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Original Article

Are Physicians Good Candidates For Recommending Diet?

S Hosseini, N Nayebi, B Amirkalali, N Seyedkhoei, R Heshmat

Endocrinology and Metabolism Research Center, Medical Sciences/University of Tehran, Shariati Hospital, North Kargar St., Tehran, Iran

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Abstract

Background: Primary prevention status and goals in 2010 are promoting healthy weight and eating habits and dietary manipulation considered in all reports to be the cornerstone of prevention and management of chronic diseases. Since in developing countries physicians are in the front line of responding patients' questions regarding their diet, we decided to evaluate their necessary nutritional knowledge for accomplishing this mission and to identify consideration for improving the paucity of nutrition education and the nutrition literacy in medical training program, we did the same education in medical students.

Methods: Applied nutritional knowledge of 150 general, specialist and sub specialist physicians and 202 medical students was evaluated by structured self administrative questionnaire. Eighteen questions which could be self completed in less than 5 minutes were filled by each subject.

Results: The percentage of physicians who gave dietary recommendations to their patients was 73% but the mean correct responds to questions were 3.73±2.15 and 5.87±2.14 out of 14 questions in physicians and medical students respectively.

Conclusions: Our data show deficient applied nutritional knowledge of physicians is one of the main problems of hospital malnutrition. As the same results were shown in medical students, this can not be due to forgetting what was learned but can be related to the quality of nutrition training.

Keywords: *Nutrition knowledge, Physician education, Medical education, Role of dietitians*

Introduction

Malnutrition is one of the major problems in hospitals, which has severe negative effects in the process of treatment. If concerned as an important factor to be focused on, in improving patients' health status, malnutrition can be resolved much more easily than any other factor. Hospital malnutrition is a multifactorial problem and poor nutrition knowledge of physicians is one of them. Having the greatest responsibility in a health care team, physicians can play an important role in improving nutritional status of patients.

The other important issue is that by 2020 chronic diseases will account for almost three-quarters of all deaths world wide and 71% of deaths due to ischemic heart disease, 75% of deaths due to stroke, 70% of deaths due to diabetes will occur in developing countries (1). National Cholesterol Education Program (NCEP) step I and step II diets are designed to progressively restrict saturated fat and cholesterol intake. Also primary prevention status and goals in 2020 are promoting healthy weight and eating more than 2 servings of fruits and 3 servings of vegetables per day and saturated fat intake less than 10% of calories (2). Dietary manipulation is considered in all reports to be the cornerstone of prevention and management efforts of mentioned diseases. Therefore health professionals should be prepared to provide nutritional guidance to their patients and in developing countries physicians are in the front line of responding patients' questions regarding their diet.

A study revealed a long history in lack of nutritional knowledge among physicians (3). Several studies have indicated relatively less knowledge

***Corresponding author:** Tel: +98 21 84902751- 84902477, E-mail: SaeedhMDPhD@hotmail.com

of nutrition in students and educators within the medical education causing much mortality in the united states (4, 5). Because of poor nutrition knowledge of physicians, nutrition has been ignored as a helpful factor in accelerating health care process. The result is just a few nutritional consultation orders in medical records of the patients (6) and increased incidence of malnutrition in hospitals (6, 7). Several studies have indicated that medical students receive relatively little education in nutrition (5). A survey carried out in 1992-93 revealed that only a quarter of US and Canadian medical schools have a required nutrition course (8). A survey of physicians at Southampton University, England revealed that most rated their nutrition knowledge as poor or very poor (9). Similar studies with physicians working in Alberta, Canada revealed that 42% described their knowledge in nutrition as weak (10). Surveys carried out in the 1980s, of physicians in Miami (11) and Missouri (12) showed that they seriously underestimated the role of the diet in the causation of cancer.

As there is no published data about nutritional knowledge of physicians and the quality of applied nutritional education in medical schools in Iran, specially where physicians are in the front line of responding patients' questions regarding their diet, we decided to evaluate their necessary nutritional knowledge for accomplishing this mission and a number of medical students were also involved in this study.

Materials and Methods

There were 2 groups in this study; 150 physicians including general physicians, medical residents, fellows, specialists and sub specialists and 202 medical students. Applied nutritional knowledge of these groups was evaluated by a structured self administrative questionnaire. Eighteen multiple choice questions which could be self completed in less than 5 minu were filled by each subject. Most of the questions were about nutritional recommendations of National Cholesterol Education Program step I and II diets and primary prevention status and goals in 2010 (Appendix 1). Most of the physicians practiced in fields of cardiovascular disease, diabetes, cancer, surgery and osteoporosis at university educational hospital in Tehran, Iran and were asked to answer the questions on site. Students of the School of Medicine of Tehran University of Medical Sciences answered the questions in their final nutrition exam session, which is the only nutrition course during the long term of medical education programs.

This study received Ethics approval from the Human Research Ethics Committee of Tehran University of Medical Science.

Results

The mean correct responds to questions were 3.73±2.15 in physicians and 5.87±2.14 in medical students out of 14 questions. Most physicians (65.3%) scored between 0-4 correct questions, and most medical students (54%) scored between 5-7 correct questions. The percentage of physicians and medical students who did not know average amount of energy needed per kilogram per day for healthy people was 52% and 77%, respectively. Seventy seven percent and 68% of physicians and medical students respectively did not know the amount of energy needed to change weight 1 kilogram per week. 81%, 42%, 81% of physicians did not know the right percentage of energy from fat, carbohydrate and protein in healthy diet, respectively. The results for the same questions in medical students were 48%, 34% and 38%. Physicians who were not familiar with serving sizes were 70% and 57% were not familiar with food pyramid too. Despite 30% of physicians mentioned they know about serving size only 4% responded correctly to all questions. Regarding food pyramid despite 43% of physicians mentioned they know food pyramid; only 44% gave correct responds to the questions. However 50% of medical students were not familiar with food serving and only 8% didn't know about food pyramid, only 7% and 68% of them answered correct related

questions respectively. In 96% of cases physicians were asked for nutritional advice and 73% of them gave dietary recommendations to their patients. Detailed data are shown in Table 1. An independent *t*-test was done between the mean correct responses of physicians and medical students and the difference was significant ($P< 0.001$).

Table 1: Questions Asked and Percentage of Physicians and Medical Students with Correct Answers

number	questions	% correct (physicians)	% correct (medical students)
3	What is the daily calorie requirement of a healthy person?	48	23
4	What is the daily protein requirement of a healthy person?	21	74
5	What percentage of daily calorie intake should come from fat?	19	52
6	What percentage of daily calorie intake should come from protein?	19	62
7	What percentage of daily calorie intake should come from carbohydrate?	58	66
9	How much is a serving of lettuce?	10	18
10	How much is a serving of bread?	28	42
11	The number of kilocalories in a serving of fruit is:	15	8
12	The number of kilocalories in 100gr cooked rice:	25	18
13	The possibility of which one is higher for a patient with pneumonia and a history of good nutritional status if has inadequate nutrition for one week during hospitalization?	8	22
14	What is the best test among these tests for assessing nutritional status of hospitalized patients?	19	13
15	How many extra calories does a person need daily to gain 1 kilogram in a week?	23	32
17	Where is the location of carbohydrate in a food pyramid?	53	78
18	Where is the location of fat in a food pyramid?	25	78
Mean	26.5	41.8	

Appendix 1: Nutrition Questionnaire

1. How many times were you asked for nutritional recommendation by your patients?
   a. never
   b. less than 25%
   c. 25-50%
   d. 50-75%
   e. more than 75%
2. Have you ever given a diet program to your patients?
   a. Yes
   b. No
3. What is the daily calorie requirement of a healthy person?
   a. 15 kcal/kg
   b. 20 kcal/kg
   c. 30 kcal/kg*
   d. 40 kcal/kg
4. What is the daily protein requirement of a healthy person?
   a. 0.6 gr/kg
   b. 0.8 gr/kg*
   c. 1 gr/kg
   d. 1.2 gr/kg
5. What percentage of daily calorie intake should come from fat?
   a. 15%
   b. 20%
   c. 25%
   d. 30%*

6. What percentage of daily calorie intake should come from protein?
   a. 15%*
   b. 20%
   c. 25%
   d. 30%
7. What percentage of daily calorie intake should come from carbohydrate?
   a. 35%
   b. 45%
   c. 55%*
   d. 65%
8. Are you familiar with food serving sizes?
   a. Yes
   b. No
9. How much is a serving of lettuce?
   a. 1 plate
   b. 2 plates
   c. 1 cup*
   d. 2 cups
   e. 1 whole lettuce
   f. 2 whole lettuces
   g. presence of 1 lettuce in a meal
   g. presence of 1 lettuce
10. How much is a serving of bread?
    a. one meal consisting bread
    b. 30 gr bread*
    c.1 whole bread
    d. serving doesn't apply to bread
11. The number of kilocalories in a serving of fruit is:
    a. 20 kilocalories
    b. 40 kilocalories
    c. 60 kilocalories*
    d. 80 kilocalories
12. The number of kilocalories in 100gr cooked rice:
    a. less than 400 kilocalories*
    b. 400 kilocalories
    c. more than 400 kilocalories
13. The possibility of which one is higher for a patient with pneumonia and a history of good nutritional status if has inadequate nutrition for one week during hospitalization?
    a. malnutrition will occur and marasmus is more probable
    b. malnutrition will occur and kwashiorkor is more probable*
    c. malnutrition will occur and both are probable
    d. malnutrition won't occur
14. What is the best test among these tests for assessing nutritional status of hospitalized patients?
    a. albumin
    b. prealbumin*
    c. retinol binding protein
    d. hemoglobin
15. How many extra calories does a person need daily to gain 1 kilogram in a week?
    a. 200 kilocalories
    b. 500 kilocalories
    c. 1000 kilocalories*
    d. 1200 kilocalories
16. Are you familiar with food pyramid?
    a. Yes
    b. No
17. Where is the location of carbohydrate in a food pyramid?
    a. On the top
    b. In the middle
    c. In the bottom*
18. Where is the location of fat in a food pyramid?
    a. On the top*
    b. In the middle
    c. In the bottom

* indicates correct answer

Discussion

The results show that most physicians and medical students were unaware of basic nutritional topics. Overall, this study indicates that there are serious gaps in the nutrition knowledge of the physicians and medical students and most of them may not have the expertise to properly advise their patients on important aspects of nutrition. In other words, the difference between the mean correct responses in physicians and students was significant, but this is due to the great sample size of the analysis and it is not relevant to the more knowledge of the students. This conclusion comes from the fact that the average of correctly answered questioned was about 6

out of 14 questions but the mean score of these students at their final exam was 17 out of 20.

Although there is no systematic method to measure quality and quantity of nutrition training but the low mean of correct responses in students may reflect the low priority in educating practical nutritional knowledge and the role of diet in disease prevention not adequately highlighted.

The results also show the low priority given to the subject in medical schools and in continuing medical education. The mean scores for correctly answered questions in the current study were 26.5% in physicians and 41.8% in medical students which are lower than what was achieved in the survey of nutrition knowledge of physicians in Canada (63%) (10) and the score of 50.7% which was reported by Kirby et al. in a study on family practice residents in Texas (13). Also in the studies reported in Taiwan (14) and in California (15) the mean scores for correctly answered questions (59% and 69.2%, respectively) were higher than the score achieved in the present study. However, their questions were true-false, indicating the increased chance for giving correct answers.

On the whole, the evidence from the study clearly indicates that physicians need more education in nutrition. Accordingly, nutrition as a subject needs to be properly integrated in the curriculum of medical school. Moreover, nutrition should be first and foremost an essential part in continuing medical education, firstly since most physicians in this study lack necessary nutrition knowledge, and secondly because nutrition as a subject is rapidly evolving.

Our data show that deficient applied nutritional knowledge of physicians is one of the main problems in improving nutritional care in hospitals. As educating patients about their appropriate diet in developing countries, where there is no distinguished role for dietitians, is one of the physicians` mission and not well accomplished, we suggest evaluating the effect of active participation of dietitians in improving nutritional status of patients and doing more qualitative and quantitative educational assessments on nutrition courses.

Despite we have chosen our medical students from one of the top universities but a systematic research among other universities in Iran is preferred.

In conclusion for improving nutritional support services in Iran, Iranian physicians may need to be provided with more nutritional knowledge.

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The authors declare that they have no Conflict of Interests.

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