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ASSESSMENT OF RELATIONSHIP BETWEEN ISCHEMIC HEART DISEASE (IHD) AND DIETARY HABITS

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Abstract:
Background: Ischemic heart disease (IHD) also known as atherosclerotic heart disease, coronary heart disease, or Coronary artery disease (CAD) is the most common type of heart disease and cause of heart attacks. the emerging profile of patients with AMI is that the majority are male, relatively younger as compared to Western population, have smoking and hypertension followed by diabetes as the major risk factors. Our study was aimed at assessing the relationship between ischemic heart disease (IHD) and dietary habits.
Objectives:
1.   To examine the relation between diet intake and risk of ischemic heart disease.
2.   To create awareness about dietary habits and its role in prevention of IHD among people.
Study design: descriptive cross sectional study.
Study area: DHQ hospital Gujranwala.
Study duration: one month.
Material and methods: 100 patients of ischemic heart disease were interviewed after taking consent using preformed structured questionnaires. All patients were selected randomly. Data will be analyzed using SPSS 21.
Results: 56% of patients were above 60 years of age. Males and females were in equal ratio. 84% of subjects were between 50 and 75 kg of weight.60% were having disease for less than 5 years and 55% were not having any family history, 69% of patients don't exercise and about 55% consumes soft drinks.
Conclusions: People of advanced age (above 60 years) are more involved in ischemic heart diseases most patients have disease for less than 5 years, most patients suffering from IHD were using ghee in their cooking. The number of patients who don't exercise was significantly high in our subjects.
Key words: *atherosclerotic, ischemic, descriptive cross sectional.*

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INTRODUCTION:
Ischemic heart disease (IHD) also known as atherosclerotic heart disease, coronary heart disease, or Coronary artery disease (CAD) is the most common type of heart disease and cause of heart attacks. The disease is caused by plaque building up along the inner walls of the arteries of the heart, which narrows the arteries and reduces blood flow to the heart.1, 2
The review of the available data in Pakistan, supported by the present study in a cohort of 1400 patients from 17 CCUs in the country, the emerging profile of patients with AMI is that the majority are male, relatively younger as compared to Western population (about half of MI occur under the age of fifty Years) 3 have smoking and hypertension followed by diabetes as the major risk factors. The incidence of CAD has been halved in the west in past 3 years, but it has been doubled in the subcontinent.3The only way to get away with this problem is to evaluate the risk factors and try to modify them. STEMI is the dominant type of ACS and the majority of patients are likely to have hypertension, IHD and diabetes in their families. Better control of risk factors and the awareness of preventive strategies are needed.4 Ischemic heart disease is the leading cause of death worldwide. In Pakistan its incidence is 18/1000. In Pakistan circulatory diseases cause over 100,000 deaths per year.
In rapidly developing economies, income inequality and the double burden of under nutrition and over nutrition has brought about the coexistence of diseases5 associated with both poverty and affluence.

This type of study had not been conducted in Gujranwala. Lack of education, less awareness and also increase utilization of food with poor quality strongly suggested this type of study in Gujranwala. The purpose of this study is to build new pattern that may help community to improve their health.

Objectives
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LITERATURE REVIEW:
Ischemic heart diseases (IHD) are a leading cause of mortality and morbidity in industrial countries. And they are also emerging as a prominent health problem in developing countries. IHD is characterized by widespread and severe atherosclerosis. It may manifest itself as an acute and often fatal attack of Myocardial infarction. The increase in incidence of atherosclerosis and subsequently coronary heart disease (CHD), Myocardial infarction (MI), Cerebrovascular diseases and other diseases have focused the attention on the important role of nutrition and health in the world, especially in developed countries. The incidence of these diseases in developing countries has increased in the last (15) years as result of the enhancement of the economic situation, which suggests that environment and dietary habits may contribute to these diseases. In addition to quantitative abnormalities such as increase plasma low density lipoprotein cholesterol (LDL-Cholesterol) and decreased high-density lipoprotein cholesterol (HDL-Cholesterol) levels, lipid qualitative abnormalities are likely to play an important role in the pathogenesis of atherosclerosis. Hyperlipidemia (HL) is a common disease that leads to considerable morbidity and mortality. It is a major risk factor for the development of atherosclerosis. Ischemic heart disease can be considered as the major cause of death in the world in about 50 countries and mortality is higher than that caused by cancer, accident or communicable disease. Prior to World War II, IHD was considered to be uncommon event in patients under (40) years of age.6 the present study is undertaken to find out the association of dietary habits with ischemic heart disease (IHD).
Diet is a large cut-out. Institute of health metrics and evaluation, tracks 14 dietary risk factors, including diets low in fruits, diets low in nuts and seeds, diets high in sodium, diets high in processed meats, diets low in vegetables, diets high in trans fatty acids, diets low in seafood omega-3 fatty acids, diets low in whole grains, diets low in fiber, diets high in sugar-sweetened beverages, diets low in polyunsaturated fatty acids, diets low in calcium, diets low in milk and diets high in red meat.7
Study held in India on same topic observed a significant and dose-dependent inverse association between vegetable intake and IHD risk. The inverse association was stronger for green leafy vegetables, Cereal intake was also associated with a lower risk. Use of mustard oil, which is rich in α-linolenic acid, was associated with a lower risk than was use of sunflower oil.8
The rise in CVDs reflects a significant change in diet habits, physical activity levels, and tobacco consumption worldwide as a result of industrialization, urbanization, economic development and food market globalization. People are consuming a more energy dense, nutrient-poor diet and are less physically active. Imbalanced nutrition reduced physical activity and increased tobacco consumption are the key lifestyle factors. High blood pressure, high blood cholesterol, overweight and obesity - and the chronic disease of type 2 diabetes - are among the

major biological risk factors. Unhealthy dietary practices include the high consumption of saturated fats, salt and refined carbohydrates, as well as low consumption of fruit and vegetables.9

There is no longer disagreement regarding the reduced rates of heart diseases amongst vegetarians and that major environmental health determinates, such as not smoking, are not solely responsible for the observed benefits. There is, however, still considerable debate as to whether the vegetarian diet is conducive to good health or whether the effects are due to specific nutrients or combinations of nutrients consumed by vegetarians. Not surprisingly, relatively few studies have direct bearing on this issue. Interestingly there was no direct association between eating

meat and IHD, but it should be noted that relatively few individuals in the entire cohort of volunteers ate meat daily.10

Dyslipidemia is a major modifiable cardiovascular disease (CVD) risk factor. While pharmacological treatment has been a focal point of dyslipidemia management for several years, increasing physical activity is a safe, cost-effective treatment option that should also be recommended by health care practitioners. Moderate aerobic exercise consistently increases high-density lipoprotein cholesterol (HDL-C) and reduces triglycerides (TG), independent of changes in body weight. However, reductions in total and low-density lipoprotein cholesterol are reported less often following aerobic exercise. Therefore, clinicians should understand that aerobic exercise is not likely to be an effective treatment option for their management. Recent empirical evidence also indicates that aerobic exercise may be of benefit for treating emerging lipid and lipoprotein risk factors such as lipoprotein particle size and number and triglyceride-rich lipoproteins. Further work is needed to clarify the

impact of aerobic exercise on Apo lipoproteins. Based on current evidence, prescribing aerobic exercise as a means of increasing HDL-C and lowering TG is usually an efficacious strategy for treating these aspects of dyslipidemia. These effects are likely to be accompanied by changes in emerging lipid and lipoprotein risk factors [11].

The overall OR for those having ≥1 first-degree relative with IHD was 2.1, and 3.8 for ≥2 relatives. The OR for those with an affected parent or sibling were similar. The OR were also similar across strata of sex, age at diagnosis of the proband or the relative, and selected AMI risk factors, which were risk factors also in those with a positive family history [12].

MATERIALS AND METHODOLOGY:
Study design:
It was descriptive cross sectional study.
Study area:
DHQ hospital Gujranwala.
Study duration:
One month.
Study population:
Patients of IHD attending medical OPD of DHQ Hospital Gujranwala.
Sample size:
It was calculated by using EPI-info software and our sample was 100 people.
Sampling technique:
         Non probability convenience sampling technique was used.
Data collection:
Data was collected through preformed structured questionnaires.
Data analysis:
Data was analyzed through SPSS computer software. Frequency tables were formed.

RESULTS:

Table #1
Frequency distribution of age of patient

		Frequency	Percent
	15-40 years	11	11.0
	41-60 years	33	33.0
Valid	above 60 years	56	56.0
	Total	100	100.0

Out of 100 subjects in our research, 11(11%) patients were between 15 and 40 years of age, 33(33%) were between 41 and 60 years of age and 56(56%) were above 60 years of age.

Table #2

Frequency distribution of sex of patient

		Frequency	Percent
	male	50	50.0
Valid	female	50	50.0
	Total	100	100.0

Out of 100 subjects in our research, 50(50%) were male and 50(50%) were females.

Table #3
Frequency distribution of occupation of patient

		Frequency	Percent
	farmers/labourers	18	18.0
	employee	24	24.0
Valid	businessman	7	7.0
	unemployed	51	51.0
	Total	100	100.0

Out of 100 subjects in our research, 18(18%) were farmers/labourers, 24(24%) were employee, 7(7%) were businessmen and 51(51%) were unemployed.

Table #4
Frequency distribution of weight of patient

		Frequency	Percent
	upto 50	6	6.0
	51-75	84	84.0
Valid	above 75	10	10.0
	Total	100	100.0

Out of 100 subjects in our research, 6(6%) were upto 50 kg of weight, 84(84%) were between 51 and 75 kg and 10(10%) were above 75 kg of weight.

Table #5
Frequency distribution of duration of disease

		Frequency	Percent
	Less than 5 years	60	60.0
	5 years	11	11.0
Valid	more than 5 years	29	29.0
	Total	100	100.0

Out of 100 subjects in our research, 60(60%) were having disease for less than 5 years, 11(11%) were having it for 5 years and 29(29%) were having disease for more than 5 years.

Table #6
Frequency distribution of family history of patient

		Frequency	Percent
	yes	45	45.0
Valid	No	55	55.0
	Total	100	100.0

Out of 100 subjects in our research, 45(45%) were having positive family history and 55(55%) were having no family history.

Table #7
Frequency distribution of preferred food

		Frequency	Percent
	homemade	91	91.0
Valid	fast food	9	9.0
	Total	100	100.0

Out of 100 subjects in our research, 91(91%) prefer homemade food while 9(9%) prefer fast food.

Table #8
Frequency distribution of type of food

		Frequency	Percent
	vegitables	70	70.0
Valid	meat	30	30.0
	Total	100	100.0

Out of 100 subjects in our research, 70(70%) likes vegitables in their food while 30(30%) like meat.

Table #9
Frequency distribution of number of meals

		Frequency	Percent
	2 times	49	49.0
Valid	more than 2 times	51	51.0
	Total	100	100.0

Out of 100 subjects in our research, 49(49%) eats 2 times a day while 51(51%) eats more than 2 times a day.

Table #10
does pt. like spices

		Frequency	Percent
	yes	34	34.0
Valid	No	66	66.0
	Total	100	100.0

Out of 100 subjects in our research, 34(34%) likes spices while 66(66%) don't.

Table #11
Frequency distribution of fat used in cooking

		Frequency	Percent
	Oil	39	39.0
Valid	ghee	61	61.0
	Total	100	100.0

Out of 100 subjects in our research, 39(39%) use oil in cooking while 61(61%) uses ghee.

Table #12
Frequency distribution of extra salt intake

		Frequency	Percent
	yes	29	29.0
Valid	No	71	71.0
	Total	100	100.0

Out of 100 subjects in our research, 29(29%) uses extra salt while 71(71%) don't.

Table #13
Frequency distribution of smoking status of pt.

		Frequency	Percent
	yes	30	30.0
Valid	No	70	70.0
	Total	100	100.0

Out of 100 subjects in our research, 30(30%) smokes while 70(70%) don't.

Table #14
Frequency distribution of no. of cigarettes smoked

		Frequency	Percent
No		70	70.0
	less than 20 per day	16	16.0
Yes	more than 20 per day	14	14.0
	Total	100	100.0

Out of 100 subjects in our research, 70(70%) don't smoke, while 16(16%) smokes less than 20 cigarettes per day and 14(14%) smokes more than 20 cigarettes per day.

Table #15
alcohol status of pt.

		Frequency	Percent
Valid	No	100	100.0

Table #16
Frequency distribution of exercise habits of pt.

		Frequency	Percent
	yes	31	31.0
Valid	No	69	69.0
	Total	100	100.0

Out of 100 subjects in our research, 31(31%) do exercise while 69(69%) don't.

Table #17
Frequency distribution of consumption of dietary fibres

		Frequency	Percent
	yes	67	67.0
Valid	No	33	33.0
	Total	100	100.0

Out of 100 subjects in our research, 67(67%) consumes dietary fibres while 33(33%) don't.

Table #18
Frequency distribution of use of soft drinks by pt.

		Frequency	Percent
	yes	55	55.0
Valid	No	45	45.0
	Total	100	100.0

Table #19
frequency of drinks

		Frequency	Percent
NO		45	45.0
	daily	13	13.0
Yes	weekly	15	15.0
	often	27	27.0
	Total	100	100.0

Out of 100 subjects in our research, 45(45%) don't consume soft drinks, while 13(13%) consume drinks daily, 15(15%) consume drinks on weekly basis and 27(27%) consumes drinks only often.

DISCUSSION:

In our research**(Table #1)** people of advanced age i.e. above 60 years of age are more(56%) involved in heart diseases which is in accordance to the results of research done by Dr. Muhammad Hafizullah in 2012 in Peshawar. It was found that patients of age 60 years and above with heart disease are rapidly increasing and their number will double upto 2025 and will triple up to 2050 globally. 13

Research done by Dr.Shahid Abbas, in 2009 in all over Pakistan by collecting data from 2000 people, shows that in both urban and rural populations CHD was much more common in men compared to women in all age groups despite variation in other risk factors14 which is in contrary to our results **(Table #2)** which shows that among total(100) patients half were males(50) and half were females(50).

This difference is probably due to same dietary habits and physical activities if both genders in our research area.

We found that 70% of patients of ischemic heart disease were nonsmokers **(Table #13),** which shows that smoking was not actually involved as an etiology of the disease but research done by Dr.Farhana Shahzad in 2007-09 in Lahore shows results contrary to our research. It says that the number of individuals with the history of smoking was higher among the test group (27%) than the control group (15.5%). A significant difference in the frequency of smoking between control and test groups was observed15.

The research done by Dr.Jimm I Mann in 2000 in New Zealand shows that diet rich in vegetables prevents the occurrence of IHD it says that studies comparing mortality experience in vegetarians with that in groups of non-vegetarians with a shared interest in healthy living or a similar social/religious background. Results shows the significant reduction in IHD death rate ratios in vegetarians compared to meat eaters in both men and women16, but our research**(Table #8)** shows contrary results as 70% of patients of IHD were consuming vegetables in their diet as a major constituent.

Similarly according to research done by American Society for Clinical Nutrition in 2003. Vegetarian dietary practices have been associated with a reduction in incidence of IHD which is in contrary to our research as our research shows**(Table #8)** that most of patients with IHD were consuming vegetarian and fiber diet. Most probably this difference of results is due to involvement of other factors, like alcohol, which are not so prominent in our culture.

CONCLUSION:

Identifying novel risk factors for IHD and understanding the role, if any, of dietary components on these markers will help in the development of therapeutic and preventive measures in the future. Our research shows that:

•   56% of patients were above 60 years of age which indicates people of advanced age (above 60 years) are more involved in ischemic heart diseases than younger ones.

- More over 60% of patients have disease for less than 5 years which indicates increased incidence over past few years.
- 61% patients suffering from IHD were using ghee in their cooking.
- The number of patients who don't exercise was significantly high (i.e. 69%) in our subjects.
- 55% of patients were using soft drinks.

RECOMMENDATIONS:
Health education program regarding control of ischemic heart disease should be targeted to advanced age group.
Cooking oil should be used in cooking.
- Exercise habits should be promoted and should be done regularly as it is safe and cost effective treatment of this particular disease.
- Use of soft drinks should be stopped.

LIMITATIONS:
- Short duration of study.
- Small sample size, so care should be taken while projecting these results to whole population.
- Study conducted in only DHQ hospital Gujranwala. So variation from results can occur while considering all hospitals.

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