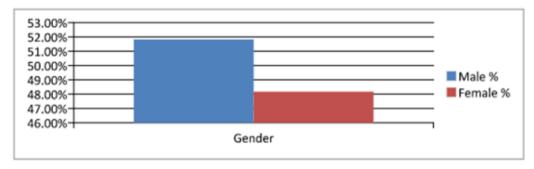

Fig A: percentages of male and female population positive for CVD

In Group (v) 26.58% prevalence is seen in which most of the patients (80%) were CVD positive. In Group (VI) 25.25% was the total prevalence which is the 2nd largest group pruned to CVD. From the Fig B it is cleared that in age from 40 to 70 years CVD risk factor is relatively high for both male and female individuals living in the current demographic situation.
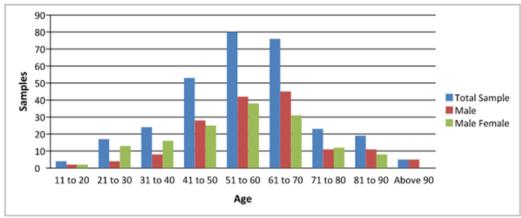
Fig B: Risk factor vs age groups distribution

These results were than compared to the studies conducted In US i.e. people in age group 30 to 74 years of age are in increased risk of CVD (Shaistaet al., 2004).Other researches (Rich and Mensah, 2009, 2010; Sattelmair et al., 2009) has also found that CVD is the second leading cause of disability among Americans who are aged 65 years and older.

As far as risk factor is calculated according to the standard values given by WHO and PMDC (Pakistan Medical and Dental Council) any deviation from the standard value was considered as a positive risk factor for CVD. The blood pressure monitoring experiment was called out for all samples and data was separately collected for both systolic and diastolic rates .Normal systolic rate was set between 110-130 mm Hg and for diastolic normal range was between 80-90 mm Hg separately. As evident from Fig C for high blood pressure age groups (iv, v, vi) they were at high risk i.e 18%, 27% and 25% respectively . While all other groups have less than 10% risk for high BP.
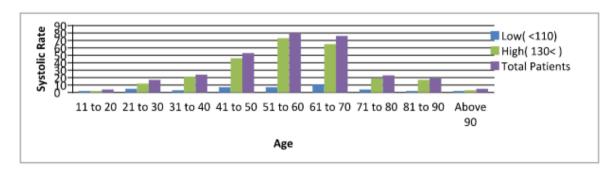

Fig C: Relationship of age and blood pressure

Complete group wise detail is given in Fig C and Fig D. There is, on average, a 20 mm Hg systolic and 10 mm Hg diastolic increment increase in blood pressure from age 30 to 65 years due to cardiovascular diseases in the United States (William and Kannel, 1996).
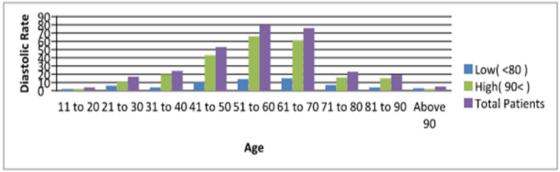

Fig D: Blood pressure levels according to age

Certain diseases like Diabetes, Asthma and Anemia all co-related and relatively analyzed against non-diseased CVD patients and from the results 31.69% prevalence rate was found among positive samples size of diabetes patients for CVD risk. The prevalence of diabetes increased with age in both sexes in the Framingham cohort. There was a higher prevalence in men in the younger age groups. This difference between the sexes decreased at older ages. The overall prevalence for men was 7.8% and for women 6.2% (Kennal and McGEE, 1979).While Asthma and Anemia patients' shows 2.92% and 12.95% prevalence to CVD in Diabetes Mellitus. The female patients were at high risk to CVD i-e (21.26% Female and 10.63% Male). According to a study done in US reported current asthma diagnosed by a doctor and 2.5% of participants reported former asthma, giving a prevalence of 5.2% for ever asthma (Schanen et al., 2005) and Anemia (hemoglobin<120 g/l) was present in 28 of 193 patients (15%) in another study (Tanner et al., 2002).As far as the non-diseased CVD patients were only 8% of total positive samples size .While 24% risk was observed for other related non-pathogenic diseases. The detail view of diseased is given in Fig E.
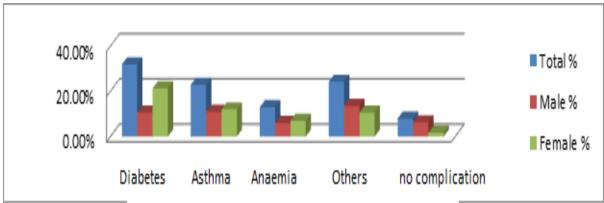

Fig E: Co morbidities of patients along with CVD

Base on the traditional structures of the cultural study it is normally hypothesized that unmarried population due to relatively free of tension, responsibilities, fulfillers of financial requirements of the family etc. as compared to married population. Our analysis shows that more married females was at high CVD risk and more unmarried males high CVD risk. The ratio of unmarried is 1: 2 (1female and 2 males) .While ratio of married male to female is 1: 5. The complete information is given in Fig F.
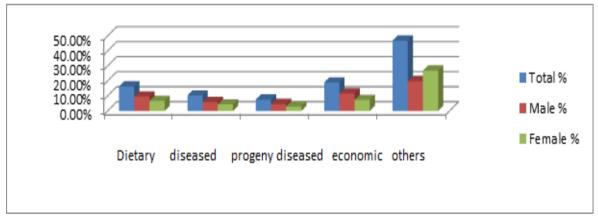

Fig F: CVD relationship with miscellaneous factors

A recent population-based study by (Johnson et al., 2000) suggested that among the unmarried, individuals who are divorced are at especially high risk for cardiovascular diseases compared with their married counterparts.

It is completely understood from the previous literature that working women were more prone to cardiovascular diseases because of larger work load both of the residence and workplace as well comparative to non-working women. Current research shows that entirely 81.16% women were with menace of CVD including 60.16% working women and 21.00% non-working women as evident from Fig G.

Fig G: Effect of jobs on CVD risk in women

According to a cross-sectional study done in Banaras Hindu University in Varanasi district, 70% of working women were in moderate risk of CVD and remaining 30% of working women subjects were in low risk of CVD (Shikha et al., 2014).

Risk Factors for CVD include tobacco use, overweight and obesity and many others (Celermajer and Ayer, 2006; Dong et al., 2004; Freedman et al., 2001)In the current study 51.16% patients of cardiovascular diseases were smokers in which 14.95% were female as shown in Fig H as compared to a survey in Russia on a nationally representative samples, 63.2% of men and 9.1% of women smoked (Shalnova, 1999).
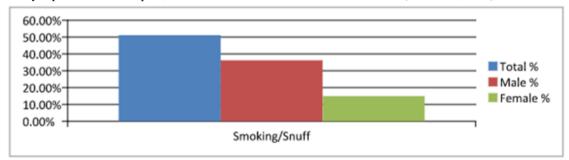

Fig H: Total number of smoking males and females

According to the study of (Pencina et al., 2009) CVD risk is mainly linked to tobacco and alcohol use. Obesity is considered as the major cause of CVD throughout the world .Studies also shows that fat and obsessed people have relatively high risk of CVD. In our study 28.25% of the total positives samples were obsessed CVD patients as described in Fig I. Based on the NHANES III sample, approximately 63% of men and 55% of women aged 25 years or older in the US population were overweight or obese (Aviva et al., 1999).
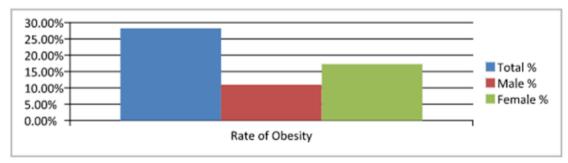

Fig I: Male and female Obesity scale based on BMI

IV. Conclusion
Patients with cardiovascular diseases having several risks issues ought to have concentration when broadly and determinedly treated and there is no uncertainty in it. Inhibiting and accomplish remedy of one or more possibilities of CVD in people excluding signs of CVD indicate primary prevention of CVD. According to the branch of spread and control of disease analysis, it has been proven that people with intense danger of cardiovascular diseases possess various threats concurrently. Hindrance from such malady implies altering way of life and resolving major problems related to CVD. Hypertension, adiposity, hypercholesterolemia, diabetes, nicotine use and stress are likewise essential chances and exist in the advancement of CVD. Every patient must entail constant training for avoiding the hazards of CVD.

Certain imperative diseases such as Diabetes, Asthma and Anemia all co-related and relatively analyzed against non-diseased CVD patients and from the results, elevated prevalence rate was found among positive samples size of diabetes patients for CVD risk. As to the extent much reduced amount of non-diseased CVD patients were instigate of total positive samples size. According to this analysis, more married females were at high CVD risk and more unmarried males were at high CVD risk. Patient with CVD are often subjected to huge risk of mortality because of various reasons. This research emphasizes to observe variation in sexual characteristics, the public and intellectual features that manipulate preclusion, identification and inclusive organization of cardiovascular disease. Its aspiration is to exploit detection and handling of CVD in keeping with gender distinction in CVD. In this way, we can easily make progress to repel our nation from that fatal disease.

Acknowledgements

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