

Research Paper

Medical Students Knowledge and Perception Regarding Complementary and Alternative Medicine used in Dyslipidemia and Diabetes Treatment

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ABSTRACT

Objective: The aims of this study are to estimate the self-perceived competence knowledge, attitude and practice (KAP) regarding complementary and alternative medicine to control of dyslipidemia and diabetes in medical student, to determine the influence demographic and socioeconomic factors on the level of KAP.

Background: Complementary and alternative medicine (CAM) is used in health care and is rapidly evolving. CAM are not presently considered to be part of conventional medicine but frequently used by patients as self-medication and prescribed by health care provider in diabetes and dyslipidemia. Medical student's knowledge regarding CAM used in diabetes and dyslipidemia is imperative to handle this in patient care.

Method: A cross sectional survey based study conducted at Oman medical college. Students in clinical years were requested to participate. Data was collected with self-filled questionnaire asked about their attitudes and beliefs regarding use of CAM used in dyslipidemia and diabetes. Data was analyzed using Statistical Package for Social Sciences (SPSS) version 20.

Results: A total of 101 medical students participated 18 (17.8%) were male and 83 (82.2%) were female, 101 participants, 74 (73.3%) were Omani and 27 (26.7%) were non-Omani. The most frequent responses were agree (49.5%) for the usage of herb/supplement is very common and 48.5% were agree that for practice of CAM should be asked during a regular history taking of patients. More than a half of the participants were agreed or strongly believe that high cholesterol is a risk for heart attack, HDL is a protector for heart disease, walking increases HDL, reduction in LDL will reduce the risk of heart attack and high fiber diet is effective to reduce cholesterol.

Conclusion: Majority participants have good knowledge regarding CAM, however specific knowledge treating diabetes and dyslipidemia. This can be achieved by providing education and training by organizing continuous medical education programs.

Keywords: CAM knowledge; CAM in diabetes and dyslipidemia; Beliefs of CAM

Background

Complementary and alternative medicine (CAM) is growing very fast and the use of CAM in health care is rapidly evolving¹. CAM has been defined by the National Center for Complementary and Alternative Medicine as a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine². Diabetic dyslipidemia is an important cause of accelerated atherogenesis and cardiovascular diseases in patients with diabetes. Knowledge and attitude regarding the disease play an important role in the overall success of the treatment. Complementary and alternative medicine (CAM), also known as nonconventional medicine, includes a wide range of health care practices (such as herbal medicine, acupuncture, yoga, meditation, and homeopathic medicine) that are not part of a health care system^{3,4}. The popularity of CAM has dramatically increased in many developed countries since the 1990s. People are concern about the adverse reaction of chemical drugs. All these aspects have contributed greatly to the worldwide popularity of CAM^{5,6}. Drugs used in dyslipidemia may cause

adverse effects if used for longer duration. Therefore patients use CAM to reduce lipids without any major side effect. Studies have reported that CAM can be effective for a specific condition and they do not harm the patients⁷. The traditional Chinese medicine (TCM) has some beneficial effects on the treatment of patients with dyslipidemia and has less adverse effects as compared to chemical agents. Garlic (*Allium sativum*) has been used in herbal medicine for centuries for various diseases. Among the herbal remedies, true cinnamon (*Cinnamomum verum*) is used commonly in the United States and Canada. Bitter gourd (*Momordica charantia*) and garlic (*Allium sativum*) are predominantly used in India. In Asia and Mediterranean, fenugreek (*Trigonella foenum graecum*) has been cultivated and used medicinally for thousands of years^{8,9}. Medical student's knowledge is limited as CAM is not formally included in under graduate curriculum. Although in family Medicine rotation each disease management covers alternate medicine therapy but still it is not taught as conventional medications. Family medicine is an essential component of the primary care infrastructure of the Oman health care delivery system. This primary care specialty provides first contact, ongoing, and preventive care to all

patients. Both the clinical courses (year 6 and 7) run as a spiral with consolidating and sharpening the knowledge and skills acquired in year 6 with some more practical approach in year 7. Oman Medical College is aware of the importance of CAM and has taken initiatives to enhance its awareness in its medical student, developing and organizing to formulate educational programs. To strengthen and make it more effective in terms of teaching and experiential learning of CAM, few steps is already being taken. This study was designed to assess the knowledge and perception of medical students regarding complementary and alternative medicine used in diabetes and dyslipidemia.

Method

A cross sectional survey based study done at Oman medical college in year 2015. All students in clinical years were invited to participate. Participants were enrolled after taking written informed consent.

A questionnaire was designed comprising of 3 sections. The first section consists of demographic details of students (age, gender and year of education) and second section contains questions regarding knowledge and perception about CAM and third section consist of knowledge regarding herbs used in diabetes and dyslipidemia. All questions had five responses (strongly agree, agree, neutral, disagree and strongly disagree).

The questionnaire was prepared and approved from ethical review committee. The principal investigator

ensured uniformity and two research assistants trained how to get it filled by participants. Survey instrument was made after literature search reviewed by and agreed on via several brain storming sessions and understanding, so the questionnaire would maximize the response rates. Validation of questionnaire on small group (pilot) was also completed. Questionnaires were brought back after it is filled and entered in the database. All questionnaires were included in the study and there were no missing responses.

Statistical analysis was performed using SPSS (IBM SPSS Statistics 20.0). Data were expressed in frequencies, mean and percentages. Each participant individual score was calculated for their response. Mean scale scores for the year of class, gender, age and citizenship were evaluated for significance difference using the paired t-test.

Results

A total of 101 medical students were participated in the study in which 55 (54.5%) from 6th year and 46 (45.5) from 7th year. Age ranges from 22 to 30 year, 95 (94.1%) were age between 22-25 and 6 (5.9%) were age between 25-30. 18 (17.8%) were male and 83 (82.2%) were female students. Among the 101 participants, 74 (73.3%) were Omani and 27 (26.7%) were non-Omani nationals. Participant's source of knowledge regarding CAM was from curriculum (8.9%), friend (19.8%), family members (25.7%), teacher in medical college (15.8%), social media (16.8%) and electronic media (12.9%) (Table 1).

Table 1: Knowledge and perception regarding CAM.

	Strongly Agree	Agree	Don't know	Disagree	Strongly Disagree
1. Use of herb/supplement is very common	27 (26.7)	50 (49.5)	20 (19.8)	3 (3)	1 (1)
2. Use of CAM in Diabetes mellitus	27 (26.7)	40 (39.6)	28 (27.7)	3 (3)	3 (3)
3. Use of CAM in Hypertension	24 (23.8)	42 (41.6)	28 (27.7)	4 (4)	3 (3)
4. Use of CAM in Osteoarthritis	17 (16.8)	36 (35.6)	43 (42.6)	3 (3)	2 (2)
5. Use of CAM in Dyslipidemia	15 (14.9)	37 (36.6)	41 (40.6)	3 (3)	5 (5)
6. Use of CAM in Obesity	25 (24.8)	35 (34.7)	28 (27.7)	10 (9.9)	3 (3)
7. Use of CAM in Headache	27 (26.7)	41 (40.6)	25 (24.8)	6 (5.9)	2 (2)
8. Use of CAM in Menopause	23 (22.8)	20 (19.8)	43 (42.6)	10 (9.9)	5 (5)
9. Use of CAM in Any other	19 (18.8)	23 (22.8)	56 (55.4)	1 (1)	2 (2)
10. Use of CAM should be asked during a regular history taking	40 (39.6)	49 (48.5)	9 (8.9)	2 (2)	1 (1)
11. A patient uses CAM in conjunction with conventional medicine should be encouraged	14 (13.9)	29 (28.7)	24 (23.8)	26 (25.7)	8 (7.9)
12. It is important to have CAM practices available to patients	15 (14.9)	35 (34.7)	25 (24.8)	20 (19.8)	6 (5.9)
13. Patients should inform/consult their doctors about their use of CAM	37 (36.6)	49 (48.5)	12 (11.9)	0	3 (3)
14. CAM therapies, have not tested in a scientific manner should be discouraged	31 (30.7)	30 (29.7)	27 (26.7)	6 (5.9)	7 (6.9)
15. Clinical care should integrate the best of conventional and CAM practices	11 (10.9)	47 (46.5)	30 (29.7)	5 (5)	8 (7.9)
16. Health care professionals should be able to advise their patients about commonly used CAM methods	21 (20.8)	48 (47.5)	21 (20.8)	6 (5.9)	5 (5)
17. A formal training or mandatory CAM course should be included in medical undergraduate curriculum	15 (14.9)	45 (44.6)	27 (26.6)	10 (9.9)	4 (4)
18. Herbs are safe and cost effective	9 (8.9)	34 (33.7)	29 (28.7)	18 (17.8)	11 (10.9)

Participants were asked multiple questions about knowledge and perception regarding CAM. Their answers were had five responses (strongly agree, agree, don't know, disagree, and strongly disagree). The most frequent responses were agree (49.5%) for the usage of herb/supplement is very common and 48.5% were agree that for practice of CAM should be asked during a regular history taking of patients (Table 1). No significant statistical difference was observed between 6th and 7th year students involving knowledge and perception regarding CAM ($p < 0.062$; 95% CI: 7.69–0.191) (Table 2).

In the questionnaire, participants were asked about their attitudes and beliefs regarding use of CAM in dyslipidemia and diabetes. More than a half of the participants were agreed or strongly believe that high cholesterol is a risk for heart attack, HDL is a protector for heart disease, walking

increases HDL, reduction in LDL will reduce the risk of heart attack and high fiber diet is effective to reduce cholesterol (Table 2). Attitudes and beliefs regarding use of CAM in dyslipidemia and diabetes among 6th and 7th year students was not significantly different ($z = -0.929$, $p = 0.353$).

Discussion

Complementary and alternative medicine is defined as the practices, approaches, knowledge and beliefs that incorporate plant, animal and mineral-based medicines, spiritual therapies, manual techniques and exercise¹⁰. Diabetes and dyslipidemia are common non communicable diseases worldwide. In this study students have shown adequate knowledge regarding CAM (Table 1). The most frequent responses were the usage of herb/supplement is very common and more than half agree that practice of

Table 2: Attitudes and beliefs regarding use of CAM in dyslipidemia and diabetes.

	Strongly Agree	Agree	Don't know	Disagree	Strongly Disagree
1. High cholesterol is a risk for heart attack	54 (53.5)	33 (32.7)	9 (8.9)	0	5 (5)
2. LDL is a good cholesterol	5 (5)	9 (8.9)	10 (9.9)	26 (25.7)	51 (50.5)
3. HDL is a protector for heart disease	53 (52.5)	30 (29.7)	12 (11.9)	3 (3)	3 (3)
4. Walking increases HDL	12 (11.9)	38 (37.6)	43 (42.6)	8 (7.9)	0
5. Reduction in LDL will reduce the risk of heart attack	44 (43.6)	36 (35.6)	14 (13.9)	4 (4)	3 (3)
6. High cholesterol increases risk of paralysis	12 (11.9)	21 (20.8)	56 (55.4)	8 (7.9)	4 (4)
7. Fast food has no effect on cholesterol	1 (1)	7 (6.9)	16 (15.8)	22 (21.8)	55 (54.5)*
8. High fiber diet is effective to reduce cholesterol	25 (24.8)	43 (42.6)	30 (29.7)	2 (2)	1 (1)
9. Normal level of total cholesterol in blood is <6.8 mmol	9 (8.9)	20 (19.8)	50 (49.5)	12 (11.9)	10 (9.9)*
10. CAM help achieve better control high cholesterol and diabetes	5 (5)	26 (25.7)	54 (53.5)	9 (8.9)	7 (6.9)
11. Artichoke is useful in dyslipidemia and dyspepsia	2 (2)	10 (9.9)	79 (78.2)	6 (5.9)	4 (4)
12. Fish oil is good for health	44 (43.6)	33 (32.7)	21 (20.8)	2 (2)	1 (1)
13. Garlic reduces cholesterol and blood pressure	28 (27.7)	27 (26.7)	40 (39.6)	4 (4)	2 (2)
14. Fenugreek seeds has no effect on cholesterol	1 (1)	10 (9.9)	76 (75.2)	8 (7.9)	6 (5.9)*
15. Black seed increases LDL	2 (2)	7 (6.9)	71 (70.3)	13 (12.9)	8 (7.9)*
16. Chinese herbs has no effect on LDL	2 (2)	4 (4)	86 (85.1)	7 (6.9)	2 (2)*
17. Cinnamon reduces blood sugar and cholesterol acts as insulin sensitizer	11 (10.9)	21 (20.8)	60 (59.4)	6 (5.9)	3 (3)
18. Basil leaf reduces blood sugar and stress	8 (7.9)	23 (22.8)	65 (64.4)	1 (1)	4 (4)
19. Bitter gourd has insulin like effect	4 (4)	11 (10.9)	78 (77.2)	5 (5)	3 (3)
20. Aloe Vera increases sugar and LDL level	1 (1)	10 (9.9)	77 (76.2)	7 (6.9)	6 (5.9)*
21. Ginseng is effective in weight reduction	7 (6.9)	12 (11.9)	76 (75.2)	2 (2)	4 (4)
22. Fenugreek has no role in insulin resistance	0	7 (6.9)	86 (85.1)	5 (5)	4 (4)*
23. Black seed has no effect on blood pressure and diabetes	3 (3)	4 (4)	75 (74.3)	15 (14.9)	4 (4)*
24. Black seed has anti-epileptic effect	2 (2)	6 (5.9)	86 (85.1)	5 (5)	2 (2)
25. Chinese herbal medication is effective for type II diabetes	2 (2)	13 (12.9)	78 (77.2)	4 (4)	4 (4)
26. Fenugreek improves blood sugar control	2 (2)	18 (17.8)	75 (74.3)	4 (4)	2 (2)
27. Bitter gourd reduces HDL	1 (1)	6 (5.9)	80 (79.2)	6 (5.9)	8 (7.9)*
28. Artichoke has no effect on atherosclerosis	0	7 (6.9)	85 (84.2)	4 (4)	5 (5)*
29. Fish oil Omega 3 fatty acid increases LDL	1 (1)	10 (9.9)	43 (42.6)	21 (20.8)	26 (25.7)*
30. Fish oil has no effect on HDL	6 (5.9)	12 (11.9)	45 (44.6)	24 (23.8)	14 (13.9)*

CAM should be asked during a regular history taking of patients. Knowledge regarding use of CAM in diabetes and dyslipidemia is not adequate. Medical students should be aware of these practices in community as some patients take these medications as self-practice^{11,12}.

More than a half of the study participants were agreed or strongly believe that high cholesterol is a risk for heart attack, HDL is a protector for heart disease, walking increases HDL, reduction in LDL will reduce the risk of heart attack and high fiber diet is effective to reduce cholesterol (Table 2). Attitudes and beliefs regarding use of CAM for dyslipidemia and diabetes among 6th and 7th year students were not significantly different. Literature reports that several medicinal plants have been investigated for their beneficial effect in different type of diabetes. Other alternative therapies such as dietary supplements, acupuncture, hydrotherapy, and yoga therapies less likely to have the side effects of conventional approaches for diabetes^{13,14}.

In our study there is a deficiency in knowledge seen in medical students. Literature has shown most of complementary and alternative medicine (CAM) users were older than 50 years of age and predominantly female with hypertension and dyslipidemia^{15,16}. Medical student's knowledge regarding use of CAM for diabetes and dyslipidemia is not appropriate. Studies have shown that student's attitudes toward CAM learning were encouraging regardless of their limited knowledge on the subject^{17,18}. Our study participants showed positive attitude towards CAM use. One study results showed medical students had positive attitudes and demonstrated a willingness to receive training on the subject. Thus, there appears a necessity to integrate complementary and alternative medicine into the medical curriculum, by taking expectations and feedbacks of medical students into consideration^{19,20}. Literature also reports the importance to consider the possibility of integrating CAM education into the conventional medical curriculum in a systematic manner to better prepare students in their future career^{21,22}.

With its increasing popularity, there is a need for a coordinated policy in integrating CAM into the medical curriculum, by taking expectations of and feedback from medical students into consideration in setting educational standards^{23,24}.

A high percentage of students agreed that CAM in combination with conventional therapy is beneficial in treating chronic diseases, but the choice of CAM should be based on evidence. Medical student's knowledge and perception has positive approach; however their core knowledge in specialized treatment for diabetes and dyslipidemia is limited^{25,26}. There is a need for curriculum intervention regarding CAM as it is a growing field in medical practice.

Conclusion

Students in clinical years have positive approach towards CAM and their knowledge is adequate in general but they

have poor knowledge regarding CAM used in diabetes and dyslipidemia. Patients in primary care presenting in non-communicable disease clinic should be asked about CAM by practicing doctors as medical student will become physician to manage these medical problems in future.

Study Limitation

This study is conducted in one medical college so the result cannot be generalized. Further research is required at different medical colleges at different level in a larger sample size.

Disclosure Statement

Authors declared no conflict of interest and no funding was received for this work.

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Submitted: September 30, 2016; Accepted: October 21, 2016; Published: October 28, 2016