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TYPES OF CARDIOVASCULAR DISEASES EFFECTING LONG TERM DIABETICS

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KeyWords

Cardiovascular diseases, type-I diabetes mellitus, type-II diabetes mellitus, stress, lifestyle, obesity, hypertension

ABSTRACT

BACKGROUND: Diabetes has become very common disease throughout in our country and the world. The situation has turn into an alarming condition as the prevalence of this disease is increasing day by day due to unhealthy lifestyle and many other factors. Long term diabetes leads to many macrovascular complications including cardiovascular complications.

METHODS: Sample size was 109. The age range was above 37-92. There were three groups in the study. First was normal control group, second was group of diabetic patients and third was group of diabetic patients with CVD. **RESULTS:** Most of the diabetic and CVD patient had positive family history. Only 38.9% patients manage their stress after having CVD. 63% patients were having type II diabetes mellitus. 61.53% individuals were obese while 21.79% were overweight.

CONCLUSION: The conclusion is that patients of long term type II diabetes have more chances to develop cardiovascular disease as compare to type I diabetic patients. People should be aware about their familial diseases in order to prevent them. Obesity should be controlled because if it remains untreated, it would ultimately result into diseases like hypertension, diabetes and CVD.

INTRODUCTION:

DIABETES: This disease is basically a group of metabolic diseases having characteristics of hyperglycemia which is a consequence of imperfection secretion of insulin, action of insulin, or both of them. If there is a condition in which hyperglycemia has become chronic, it would be occur with association of long-term impairment, dysfunction, and failure of different organs that includes the eyes, kidneys, nerves, heart, and blood vessels especially [1]. The development and dissemination of diabetes care standards and guidelines have been actively done by the American Diabetes Association (ADA) for many years. One or more of the Association's professional journals publish those statements [2]. In the last decades, prevalence of diabetes has been increasing in adults. Urbanization has played a significant role in changings of lifestyle. Risk factors for diabetes has also been increased by these sudden transitions [3].

PATHOGENESIS OF CVD IN DIABETES: In diabetic patients, the pathogenesis of CVD is associated to epigenetic, genetic and cell-signaling defects within inter-connected metabolic and inflammatory pathways. Many environmental factors can trigger those metabolic defects which includes high caloric intake, smoking, glycation end-products, glucose toxicity, and some medications. Manifestation of both type 2 diabetes and CVDs is peculiar to the individual response towards the environment, directed by the biological capability of cellular systems in patients [4]. In the absence of coronary artery disease, diastolic dysfunction, ventricular hypertrophy and cardiac remodeling can be caused by diabetic cardiomyopathy. Metabolic changes, inflammatory cytokines and autoimmune destruction can be the causal factors for pathogenesis of cardiac autonomic neuropathy. Metabolic alterations and resistance of insulin speed up the development of atherosclerosis in diabetic patients [5].

MATERIAL AND METHODS: The data has been collected by the patients who visited OPD as well as admitted at Karachi Institute of Heart Disease (KIHD). Some patients who visited OPD at Baqai Institue of Diabetology and Endocrinology also participated in the study. With the help of weighing machine and measuring tape, weight and height have been calculated, respectively. Then by using BMI equation, body mass index or quetelet index has been calculated. Glucose meters have been used to check glucose level of admitted patients in hospital as we can get immediate responses can be attained by using them. Mercurial blood pressure machine has been used to measure blood pressure as it is more accurate. The data has been stored on Excel. Then it has been coded and processed on computer using SPSS (Statistical Package for Social Sciences) software.

RESULTS:

Results of present study summarized and presented in following Tables (1, 2, 3 and 4) and Figures (1 and 2).

Table 1: Gender wise comparision of groups

		Gender		Total
		female	male	
group	control group	20	16	36
	diabetic patients	18	19	37
	diabetic and CVD patients	20	16	36
Total		58	51	109

Figure 1: Family history of diabetes

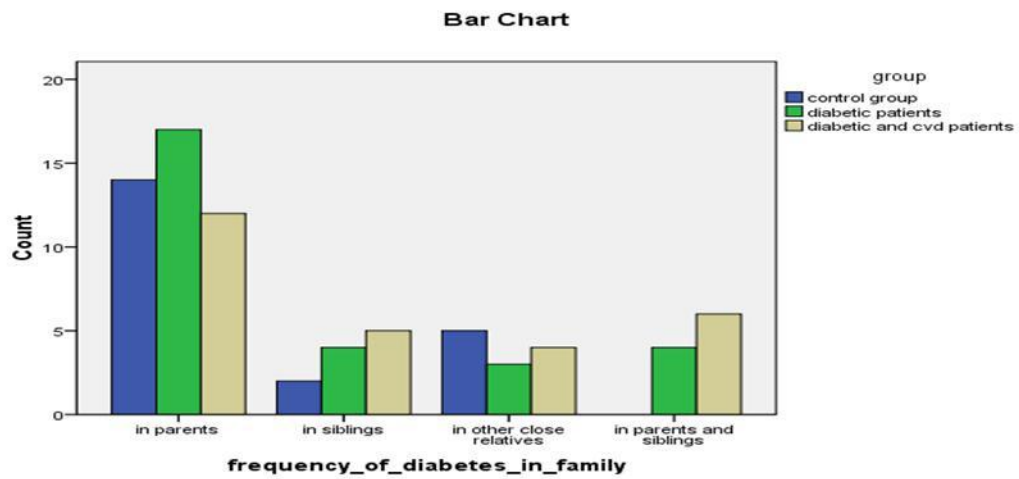


Table 2: Types of Diabetes Mellitus

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I do not have diabetes	36	32.4	33.0	33.0
	type I diabetes mellitus	27	24.3	24.8	57.8
	type II diabetes mellitus	46	41.4	42.2	100.0
	Total	109	98.2	100.0	
Missing	System	2	1.8		
Total		111	100.0		

Figure 4: Diabetes onset age

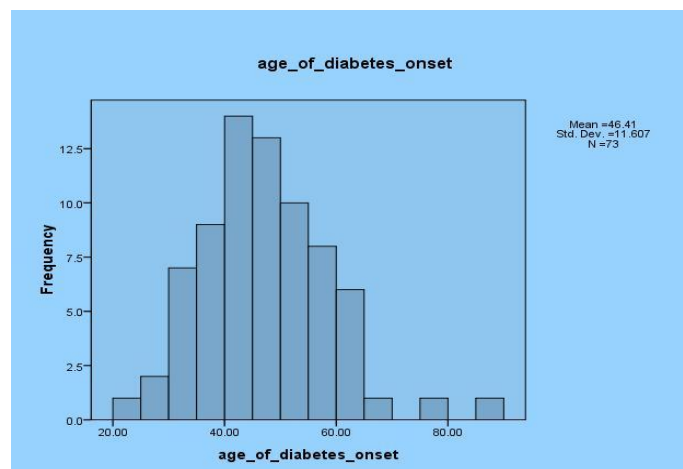


Table 3: Stress management

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid no	22	19.8	61.1	61.1
yes	14	12.6	38.9	100.0
Total	36	32.4	100.0	
Missing System	75	67.6		
Total	111	100.0		

Table 4: Categorization of obese individual in all groups

	Group			Total
	control group	diabetic patients	diabetic and CVD patients	
Categorization underweight	1	0	0	1
normal	7	4	1	12
overweight	9	4	4	17
obese	15	18	15	48
Total	32	26	20	78

DISCUSSION: In our survey, there were more females who have been affected by CVD as compare to males. According to the World Heart Federation, CVD is beyond a doubt is the most neglected problem of woman health in developing as well as developed countries. The reason could be a traditional perception of CVD as man’s illness [6]. Family history plays a significant role in causing diabetes but it is not a single risk factor. Two studies reveals that type I diabetes cannot occur completely because of genetic causes as agreement of opinions is no greater than about 50%, but HLA pattern show some genetic sensitivity to it. On the other hand, type II diabetes is preponderantly because of genetic causes [7]. Percentage of CVD patients after long term type II diabetes is high as compare to type I diabetes patients. In patients of non–insulin-dependent diabetes mellitus (NIDDM), cardiovascular disease is a major causal factor of morbidity and mortality [8]. There is clear recognition that coronary heart diseases are more common in type II diabetic patients [9]. In our survey, the mean age for diabetes was found to be 46.41 which is quite less. More than 60% of the world’s diabetic population belong to Asia [10]. Only 38.9% patients manage their stress after having CVD. The reason for this less percentage is lack of awareness. People need to be get educated to their disease. Stress play its role in mechanisms underlying cardiac events particularly in endothelial dysfunction, myocardial ischemia, clustering of traditional cardiovascular

risk factors, malignant arrhythmias, plaque rupture and thrombosis [11]. This is an alarming situation as most of the people participated in the study were obese. Not only diabetic and CVD group but also the control group has high percentage of obesity. In children and adolescents, obesity/overweight is increasing continuously [12]. Social and environmental changes are occurring rapidly in Pakistan, accompanying with elevation in urbanization, alterations in lifestyle, higher energy density of diets and physical inactivity. Early life underweight coexistence with adult obesity may predict increased prevalence and incidence of hypertension and diabetes [13].

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