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Frequency of Risk Factors of Coronary Heart Diseases in Patients with Acute Coronary Syndrome and its Comparison in Male and Female

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Abstract

Introduction: Cardiovascular disease (CVD) is a group of diseases that include both the heart and blood vessels, thereby including coronary heart disease (CHD) and coronary artery disease (CAD), and acute coronary syndrome (ACS) among several other conditions.

Objectives: The main objective of the study is to find the frequency of risk factors of coronary heart diseases in patients with acute coronary syndrome and its comparison in male and female.

Material and Methods: This cross-sectional study was conducted in Services Institute of medical sciences during June 2021 to June 2022. The data was collected with the permission of ethical committee of hospital.

Results: The data was collected from 100 male and female patients. The mean age was 45.67±2.89 years for males and 49.89±5.67 years for females. The major risk factors for diseases is hypertension, hyperlipidemia, smoking and diabetes. According to data all the patients must contain one of these major risk factors and many of the patients had more than one risk factors.

Conclusion: It is concluded that all the patients must have one of the major risk factors as a cause of diseases. Women with acute coronary syndrome, as compared to men, have more prevalence of diabetes and hypertension, and less prevalence of smoking.

Keywords: Cardiovascular Disease; Coronary Heart Disease; Coronary Artery Disease; Smoking

Introduction

Cardiovascular disease (CVD) is a group of diseases that include both the heart and blood vessels, thereby including coronary heart disease (CHD) and coronary artery disease (CAD), and acute coronary syndrome (ACS) among several other conditions. Although health professionals frequently use both terms CAD and ACS interchangeably, as well as CHD, they are not the same [1]. ACS is a subcategory of CAD, whilst CHD results of CAD. On the other hand, CAD is characterized by atherosclerosis in coronary arteries and can be asymptomatic, whereas ACS almost always presents with a symptom, such as unstable angina, and is frequently associated with myocardial infarction (MI) regardless of the presence of CAD [2]. Coronary artery disease (CAD) is a devastating disease precisely because an otherwise healthy person in the prime of life may die or become disabled without warning when the afflicted individual is under the age of 40, the tragic consequences for family

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friends 1 and occupation are particularly catastrophic and un-expected. Prevalence of conventional risk factors like diabetes, hypertension, smoking, dyslipidemia and obesity accounts for about 85% to 90% of premature CAD patients [3]. Often young CAD patients have multiple coexisting risk factors contributing to the disease. Pakistani people belong to the South Asian population which has the highest known rate of coronary artery disease (CAD) According to the careful estimates based on scientific studies nearly 100.000 individuals suffered from acute myocardial infarction (ANTI) in calendar year 2002. The relative risk of 6 developing CAD in Pakistani men is highest in early ages [4]. Acute coronary syndrome (ACS) comprises unstable angina, ST-segment elevation myocardial infarction and non-ST segment elevation myocardial infarction. ACS is the major manifestation of ischemic heart disease (IHD) which in turn is a major part of cardiovascular diseases. In women, cardiovascular diseases are under-estimated although they are the leading cause of death in females [5]. More women than men die due to cardiovascular causes each year. In the year 2004, 32% of women died of cardiovascular diseases worldwide as compared to 27% of men. In Pakistan IHD is the 2nd leading cause of death at all ages contributing to 11% of all deaths. However, IHD is the commonest cause of death worldwide in both genders [6] . Ischemic heart disease in women is not the same as it is in men. Important gender differences exist in almost every aspect of this disease complex. IHD develops 10-20 years later in women compared to men. Incidence of IHD in men is several times of that in age-adjusted pre-menopausal women [7]. Various explanations have been given for this observation but accepted one is that serum levels of high density lipoprotein cholesterol (HDLc) are higher in premenopausal women due to the protective effect of oestradiol. HDL is protective against CHD and as its level falls after menopause due to oestradiol deficiency, the incidence of IHD in women rises [8].

Objectives

The main objective of the study is to find the frequency of risk factors of coronary heart diseases in patients with acute coronary syndrome and its comparison in male and female.

Material and Methods

This cross-sectional study was conducted in Services Institute of medical sciences during June 2021 to June 2022. The data was collected with the permission of ethical committee of hospital.

Inclusion Criteria

- All male and female patients.
- Those patients who had had their diagnoses confirmed through clinical evaluation, echocardiography, and lipid profile.

Exclusion Criteria

- Those who do not want to participate.
- Age < 18 years.
- Already taking any anticoagulant drug.

Data Collection

The data was collected from 100 male and female patients. The data was collected through systematically designed performa which include all data related to risk factors of coronary heart diseases. The presence of significant coronary disease was defined as a stenosis of at least 50% in a major epicardial vessel. Coronary thrombus was defined as an intraluminal filling defect or an area of contrast staining noted within the stenosis. The performa includes information on demographic characteristics, medical history, and lifestyle factors of all selected patients. A questionnaire including information on demographic characteristics, medical history (including oral hypoglycemic agents and insulin, angiotensin-

Table 1: Demographic values of male and female patients.

	Male	Female	t Value	*p* Value
Age (Year)	45.67±2.89	49.89±5.67	1.716	0.081
BMI(kg/m2)	24.31±2.26	23.37±2.09	2.195	0.031
SBP(mmHg)	140.36±15.70	116.53±13.46	8.248	0
DBP(mmHg)	87.94±10.69	75.81±9.94	5.967	0
PP(mmHg)	52.42±12.87	40.72±8.74	5.426	0
FBG(mmol/)	5.12±0.65	5.06±0.49	1.764	0.081
TG(mmol/L)	1.74±0.75	1.69±0.86	1.838	0.071
TC(mmol/L)	4.95±0.76	4.88±0.82	1.712	0.09
HDL-C mmol/L	1.30±0.43	1.31±0.56	1.717	0.089
LDL-C mmol/L	3.46±0.58	3.38±0.66	1.139	0.266

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Table 2: Distribution of risk factors in ischemic stroke patients.

Risk factors	Frequency	p-value
Hypertension		
Male	23	0.001
Female	34	
Diabetes		
Male	38	0.002
Female	17	
Smoking	69	0.004
Positive family history	23	0.001
History of TIA	9	0
History of previous stroke	46	0.001
Stress	9	0.003
Significant carotid stenosis (≥50%)	6	0
Hyper-lipidemia	27	0.001
Migraine	4	0

Table 3: Characteristics of quantitative variables in patients with mild/ moderate or severe depression.

Variable	Mild or moderate depression	Severe depression	P
Age	58.3±12.45	59.3±13.67	0.1
QOLS	70 (58.7; 80)	30 (26.2; 38.7)	<0.001
NIHSS	8 (6.7; 11)	15 (11.2; 18.7)	<0.001
MMSE	27 (24; 29)	25.4 (19; 27.7)	0.08

Table 4: Distribution of additional risk factors.

Risk factors	Total number=15	
	Number	Percent
Auto-immune vasculitis	1	1
Antiphospholipid syndrome	1	8.3
Protein C deficiency	2	16.7
Protein S deficiency	1	8.3
Antithrombin III deficiency	2	2
Factor V Leiden mutation	9	75.0
Patent foramen ovale	1	8.3
Undetermined	1	8.3

converting enzyme inhibitors (ACEI), aspirin, and statin), and lifestyle factors was administered by trained interviewers. Smoking was defined as having smoked 100 cigarettes in one's lifetime.

Statistical Analysis

The data was collected and analyzed using SPSS version 19.0 and MS excel 2020. All the quantitative data is represented in mean and standard deviation.

Results

The data was collected from 100 male and female patients. The mean age was 45.67±2.89 years for males and 49.89±5.67 years for females. The major risk factors for diseases is hypertension, hyperlipidemia, smoking and diabetes. According to data all the patients must contain one of these major risk factors and many of the patients had more than one risk factors. Hypertension is considered to be one of the most important and major risk factor for heart diseases.

Discussion

Acute Coronary syndrome (ACS) is a series of diseases which affects encephalic small vessels, manifested as loss of smooth muscle cells in vascular walls, deposition of fibrous transparent materials, thickness of vascular walls and stenosis of lumen. ACS is one of the reasons of ischemic stroke [8]. At present, the pathogenesis for ACS is still unclear. It is assumed that ACS is induced by the combined actions of various cerebrovascular disease risks and genetic factors and then give rise to all kinds of clinical symptoms [9]. ACS can be diagnosed by different diagnostic modalities including conventional coronary angiography, coronary computed tomography angiography, and cardiac MRI [10-12]. Conventional coronary angiography is the gold standard for assessment of the coronary artery; however, it is an invasive procedure and has a risk of complications [13]. Moreover, even with multiple projections and angiographic views, delineation of the anatomy of the complex cases can be difficult [14-16]. On the contrary, coronary computed tomography angiography (CCTA) is a noninvasive diagnostic tool with high temporal and spatial resolution that has emerged as a gold standard for detection and characterization of coronary artery anomalies. In our study more male patients had ever smoked than females. This finding has been observed in many previous studies. Although our results about smoking prevalence in women were in the expected direction but we cannot confidently say that no female in our study had ever smoked [17]. This may be explained by fear of disclosure of their smoking habits and hesitation. We found no difference between men and women regarding hyperlipidemia. This finding is in contrast with previous studies which demonstrated that hyperlipidemia was more prevalent in women with ACS than in men [18].

Conclusion

It is concluded that all the patients must have one of the major risk factors as a cause of diseases. Women with acute coronary syndrome, as compared to men, have more prevalence of diabetes and hypertension, and less prevalence of smoking.

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