Knowledge, Attitude and Practices of Dietary Management Among Ischaemic Heart Disease Patients Treated at Teaching Hospital Karapitiya, Galle, Sri Lanka

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ABSTRACT: Introduction: Ischemic heart disease (IHD) has become a major cause of deaths in the world. Unhealthy dietary pattern is an indirect risk factor for IHD. Assessing about the knowledge, attitude and existing practices about dietary management is important to evaluate and plan strategies to prevent these unnecessary deaths due to IHD. **Objective:** The aim of the study is to evaluate the knowledge, attitude and practices in dietary management among IHD patients attending to cardiology and medical clinics in Teaching Hospital Karapitiya (THK). **Methodology:** A cross sectional study was carried out using 150 patients with IHD. Data collection was done by using an interviewer administered questionnaire. Scoring system was used to assess the knowledge, attitude and practices and the results were presented as percentages. Data analysis was done by using SPSS version 20 and Chi – square test was performed to find out the relationship of data. **Results:** Out of 150 patients 29.3% had good knowledge about the disease while only 15.3% had good knowledge about the importance of dietary management in IHD. Fifty one percent of the sample shoed willingness to change their dietary habits but only 27% and 50% of the participants agreed to reduce salt and fat respectively. Both knowledge and attitude about dietary management had a significant relationship with the level of education (knowledge - r = 0.48, p < 0.001, Attitude – r = 0.44, p < 0.001) and monthly income (knowledge – r = 0.35, p < 0.001, Attitude – r = 0.27, p < 0.001). Nearly 70% did not like to reduce salt intake while 50% did not like to reduce fat. Nearly 75% was agreed to increase vegetable and fruits intake. There was a significant relationship between fruits and vegetables usage and level of education (r = 0.64, p < 0.001) , monthly income (r = 0.31, p < 0.001) and nationality (r = - 0.25, p = 0.002). Even after diagnosis of the disease a significant proportion did not change the dietary pattern (62% in salt, 43% in fat and 87% in fruits and vegetable). **Conclusion:** The participants' knowledge about the disease condition was average while majority of them had poor knowledge on importance of dietary management. Their attitudes and practices on dilatory intake were not satisfactory. Special programs to emphasize the importance of the dietary management are needed.
Key words: - Knowledge, Attitude, practices, dietary management, ischaemic heart disease

I. INTRODUCTION

Non communicable diseases (NCDs) are considered as the leading cause of mortality in the world representing over 63% of all deaths which is about 36 million deaths in each year. Eighty percent of deaths out of that occur in low and middle income countries and this includes equal proportion of men and women specially before the age of 60 years. Major risk factors for NCDs deaths includes, tobacco use, **unhealthy diet**, physical inactivity and harmful use of alcohol. Around three quarters of heart diseases can be prevented if these major risk factors are controlled[1]

In Sri Lanka 75% of the total deaths are accounted to be due to NCDs. Cardiovascular diseases are responsible for 40% of those NCDs. In the year 2012 the age standardized death rate per 100 000 were 350 for males and 200 for females[2]. Out of these cardiovascular diseases **IHD** has been ranked as the first leading cause for hospital deaths. which is responsible for 14.8% of total deaths. The rank as first in hospital deaths remain from year 2006 to 2014[3].

When considering IHD burden in the world out of the high income countries United States of America was in rank 1 with 379 709 deaths in the year 2010. From upper middle income countries Russia was in highest rank with 597 912 deaths and Ukraine was in highest rank among the lower middle income countries. India, China and Japan are also having high number of deaths due to IHD[4].

When considering the age specific death rates due to IHD in 2001 in Asia and Europe among both male and female population, highest rate was in the age above 60[5]. When considering about the gender variations both male and female had nearly the same proportion of IHD death rate in Europe. It was

about 20% for male and 21% for female[6]. In the year 2014 from total hospital deaths in Sri Lanka due to IHD represents 58.96% of male and 41.09% of female[3].

Above epidemiological data clearly shows the impact of IHD on health of individual and intern the health care system of a country. Therefore it is very important to prevent the IHD to reduce individual morbidity, mortality and the cost of health care system of a country. The most effective way to prevent the disease is to alleviate the risk factors[7]. The risk factors for IHD includes, high blood cholesterol and Triglyceride levels, high blood pressure diabetes mellitus, overweight and obesity, **unhealthy diet, s**moking, lack of physical activity, stress, old age, gender and family history[8].

When considering these risk factors unhealthy diet and the factors based on diet such as obesity, high blood cholesterol level and hypertension are major risk factors that can be prevented. So it is important to assess the knowledge of dietary management among IHD patients. Assessing the level of knowledge about dietary management of IHD patients within different categories is important to guide and plan programs to reduce the risk of modifiable risk factors[7].

Improvement of knowledge, changing of poor attitudes and practices regarding these risk factors is the first step in preventive measure for IHD. Therefore the main objective of our research is to evaluate the knowledge, attitude and practices of dietary management among IHD patients.

The American Heart Association's Diet and Lifestyle Recommendations emphasizes to eat fruits and vegetables, whole grains, low fat dairy products and fish (contains omega 3) and to consume less amount of saturated fat, trans fat and low sodium[9]. These are the main controllable food items in IHD dietary management. Normally it is recommended to have $\geq$ 5 servings of fruits and vegetables daily[10]. There is conceiving evidence that the intake of fresh fruits and vegetables reduces the risk of cardiovascular diseases[11]. The World Health Organization (WHO) has recommended that the salt consumption per person per day should be less than 5 grams to prevent cardiovascular diseases[7].

Therefore we have considered these major food items to assess the knowledge, attitude and practices of IHD patients.

II. MATERIALS & METHODS

A descriptive cross sectional study was carried out in Teaching Hospital Karapitiya (THK) using 150 patients who were diagnosed to have IHD and attended to medical and cardiology clinics in THK during a one month period from April 2015 to May 2015. It was a convenient sample which consists of both males and females who can speak Sinhala. Verbal consent was taken from the participant after a complete explanation of the study. The data was collected by using structured, interviewer administered, self developed questionnaire, which contain both open ended and close ended questions in Sinhala medium. It was pretested and all the ambiguities were corrected before administer to the proper sample. Questionnaire was composed of 4 sections. Section one addressed the demographic data of the participants and section two was about the knowledge of the patients' regarding the disease condition and dietary management of IHD. Attitudes of the patient about dietary management of IHD was included in the section three and section four was for practices of the patient in relation to dietary management of IHD. Statistical Package for Social Sciences (SPSS) (Version 20) was used to analyze the data. Demographic data were presented in a table as percentages and numbers. Chi test was performed to see whether there is any association of the results about knowledge and attitudes with the demographic variables. Prior to data analysis, dummy coding was applied to recode several variables into zeros and single numbers.

III. RESULTS

3.1. Demographic characteristics of sample

The sample composed of 150 patients with IHD which include 58% of female participants and 42% of males. Most of them were between the age of 51 to 60 years and then above sixty. Most of the participants were Sinhala Buddhist (83% is Sinhala and 78% is Buddhist). When considering about their education level most of them were educated up to ordinary level (34.7%) and nearly similar percentage of participants had their education up to grade ten (34%) . The majority (39.3%) of the participants were getting a monthly income of about Rs.15000 - Rs.25000.

3.2. Assessment of the knowledge about disease condition

There were 08 questions to assess the knowledge about the IHD. Each question was given one (1) mark for the correct answer and zero (0) mark for an incorrect answer. Any patient who scored 7 or more than 7 were graded as having good knowledge and if the score was between 4 to 6 grade them as having average knowledge and those who had scored 3 or less were graded as poor knowledge category. According to this classification 50% of the participant had average knowledge about the IHD. (Table-1)

Table 1 Participants' level of knowledge about the IHD

Level of knowledge	Frequency (n)	Percentage (%)
Good knowledge	44	29.3%
Average Knowledge	75	50%
Poor knowledge	31	20.7%
Total	**150**	**100%**

3.3. Assessment of the knowledge about dietary management in IHD

Similarly there were 08 questions to assess the knowledge about dietary management of IHD patients. Marks were allocated in the same manner to each correct answer and participants were divided in to three groups according to the score they obtain as good, average and poor(Table -2). It showed that majority of the participant had poor knowledge of importance of the dilatory management in IHD.

Table 2 Participants' level of knowledge about dietary management

Level of knowledge	Frequency (n)	Percentage (%)
Good knowledge	23	15.3%
Medium Knowledge	39	26%
Poor knowledge	88	58.7%
Total	**150**	**100%**

3.4. Relationships between the Knowledge about dietary management and demographic characteristics

Knowledge about dietary management of participants were compared with the demographic characteristics. Chi square test was performed to check the significant. According to the calculated values there was a significant relationship between knowledge about dietary management with the level of education and their monthly income. In the comparison of level of education calculated Pearson Chi value is (42.689) higher than the table value (11.70) and the p value was less than 0.001. When considering about the monthly income, the calculated Pearson Chi value was (19.111) higher than the table value (7.815). The p value was less than 0.001.

There was no significant relationship was found with the gender, age, nationality and religion.

3.5. Assessment of compliance about dietary management

Out of the total (150) participants 77 (51.3%) showed willingness to manage their dietary habits while 73 (48.3%) said they would continue their previous dilatory pattern.

Table 3 Compliance about dietary management

Compliance	Frequency (n)	Percentage (%)
Willing to alter diet	77	51.3%
Did not want alter diet	73	48.7%
Total	**150**	**100%**

3.6. Relationships between the attitudes of dietary management with demographic characteristics

Willingness to alter diet among the participants was compared with the demographic characteristics. Chi square test was performed to check the significance and similar pattern was observed here as the knowledge of dilatory management. According to the calculated values there was a significant relationship between willingness to change dietary pattern with the level of education.   In the comparison of level of education calculated Pearson Chi value was (42.689) higher than the table value (11.70) and the p value was less than 0.001. When consider about the monthly income calculated Pearson Chi value is (15.531) higher than the table value (7.815) and the p value is less than 0.001.

There was no significant relationship was found with the gender, age, nationality and religion.

3.7. Assessing the attitude of IHD patients regarding the controlling of major controllable food items

The table 4 illustrates the pattern of the willingness to control salt, fat, fruit and vegetable among the participants.

Table 4 Attitude of IHD patients regarding the controlling of major controllable food items

Type of food	Like		Dislike	
	frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Decrease the use of salt intake	41	27.3%	109	72.7%
Decrease the use of fat intake	80	53.3%	70	46.7%
Increase the intake of vegetable and fruit	115	76.7%	35	23.3%

The attitude about controlling major food items were compared with demographic characteristics separately.

3.8. Comparison of demographic data with attitude about decrease salt and fat intake:

It showed there was a significant relationship of attitude about decrease salt intake with the level of education and the monthly income. The chi square value of the comparison with the level of education was 15.379 which was higher than the table value 11.70 and the p value was less than 0.001. For monthly income Calculated Pearson Chi value is 23.150 which were higher than the table value 7.815. The p value was less than 0.001. The attitude about decrease fat intake also had similar significant relationship as salt intake with the level of education and the monthly income

3.9. Comparison of demographic data with attitude of increase intake of fruits and vegetables:

The attitude about increase intake of fruits and vegetables of the participants were compared with the demographic data . As with the other two major controllable food items this also had significant relationship with level of education and monthly income . In addition to that it also showed a significant relationship with nationality of the participants. Chi square test was performed to assess the significant and the results showed p= 0.001 for the comparison between attitude of fruit and vegetable intake and the level of education and the monthly income. In comparison with the nationality and the attitude of increase intake of fruits and vegetables, the calculated Pearson Chi value was 11.126 which was higher than the table value 7.815 and the p value was 0.002.

3.10. Assessment of practice of controlling major controllable food items in IHD

In the assessment of their practice on dietary management, participants were questioned about their pattern of fat, salt, fruit and vegetable intake before and the after the diagnosis of the IHD.

3.11. Assessment of practice of the salt intake

When considering the salt intake only 27.3% of the participant had reduced the intake while majority had not been change their practice. (Table-5)

Table 5 Practice of using salt after the diagnosis of IHD

Use of salt after the disease diagnosis	Frequency (n)	Percentage (%)
Decreased amount	41	27.3%
Increased amount	2	1.3%
Not changed	94	62.7%
Not used	13	8.7%
Total	**150**	**100%**

3.12. Assessment of practice of the intake of fat and fat containing food

This showed that more or less similar proportions of the sample had decrease (42%) or had not change (43.3%) the practice of fat intake. (Table -6)

Table 6 Practice of using fat after diagnosis of IHD

Use of oil after the disease diagnosis	Frequency (n)	Percentage (%)
Decreased amount	63	42%
Increased amount	0	0%
Not changed	65	43.3%
Not used	22	14.7%
Total	**150**	**100%**

3.13. Use of meat, fish and egg

Participants intake of meat, fish and egg was assessed in the questionnaire under the assessment of fat containing food. The table 7 shows their habits and it indicates major proportion of the participants used to consume all three food items.

Table 7 Practice of using Meat, Fish and Egg

Intake of,	Yes		No	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Meat	108	72.0%	42	28%
Fish	131	87.3%	19	12%
Egg	122	81.3%	28	18.7%

3.14. Assessment of eating dairy products and Assessments of eating instant food

A list of dairy products and instant foods were mentioned in the questionnaire and participants were categorized into two groups according to those who were consuming two or less than two types of dairy products or instant food items and those who were consuming more than two types of them (Tables 9 and 10).

Table 9 Practice of eating dairy products of participants

Use of dairy products	Frequency (n)	Percentage (%)
Use 2 or less than 2 types of dairy products	21	14%
Use more than 2 types of dairy products	129	86%
Total	**150**	**100%**

Table 10 Practice of eating Instant Food (IF)

Use of Instant Food (IF)	Frequency (n)	Percentage (%)
Use 2 or less than 2 types of IF	94	62.7%
Use more than 2 types of IF	56	37.3%
Total	**150**	**100%**

3.15. Assessment of practice of eating vegetable

The intake of vegetables was also assessed in similar manner to compare their habits before and after the onset of IHD. This showed that majority (87.3%) had not paid any attention to alter their vegetable intake. (Table 11)

Table 11 Practice of eating vegetables after the diagnosis of IHD

Practice of eating vegetables	Frequency (n)	Percentage (%)
Decreased	4	2.7%
Increased	15	10%
Not changed	131	87.3%
Total	**150**	**100%**

3.16. Assessment of practice in eating fruits

A similar practice was observed when considering their habit of fruit intake (Table-12)

Table 12 Practice of eating fruits after the diagnosis of IHD

Practice of eating fruits	Frequency (n)	Percentage (%)
Decreased	5	3.3%
Increased	7	4.7%
Not changed	138	92.0%
Total	**150**	**100%**

IV.   DISCUSSION

This research was aimed to evaluate the knowledge, attitude and practices of dietary management among Ischemic Heart Disease (IHD) patients attending to medical and cardiology clinics in Teaching Hospital Karapitiya (THK). Therefore this study addressed three main areas. This included, the participants knowledge about disease condition and the dietary management, the participants attitude about the

dietary management and the controlling of major controllable food items and their willingness to control major controllable food items in comparison to their food habits before the development of IHD.

The total number of participants was 150 which included 58% of female and 42% of male. When considering about the age distribution 48.7% was in the age between 51 – 60 years and 34% was above the age of 60 years. Most of the participants was Sinhalese (83.3%) while 11.3% were Muslim. When they were divided into religion groups 78% was Buddhist while, 11.3% was Islamic and rest was Hindu and Catholics. When considering the level of education, 34.7% were educated up to O/L and 34% educated only up to grade 10. Only 3.3% were degree or diploma holders. When considering about the monthly income of the participants majority were in the group who earn Rs.15000 to Rs.25000 (39.3%).

When assessing their knowledge about IHD only 29.3% of participants had good knowledge and 20.7% of them had poor knowledge about the disease condition. Majority of the participants had an average knowledge regarding IHD. In a study done in government hospital Taif in Saudi Arabia using IHD patients to assess their knowledge about the disease condition, the results showed that 51% of their patients had low score for knowledge while 43% of the patients had medium score for knowledge and only 6% had high knowledge score[7]. When considering this the overall knowledge of our study sample was better than the sample studied by Ahamed et al.

Only 45.3% of the patients had good knowledge about dietary management and the 54.7% had poor knowledge. When comparing the knowledge about dietary management with the demographic data using chi square test there were significant relationship between the level of education and the monthly income and the knowledge of dietary management.

When assessing the compliance for dietary management among the participants 51.3% of them had willingness to alter their diet and 48.3% did not. A research done in America found a similar results where 52.8% of their participants who had cardiovascular diseases said that the dietary management is extremely important. There were no significance relationship between this attitude and the sex, age or medical condition. They concluded saying that majority of heart patients considered the diet as an important factor for treatment and prevention of cardiovascular diseases[12]. In our study also found that there was no relationship between the attitude about the dietary management and the age, gender, nationality and religion. But there was a significant relationship between the level of education and monthly income with the need of dietary management

We assessed the attitude of controlling four major food items in IHD patients. These include salt, fat, vegetables and fruits. When considering about the attitude of decreasing salt intake 27.3% was agreed and 72.7% was disagreed to decrease salt intake. The reason for this attitude was variable. Eighty one point eight percent said that decrease salt in food changes the taste of the food while 12.7% said the reason as preparation difficulties. Most of the participants in our study had got their IHD when old age. So they had their own dietary habits which they had been practicing for many years during their life time and most of them didn't want to change their habits. However there was a significant relationship between this attitude and the level of education and their monthly income. But there was no significant relationship with the other demographic data.

When considering the attitude of the participant regarding dilatory management, 46.7% of them did not want to reduce fat intake and 53.3% was keen on reduction of their fat contents in the diet. Most of the participants (92.9%) said that they did not want to change their habits as it changes the taste of food. However only 5.7% said that there was no any result of reducing fat intake. A research study done in Pakistan on a group of cardio vascular disease (CVD) patients had identified that 92% of their participants were aware the importance of reduction of fatty food consumption in CVD but their willingness to practice it was low[13]. As with the attitude about decrease salt intake, the comparison of the attitude about decrease fat intake had no significant relationship between age, gender, nationality and the religion.

Increase consumption of vegetables and fruits has shown association with reduced risk of coronary heart disease in many epidemiological studies[14]. Another review done in year 2000 estimated that an increase of 150g / day of fruits and vegetables was associated with a 30% reduction in IHD risk (based on best guess)[15]. According to the findings in our study 76.7% were agreeable to increase the vegetable and fruits consumption and 23.3% were not. Among those who did not likes to increase vegetable and fruit intake 75% said that there were no result in increasing vegetable and fruit consumption while 11.1% had economical reasons to increase the intake of vegetables and fruits. There was another group of participants who had got medical restrictions (kidney diseases) to increase intake of fruits. When considering about the relationship, as in previous comparisons gender, age and religion did not show significant relationship between the increase intake of fruits and vegetables. But nationality, level of education and monthly income showed a significant relationship.

Eight point seven percent of research population were not using salt with their diet and 27.3% had decreased the use of salt while the majority (62.7%) had not changed the amount of salt they were taking after the diagnosis of their disease (IHD). There is a high chance of increase blood salt level within those who consumed processed food[16]. In my research I assessed the practice of eating processed food or instant food in IHD patients. Sixty two point seven percent of participants were using only 2 types or less than 2 types of processed food mentioned in the questionnaire. Only 37.3% was using more than 2 types of processed food.

When considering about the fat intake of the participants 84% was using oil when they were preparing food. Out of the oil using patients majority of them used coconut oil and rest used vegetable oil for cooking. Coconut or coconut oil contains high amount of (51.0%) saturated fat and a recent study has found that coconut oil is at the top range of both atherogenic and thrombogenic foods. But the research done in Kerala , India did not reveal any significant difference in coconut consumption and the coronary heart disease (CHD)[17].

Majority of participants (87.3%) in this study used to consume fish once in 2 - 3 days. A research done in Denmark found that fish consumption at 40 – 60g per day is associated with the reduction of coronary heart disease mortality only in high risk population but not in low risk population[18].

When considering about their practice of vegetable and fruit consumption after the diagnosis of the IHD, 87.3% had not changed their practice of eating vegetables while 92% had not changed their fruit consumption habits

V.   CONCLUSION

In conclusion the participants of this study had average knowledge about the disease condition (IHD) that they were suffering from while the knowledge of importance of dietary management in IHD was poor in most of the participants. We have identified some bad attitudes and malpractices towards the changing of diet after the diagnosis of IHD. Although participants gave some personal reasons for their poor practices or habits in dilatory usage pattern, their poor knowledge regarding the importance of dietary management in IHD should have been influenced for their responses for the questions. Therefore we recommend making some health educational program to highlight the importance of good dietary habits and practices which will help to prevent progression and complication of patients already diagnosed to have IHD and to reduce the incidence of IHD and other CVD in the society.

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