

Evaluating the Knowledge Level of Interns, Residents and Fellows of Internal Medicine and Surgery, Anesthesia and Pediatrics in Tehran University of Medical Sciences about the Fundamentals of Nutrition and Regimen

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Abstract— Today, medical science is closely related to nutrition science. In the other words, one of the main principles of care and treatment of patients is representing an appropriate and scientific diet to meet nutrition demands of patient. Representing nutrition services and following an appropriate regimen in hospitals is an important factor for faster improvement of patients, decreasing recovery time and even preventing from diseases. If nutrition and regimen is ignored in hospitals as one of the bases of patients' health and or have a colorless role in the process of treatment, not only leads to dissatisfaction of patients, but also causes to disorder in treatment process of patient due to adverse conclusions of ignoring nutrition of regimen.

Index Terms— Evaluating, Knowledge Level, Interns, Residents, Fellows, Internal Medicine, Surgery, Anesthesia, Pediatrics, Nutrition, Regimen

1 INTRODUCTION

It is worthwhile to note that although there is a strong relationship between the diet of patients and its clinical observations, numerous observations indicate that knowledge, attitude, performance and educational condition of students of medical sciences, residents and fellows are inappropriate from this point of view [1-8].

Regarding the implementation of family doctor project in Iran, which aims to propel the activity of doctors from "treatment-oriented" to "health-oriented" level, and at the present time, general practitioners have played the role of family doctor and hence, it is expected that the amount of discovering and referencing of patients, especially from vulnerable groups of the society (who have nutrition problems and therefore, disease will intensify their problem), to clinics and hospitals (levels 2 and 3) increases and also since these specialists are responsible for the educating and re-educating of family doctors, it is normal that numerous problems will be emerged in the treatment process of patients if there is not enough knowledge and information about the fundamentals of diet and regimen among general practitioners and specialists [9, 10].

The aim of the current study is evaluating the knowledge of interns, residents and fellows of various disciplines of internal

medicine and surgery related to regimen in Tehran University of Medical Sciences about the fundamentals of nutrition and regimen so that its results used to prepare educational articles and to correct educational system of these educational groups, if needed.

2 METHOD OF IMPLEMENTATION

The current research is a descriptive-cross sectional study. The statistical population of the current study consists of residents of general surgery, gynecology, orthopedics, neurosurgery, anesthesia and internal medicine and fellows of cardiology, rheumatology, endocrinology and pediatrics in Tehran University of Medical Sciences. The volume of statistical population is 425 people. This number is chosen according to the previous study in which the error type I was 0.05, knowledge amount was 50% and error value was 0.045. Therefore, based on the following formula, volume of statistical population is calculated as 425 people. These people are chosen from the considered hospitals based on proportional stratified sampling method regarding the number of under studying groups (interns etc.) and number of hospitals.

To collect data, the questionnaire proposed in the study entitled as "if doctors are right people for nutrition recommendations?" is used. This goal of this study, performed in 2007, was understanding the knowledge of target group about the principles of nutrition and regimen of patients. This researcher-made questionnaire was prepared based on comprehensive literature review and according to the recommendations of specialists [11-21]. To evaluate the internal compatibility of questionnaire, Cronbach's alpha was calculated as 0.8,

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factor analysis was performed to explain the structure factor of data, and specialists confirmed its content validity.

Statistical population completes the questionnaires and after collecting those, statistical analysis of data is performed by SPSS 16.0 statistical software and then the obtained results are discussed.

3 RESULTS AND DISCUSSION

Education about clinical nutrition is always ignored in medical education [22, 24, 25, and 27]. Various investigations have been shown the lack of knowledge and skill of students, residents and doctors about treating and preventing aspects of nutrition and regimen [22-29]. In addition, it has been reported in various researches that nutrition and regimen is not considered as an important issue among these people and in their opinion, its importance is lower than fundamental and clinical sciences [30]. However, regimen is one of the most important factors in treatment of acute and chronic diseases and is a basic for preventing from disease and improving the health. Ignoring nutrition factors in treatment of diseases leads to increase in death and inability [31-43].

Moreover, although there is a strong relationship between nutrition and clinical consequences of patient, numerous observations indicate that knowledge, performance and educational condition of residents are inappropriate from this point of view and there are various recommendations from special medical groups about considering the educational nutrition curriculums in various disciplines of medical sciences and improving the quality and effectiveness of education and learning the principles of clinical nutrition [44-67].

Some researchers were stated that education of regimen for doctors, medical students and fellows is necessary and it is critical to integrate it, horizontally and vertically, into educational curriculums of medical universities. They were explained basic titles and provided necessary recommendations in this field. In their opinion, integration of principle guidance of the most common nutrition performances into clinical educations of students, residents and fellows and designing of measurement tools for measuring knowledge and performance of doctors about regimen is very important [68, 69].

Further, in April 2005, American Dietetic Association was stated that education of nutrition and regimen is very crucial for educational programs of residents [70]. At the other hand, it can be said that in recent years, nutrition and regimen has been one of the basic concerns for medical education since there is still lack of attention to this issue in educational programs of medical students, especially for residents and fellows [71-75].

In recent years, education experts consider codification of learning targets and basic qualifications of education of residents regarding the clinical nutrition. For example, some nutrition learning targets at the knowledge level of residents are as following:

- Resident must appropriately familiar with food groups of food pyramid and regulate the diet of patients according to it;
- Resident must understand limitations of the current food pyramid and explain TLC diet which recom-

mends by NCEP-ATP III or DASH diet which recommends by JNC VII;

In addition, Nutrition Academic Award (NAA) considers learning targets in the domains of attitude, professionalization, taking care of patients and communication skills [76-80].

Fellowship programs also are not excepted from this basic and numerous articles recommend the necessity of educating the clinical nutrition for this programs. For instance, IPNEC recommends that educational programs of clinical nutrition should be officially represented and integrated to curriculum as a block and this clinical skill should be gained in various environments such as hospitalization and outpatient. The required resources including laboratory resources (Biochemical laboratories) and inter-discipline teams of nutrition should be available. Education programs must provide opportunities for developing clinical qualification in clinical nutrition domain. Clinical experience should be included providing measures to observe and implement a suitable number of hospitalized patients and outpatients in a full range of ages from children to adults and elders, from both sexes, and in a wide range of common and rare nutrition disorders. Experts and interdisciplinary nutrition groups should supervise this program. In addition, official learning programs in the field of assessment and regimen of various disorders such as malnutrition, blood pressure, cardiovascular diseases, dyslipidemia, alimentary tract and liver disorders, cancer, kidney disorders, osteoporosis, blood disorders, pulmonary disorders and immune system diseases should be provided for this group. Moreover, a number of such disorders including cardiovascular diseases and kidney disorders have been especially considered in these programs [81-85].

Regarding the mentioned points and importance of subject, understanding the knowledge, skill and qualification of doctors in all levels of education about nutrition and regimen is one of the research priorities of hospitals and universities of medical sciences in Iran. Therefore, researchers are intended to evaluate the knowledge of interns, residents and fellows of various disciplines of internal medicine and surgery, who may be asked about nutrition recommendations and regimen. The obtained results will be used to represent educational packages and to codify the principle guidance of regimen and clinical nutrition of various diseases. Furthermore, based on the obtained results of the current study, the necessary suggestions will be provided for the corresponding ministry and universities of medical sciences to improve the knowledge of doctors in this field.

4 CONCLUSION AND FUTURE STUDIES

In an investigation performed, in 1991, on residents of internal medicine about nutrition knowledge, it was shown that a few numbers of residents are of necessary knowledge and skill in the field of clinical nutrition.

In another study using quasi-experimental method, the results were shown that the knowledge and attitude of participants in the research about the regimen is not at the considered standard levels and is not influenced by the education type of curriculum and they are needed more clinical, organized education.

In another study, The Curriculum Committee of the Nutrition Academic were discussed the learning targets in three fields of knowledge, attitude and skill for nutrition educating of various medical groups including residents and fellows.

The national nutrition programs around the United States of America were investigated in a study. In this study, 238 resident programs and 160 institutes which represented nutrition learning programs were identified. The results of this study were shown that doctor- nutritionist role method in clinical environment is the key element of learning clinical nutrition to residents. In addition, inter-disciplinary nutrition supportive teams are a valuable resource for educating. The results also were shown that most of residents have not necessary knowledge and skill about this issue.

Questionnaire and multiple-choice quiz were used to investigate attitude and knowledge, respectively. The results were shown that about 77% are agreed that nutrition assessment should be included in routine primary care visits and about 94% agreed that it was their obligation to learn nutrition to patients and only 14% felt physicians were adequately trained to provide nutrition counseling.

In an investigation an 18 hours clinical nutrition course which has been implemented for second year medical students was evaluated. In this research, participants of intervention group (20 people) were participated in a 12 weeks course for 18 hours. The control group was classmates of them, which were not participated in the considered course but they were voluntarily participated in fore- and after-tests (16 people). At the end of this study, it was indicated that after-test's marks for intervention group are meaningfully higher than for control group while before intervention, there is not a meaningful difference between two groups from nutrition point of view. The results of this study also were suggested that nutrition courses should be including applied nutrition science, which is related to special diseases, and operationally management of patients' diet.

Another research was performed in 1986 in which 21% of students of nutrition education network called SERMEN were asked to answer a test consists of 90 questions about seven different subjects of nutrition, derived from question bank of Alabama Medical College. The obtained results were shown that the knowledge of medical students about medical nutrition is varied among different colleges which indicates that emphasis on programming and implementing nutrition curriculum in ten medical college participated in the research are considerably different. In addition, most participated students were stated that the educational quality and quantity of nutrition programs is not appropriate.

In this study, the readiness of medical students for representing lifestyle advices about nutrition, physical activity and other healthy behaviors were evaluated. Researchers were assessed knowledge, attitude and healthy behaviors of 290 first-, second- and third-year medical students by means of a questionnaire. The results were shown that students were well informed about the factors of cardiovascular diseases but they had not enough knowledge about body mass index (BMI) and nutrition and physical activity recommendations related to it.

In a research entitled as "the effect of nutrition curriculum on knowledge and performance of residents of family doctor",

all speeches related to nutrition, where represented for residents of family doctor during 9 months duration in 11 meetings, were evaluated. 15 residents were considered as samples of the research. In each educational meeting, residents were actively learned about nutrition along with nutritionists as a learning team. Then, a questionnaire was answered by patients to measure patients' understanding of amount, type and effect of information represented to them by residents. Moreover, knowledge of residents about 11 subjects of nutrition was evaluated through a test with 55 multiple-choice questions. The results of this study were confirmed the meaningful difference between fore-test's and after-test's marks and were shown the improved professional behaviors of residents related to nutrition after completion of learning programs.

In this research, residents of surgery and nutritionists were participated in a multiple-choice test about nutritional supports. After completion of the test, a questionnaire was represented to participants in order to evaluate their attitude about nutrition. 63 doctors and 25 nutritionists were participated in this research. The results were shown that the average mark of doctors is less than of nutritionists (4.0 [0.64] versus 26.4 [0.22], $p < 0.001$). Only 47% of doctors were felt that have enough knowledge about this issue and 65% were explained that they should routinely make some decisions about nutritional supports. Further, only 25% of participants were stated that they are able to calculate daily amount and nutrition demands of patients.

The nutrition knowledge of participants and its relationship with demographic characteristics were studied in this research. The sample population consists of 103 residents and sex, age, city and educational level of participants were similar. The participants were participated in a valid, four part survey which evaluates their knowledge about nutrition recommendations, nutritive food sources, nutrition choices and relationship between nutrition and diseases. The results were shown that there is not a meaningful statistical difference between residents of Jerusalem and Bethlehem from nutrition knowledge points of views except that the relationship between nutrition and diseases. Although residents of Jerusalem have gained higher marks (have more knowledge), marks of both groups indicate poor knowledge about the relationship between nutrition and diseases. The average mark for this section was 33%, which shows insufficient knowledge of participants. The average mark for nutrition recommendations, nutritive food sources and nutrition choices were 61%, 54% and 40%, respectively. There was not any difference between knowledge based on sex. Meaningful differences were observed between occupation condition of participants and their education level and nutrition knowledge as people with higher education level have more nutrition knowledge.

This research was aimed to investigate the relationship between nutrition and health from doctors and countrymen points of views in France, Germany, Italy, UK and USA. Telephone interview was used to collect data. The results of this study revealed considerable cultural and national differences and few differences between doctors and laypersons of the same country.

In another study, a nutrition curriculum was assessed and its effects on medical students was considered. Questionnaire

was used as tool for data collection. Research population was consisted of first-year medical students, which were participated in a 2-hours active nutrition curriculum. Participants were completed the questionnaire just before and after 2 weeks of curriculum. The major consequences were including the amount of self-confidence about nutrition advice (self-reporting), ability for evaluation of nutrition condition and nutrition knowledge, where assessed through 4 degrees Likert scale. 111 students (69%) were completed the questionnaire before curriculum while 121 students (75%) were completed it after curriculum. The results of the study were shown that there are considerable differences in ability for evaluation of nutrition condition (2.65 vs. 3.05, $p < 0.001$) and self-confidence about nutrition advice (1.86 vs. 2.22, $p < 0.001$) between before and after of curriculum. Moreover, it was observed that curriculum positively affects performance and attitude of students.

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