Saudi Family Physicians' Knowledge of Secondary Prevention of Heart Disease: A National Assessment Survey

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Abstract

Coronary heart disease is one of the major causes of health problem across the globe. Saudi Arabia has a high prevalence of the disease, especially among populations living in urban areas. The main risk factor evaluated for the prevalence of the disease includes age gender, body mass index, medical history, and behaviors. Effective prevention is dependent on physicians' awareness as well as familiarity with the guidelines for successful implementation. Research studies show, however, the existence of a gap between the understanding of these guidelines and clinical customs in preventing coronary heart disease. As a result, the Saudi population is considered to be at a high risk of an epidemic, calling for immediate action. The research focuses on assessing Saudi family physicians' knowledge of the guidelines in secondary prevention of coronary heart disease and linking it to the disease prevalence in the kingdom. The study established that there is generally poor knowledge of secondary prevention guidelines among Saudi family physicians. The finding was evident from the prescription of drugs with adverse effects to patients as well as poor guidelines on patient adherence to secondary prevention that is offered by the physicians.

Keywords: coronary heart disease, physicians' knowledge

INTRODUCTION

Coronary heart disease remains the principal cause of death worldwide. Many deaths caused by the diseases are preventable. The increase of the disease at an alarming rate, especially among middle-and low-income families in the Middle East, has led to increased inequalities regarding the provision of care [1]. The Middle East is experiencing significant socio-economic transition which negatively affects the burden that comes with coronary heart disease. Saudi Arabia is among the developing countries faced with an increased coronary heart disease and a rise in the number of preventable deaths [2]. Coronary heart disease risk factors usually comprise of elements such as hypertension, diabetes mellitus, smoking, adoption of a sedentary lifestyle and obesity [3]. Based on the above information, the article aims to evaluate the knowledge of Saudi Family Physicians given a multidisciplinary approach for the management of coronary heart disease. Several diagnostic measures are used to assess the risk of the patients suffering from coronary heart disease [4]. Diagnosing includes measuring patient blood pressure, sugar and cholesterol levels. Other risk factors include being overweight, inadequacy in physical activity, and unhealthy eating habits. The research assesses physician's knowledge

on causes, diagnosis, treatment, and prevention to determine their ability to assess, diagnose, treat and prevent effectively.

Literature review

Research shows the existence of a gap between understanding of guidelines and clinical practice in the secondary prevention of coronary heart disease [5]. Effective prevention is dependent on the awareness of physicians and familiarity with the guidelines to successfully put them into practice. The knowledge of secondary prevention, particularly on the modification of lifestyle, is essential for physicians offering family care to incorporate them into their practices [6]. The World Health Organization asserts that the reduction and control of risk factors are crucial to reduce coronary disease mortality rate [7]. The argument is that by controlling high blood pressure, managing high levels of cholesterol as well as excess body weight, reducing smoking, and controlling patients' physical activities would have a tremendous impact on coronary heart disease. Effective management requires the identification of risk factors and addressing them.

Studies emphasize the need for adherence to clinical guidelines in coronary heart disease prevention strategies. The importance of physicians lies in understanding how to monitor patient's dietary practices and offer guidelines on modifications, exercise, and control of lipids [3, 8]. The Centre for Disease Control and Prevention assessed the knowledge of doctors in secondary prevention as well as their efforts on the same [9]. The findings indicate that physicians are not keen on the importance of secondary prevention for their patients. Failure to adhere to set guidelines contributes to erroneous and provision of sub-optimal management of the risk factors [10].

There is a need for continuous medical education in bridging the gap between clinical practices and evidence-based treatment [8]. Such programs that offer continuing education programs for physicians are ongoing in Saudi Arabia [11]. However, the government is yet to offer an established system of study which offers credit for educational activities [5]. An international guideline proposes the need for a systematic and strategic standard [12]. The standards should establish and enhance the implementation of the guidelines in terms of awareness, practice and acknowledge among family physicians in Saudi Arabia.

Objectives of the study

The objectives of the study were:

- Determining physicians' knowledge management – to assess the practices in secondary prevention among Saudi family physicians. Knowledge of management will determine the physicians' assessment and regard for the quality of life.
- Detecting coronary heart disease – focusing on physicals knowledge, attitudes, and behaviors in the engagement of patients. The goals are also to examine the influencing factors such as interpersonal, communal and public policies that affect physical knowledge and detection of coronary diseases, as well as the influence of culture along with its assessment and diagnosis.
- Assessing management and prevention practices – evaluating the routine management practices such as screening, physical examination, and evaluation of family history. The study aimed to determine the presence of other management practices such as lipid profile screening or genetical testing for coronary heart disease.
- Assessing the awareness of prevention – to evaluate patients' awareness of the various clinical algorithms in diagnosing patients with coronary heart disease. The assessment would also evaluate the physician's awareness of new trends, medication and health discoveries on coronary heart disease and implementation on their practice.
- Assessing the relationship between physicians' familiarity with knowledge on coronary heart disease and prevalence.

The goal was to determine the number and rating of physician knowledge on coronary heart disease and the effect of the knowledge on prevalence. The objective would also assess the relationship of physician's knowledge to their age, training levels, medical specialty, and years of practice and relationship with patients.

MATERIAL AND METHODS

The study was cross-sectional, and conducted using self-administered questionnaires shared among physicians, and aimed at evaluating their knowledge on secondary guidelines in preventing coronary heart disease in Saudi Arabia. The study was conducted across five geographical regions of Saudi Arabia with a focus on 15 cities with a total of 21 hospitals in Saudi Arabia, where 92 physicians participated in the research. Each participant received a questionnaire with a set of 19 questions examining the physicians' knowledge in coronary heart disease. The objectives of the study were made clear before the exercise, and issues of consent and approval were discussed.

The self- administered questionnaires recorded physician's age, demographic data with the major inquiries on their knowledge on coronary heart disease, clinical description of treatment, risk factors such as diabetes mellitus and smoking [13]. The survey consisted of multiple questions that also monitored prevention measures such as screening, knowledge on medication and knowledge in patient treatment procedures.

RESULTS

The data collected were analyzed using SPSS version 25.0, and the following output was determined.

Table 1. Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
In coronary disease patients with diabetes mellitus, treatment target of HbA1c is_%	93	4	4	8	5.72	1.657
In patients with acute coronary events, evaluation of lipid profiles should be done within after admission to the hospital.	93	42	6	48	19.23	15.464
Cholesterol intake in patients with coronary heart disease should not exceed mg	93	400	100	500	286.02	148.611
In patients with coronary disease who should take clopidogrel, the recommended dose is mg/d.	93	292.5	7.5	300.0	141.048	101.4295
Recommended duration of dual anti-platelet therapy post-acute coronary syndrome is months.	93	23	1	24	8.37	8.002
Valid N (listwise)	93					

Table 2. Gender * Cholesterol intake in patients with coronary heart disease should not exceed mg

Crosstab

	Cholesterol intake in patients with coronary heart disease should not exceed mg			
	100	200	300	400
Count	76	38	42	48
Expected Count	69.8	34.0	57.1	41.0
% within Gender	30.3%	15.1%	16.7%	19.1%
Count	72	34	79	39
Expected Count	78.2	38.0	63.9	46.0
% within Gender	25.6%	12.1%	28.1%	13.9%
Count	148	72	121	87
Expected Count	148.0	72.0	121.0	87.0
% within Gender	27.8%	13.5%	22.7%	16.4%

Table 3. The summary of table 2

	Cholesterol intake in patients with coronary heart disease should not exceed mg	Total
	500	
Count	**47**	**251**
Expected Count	49.1	251.0
% within Gender	18.7%	100.0%

Count	57	281
Expected Count	54.9	281.0
% within Gender	20.3%	100.0%
Count	104	532
Expected Count	104.0	532.0
% within Gender	19.5%	100.0%

Table 4. Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.883[a]	4	.018
Likelihood Ratio	12.031	4	.017
N of Valid Cases	532		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 33.97.

Table 5. Gender * In patients with coronary disease who should take clopidogrel, the recommended dose is mg/d

Crosstab			
In patients with coronary disease who should take clopidogrel, the recommended dose is mg/d.			
7.5	**75.0**	**150.0**	**300.0**

	7.5	75.0	150.0	300.0
Count	44	45	99	63
Expected Count	54.3	45.3	94.4	57.1
% within Gender	17.5%	17.9%	39.4%	25.1%
Count	71	51	101	58
Expected Count	60.7	50.7	105.6	63.9
% within Gender	25.3%	18.1%	35.9%	20.6%
Count	115	96	200	121
Expected Count	115.0	96.0	200.0	121.0
% within Gender	21.6%	18.0%	37.6%	22.7%

Table 6. The summary of table 5

Count	251
Expected Count	251.0
% within Gender	100.0%
Count	281
Expected Count	281.0
% within Gender	100.0%

Count	532
Expected Count	532.0
% within Gender	100.0%

Table 7. Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.266[a]	3	.153
Likelihood Ratio	5.308	3	.151
N of Valid Cases	532		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 45.29.

Table 8. Correlations

	In coronary disease patients with diabetes mellitus, treatment target of HbA1c is_%	In patients with acute coronary events, evaluation of lipid profiles should be done within after admission to the hospital.	Cholesterol intake in patients with coronary heart disease should not exceed mg	In patients with coronary disease who should take clopidogrel, the recommended dose is mg/d.	Recommended duration of dual antiplatelet therapy post-acute coronary syndrome is months.
Pearson Correlation	1	.080	.006	-.044	-.070
Sig. (2-tailed)		.448	.954	.678	.505
N	93	93	93	93	93
Pearson Correlation	.080	1	-.066	.098	-.121
Sig. (2-tailed)	.448		.528	.352	.247
N	93	93	93	93	93
Pearson Correlation	.006	-.066	1	.042	-.042
Sig. (2-tailed)	.954	.528		.686	.687
N	93	93	93	93	93
Pearson Correlation	-.044	.098	.042	1	-.102
Sig. (2-tailed)	.678	.352	.686		.332
N	93	93	93	93	93
Pearson Correlation	-.070	-.121	-.042	-.102	1
Sig. (2-tailed)	.505	.247	.687	.332	
N	93	93	93	93	93

From the above results, it can be noted that the mean, median, standard deviation, p-value, chi-square, and correlation are displayed.

DISCUSSION

In this section, the study will elaborate on what is found in the analysis section, check if the main objectives of the research are met and compare the results with the results of the previous studies. The main objective of the study was to determine the knowledge of the physicians to their training levels, age, medical specialty, and years of practice and relationship with patients. At first, the descriptive statistics are determined to describe the distribution of the data set.

In the descriptive statistics analysis, the study investigated five variables where the range, mean, and standard deviation were determined. The patients with coronary disease with diabetes mellitus were found to have a standard deviation of 1.657, a mean of 5.72, and a range of 4. The patients with acute coronary with regard to lipid profile had a mean of 19.23, a range of 42, and a standard deviation of 15.464. The third variable investigated was cholesterol intake in patients with coronary heart disease. The mean was found to be 286.02, the range was found to be 400, and the standard

deviation was 148.611. Also, in patients with coronary disease who should take clopidogrel, the recommended dose was found have a mean of 141.048, the standard deviation of 101.4295, and the range of 292.5. The last variable involved was the recommended duration of dual antiplatelet therapy post-acute coronary syndrome for patients. The mean was found to be 8.37, the range was found to be 23, and the standard deviation was 8.002. From all these values, it can be noted that all the distributions were done within one standard deviation; this implies that all the variables were normally distributed and they can be analyzed using parametric methods.

The second analysis done was correlation analysis. Correlation analysis is defined as the measure of the association between two or more variables. The measure was done to all the four variables in pairs. From the analysis result above, only two variables in patients with acute coronary events, evaluation of lipid profile and variable cholesterol intake in patients with coronary heart disease have relatively strong positive correlations because they have correlation coefficients that are greater than 0.5. But all other variables have an insignificant relationship with each other. This dissociation between the majority of variables shows that physicians are not keen on following the prevention guidelines. A study performed by the Centre for Disease Control and Prevention assessed the knowledge of doctors in secondary prevention as well as their efforts on the same [9]. The results of the study indicated that physicians are not keen on the importance of secondary prevention for their patients. Therefore, the results found in this study marry with the results found by the Centre for Disease Control and prevention. Failure to adhere to set guidelines contributes to erroneous and provision of sub-optimal management of the risk factors [10].

Unlike correlation analysis, Chi-Square Test of independence is used to test if there is an association between the categorical variables. The test is normally used for non-parametric tests. The test utilizes crosstab to investigate the data. The crosstab is the classification of data into two categorical variables. The first category appears in the row and the other appears in the column. Every variable must have more than one category and every cell represents the sum of cases in each category. The significant level used in Chi-square test in this study is 0.05. The null hypothesis is rejected if the p-value is found to be less than the significant level; otherwise, it is retained. From the above chi-square analysis, the p-value found is 11.883 and the significant level is 0.18. Since the p-value is greater, the null hypothesis is retained. Therefore, we conclude that there is no enough evidence to support the claim that there is an association between physician knowledge about the disease and the secondary prevention guidelines for coronary heart disease.

Conclusion

From the statistical analysis and discussion above, it can be noted that the physicians have little knowledge of Saudi family knowledge of secondary prevention guidelines for coronary heart disease. The lack of knowledge for prevention has resulted in the current deaths experienced in Saudi which are caused by the deadly disease coronary heart disease. To lower the number of deaths recorded, the physicians are advised to familiarize themselves with the secondary prevention guidelines for coronary heart disease. By doing this, they will be in a better position of detecting the disease on time and cure it in the early stages. The physicians can also prevent the disease by educating the public on preventive measures like diet and medicines they are supposed to take to ensure that they remain healthy.

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