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KLİNİK ÇALIŞMA
RESEARCH ARTICLE

The awareness of chest physicians about nutritional assessment in chronic obstructive pulmonary disease

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SUMMARY

The awareness of chest physicians about nutritional assessment in chronic obstructive pulmonary disease

Introduction: *The number of studies that target nonpharmacologic treatments for chronic obstructive pulmonary disease (COPD) are increasing because no existing pharmacologic treatment modality for COPD leads to significant improvement in lung function. Positive effects can be observed in patients with COPD using nutritional support alone or as an adjunct to exercise. In this study, we aimed to evaluate the awareness of chest physicians about the nutritional state of patients with COPD.*

Materials and Methods: *A questionnaire consisting of 15 multiple choice questions was conducted to 121 chest physicians. The questions were formed to evaluate the awareness of chest physicians on the patients' nutritional state and the importance of nutrition in COPD follow-up.*

Results: *In total, of the 121 physicians, only 3 (2.5%) reported undertaking routine assessment for nutritional state of patients with COPD. The rates of physicians who routinely questioned patients about weight loss and loss of appetite were 56.2% (n= 68) and 51.2% (n= 62), respectively. Forty-five (37.2%) physicians said that they usually started nutritional support if they detected weight loss in patients with COPD.*

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Conclusion: *Although there is limited data on the benefits of nutritional supplementation for patients with COPD, some studies have suggested advantages of nutritional support against the progress of COPD. Our study showed that routine screening for malnutrition in patients with COPD is rare among chest physicians and this did not differ according to the hospitals in which they worked or from where they took their residency training. There is a need for further studies emphasizing the importance of nutritional state in the progress of COPD.*

Key words: *COPD, malnutrition, weight loss, physicians, nutritional support*

ÖZET

Kronik obstrüktif akciğer hastalığında nutrisyon değerlendirmesinde göğüs hastalıkları doktorlarının farkındalığı

Giriş: *Kronik obstrüktif akciğer hastalığında (KOAH) yapılan ilaç dışı tedavi yöntemlerini hedefleyen çalışmaların sayısı artmaktadır, çünkü mevcut farmakolojik tedavilerin hiçbiri akciğer fonksiyonlarında önemli derecede iyileşmeye neden olmamaktadır. KOAH hastalarında tek başına nutrisyonel destek alan veya egzersizin yanı sıra alanlarda olumlu etkiler görülmüştür. Bu çalışmada, göğüs hastalıkları doktorlarının KOAH hastalarının nutrisyonel durumu hakkındaki farkındalığını değerlendirmeyi amaçladık.*

Materyal ve Metod: *Çok seçenekli 15 sorudan oluşan bir anket 121 göğüs hastalıkları doktoruna uygulandı. Sorular hekimlerin, hastaların nutrisyonel durumunu ve KOAH takibinde nutrisyonun önemi ile ilgili farkındalığını değerlendirmeye yönelikti.*

Bulgular: *Toplamda 121 hekimin, sadece 3 (%2.5)'ü KOAH hastalarının nutrisyonel durumunu rutin olarak değerlendirdiğini bildirdi. Hastaların kilo kaybını ve iştahsızlığını rutin olarak sorgulayan hekimlerin oranı sırasıyla %56.2 (n= 68) ve %51.2 (n= 62) idi. Kırk beş hekim (%37.2) KOAH hastalarında kilo kaybı tespit ederse nutrisyonel destek başladığını söyledi.*

Sonuç: *KOAH hastalarında nutrisyonel desteğin faydalarıyla ilgili sınırlı bilgi bulunmasına rağmen, bazı çalışmalarda nutrisyon desteğinin KOAH progresyonuna karşı faydaları gösterilmiştir. Çalışmamız, göğüs hastalıkları doktorları arasında KOAH hastalarının nutrisyonel durumunun rutin taramasının nadir olduğunu ve bu durumun doktorların çalıştığı hastaneden veya uzmanlık eğitimi yaptığı hastaneden bağımsız olduğunu göstermiştir. KOAH'ın takibinde nutrisyon durumunun önemini vurgulayacak çalışmalara ihtiyaç vardır.*

Anahtar kelimeler: *KOAH, malnutrisyon, kilo kaybı, hekimler, nutrisyonel destek*

INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a common multisystemic, progressive and preventable disease. Its pulmonary component is characterized by persistent airflow limitation that is usually progressive (1). It causes increasing morbidity and mortality among the elderly and results in a huge economic and social burden to the community (2). None of the existing pharmacologic treatment modalities prevent the long-term decline in lung function (1). The benefits of nonpharmacologic treatments in addition to pharmacologic treatment is well known. Long-term oxygen treatment increases survival in patients with severe resting hypoxemia (3). Smoking cessation also provides benefit in COPD control. The number of studies that target nonpharmacologic treatments are increasing because pharmacologic treatment modalities do not lead to significant improvements in lung function. Reduced respiratory function and low fat-free mass result in reduced exercise tolerance, peripheral muscle weakness, and poorer quality of life (4,5). Low-to-moderate quality evidence suggests that nutritional support promotes significant gain in weight and fat-free mass among patients with COPD, especially if they are malnourished. Supplemented patients have shown improvement in the six-minute walk test, respiratory muscle strength and quality of life. These positive effects can be observed with nutritional support alone or as an adjunct to exercise (1,6). In light of this information, we aimed to evaluate the awareness of chest physicians about the nutritional state of patients with COPD.

MATERIALS and METHODS

This study was conducted during April and May, 2014, in Istanbul. The data were collected via a questionnaire consisting of 15 multiple choice questions. The participants gave no data that revealed their identity while completing the questionnaires. All participants were chest physician residents, specialists, associate professor, or professors, and all of them gave informed consent to the study. There is no ethics committee application for this study. The questionnaires were conducted to all chest physicians working in pulmonary disease departments of two well-known university hospitals and two training and research hospitals (TRHs) for chest diseases and thoracic surgery in Istanbul. The response rate of the questionnaire was 85% in university hospitals, and 60% in TRHs. The

questions were formed to evaluate chest physicians' awareness of patients' nutritional state and the importance of nutrition in COPD follow-up. The questionnaire had an information part at the top that revealed the aim of the study. SPSS 16.0 for Windows software package program was used for statistical analysis of the data. Descriptive data was given as number of participants and frequency. Categorical variables were expressed as the number of cases and the percentage value. Comparison of categorical variables were performed with Chi-square and Fisher's exact tests. A p value of < 0.05 was considered statistically significant.

RESULTS

In total, 121 chest physicians were enrolled into the study. Thirty-three (27.3%) physicians were working at university hospitals and 88 (72.7%) physicians at TRHs for chest diseases. There were 43 (35.5%) residents, 65 (53.7%) specialists, eight (6.6%) associate professors, and five (4.1%) professors in the study. Residency training of the participants for respiratory medicine were at university hospitals in 47.9% (n= 58) and at TRHs for Chest diseases in 52.1% (n= 63) (Details were given in Table 1).

Of the 121 physicians, only three (2.5%) reported undertaking routine assessment for nutritional state of patients with COPD and they were using the Mini Nutritional Assessment (MNA) scale for that assessment. The physicians' answers did not differ statistically according to the residency training hospital (university or TRH) or current work place (university or TRH) (p= 0.61 and p= 0.62). The rates of physicians who routinely questioned patients about weight loss and loss of appetite were 56.2% (n= 68) and 51.2% (n= 62), respectively. Questioning patients for the presence of weight loss and loss of appetite was more common among physicians who had residency training at university hospitals and the differences were statistically significant ($p< 0.001$ and p= 0.003, respectively). The physicians did not differ according to their present work place regarding questioning loss of appetite (p= 0.10); however, physicians who worked at university hospitals questioned patients about weight loss more commonly and this was statistically significant (p= 0.008). No physicians reported using the Nutritonal Risk Screening (NRS) 2002 scale. When we asked whether malnutrition was common in patients with COPD, 118 physicians (97.5%) responded as "yes, it is common" and the response did not differ with respect to the physicians' residency training hospital or present work place (p= 0.11 and p= 0.18). Only 37 (30.6%) participants correctly identified the exact rate of malnutrition as "25-40%" in patients with COPD. Forty-five (37.2%) physicians said that they usually started nutritional support for patients with COPD if they detected weight loss. Giving nutritional support was statistically more common among physicians who took residency training at TRH, but there was no difference regarding their present work place (p= 0.02 and p= 0.20). Forty-five (37.2%) physicians stated that they referred their malnourished patients to a dietician, and 23 (19%) physicians referred patients to the nutrition unit at their hospital. Forty (33.1%) physicians reported no need for further referral. We asked which parameter (six-minute walk

Table 1. Characteristics of the study group

Parameters [n (%)] n= 121	Working at university n= 33	Working at TRH* n= 88
Academic degree		
Resident	17 (51.5%)	26 (29.5%)
Specialist	10 (30.3%)	55 (62.5%)
Assoc. Prof	1 (3%)	7 (8%)
Prof.	5 (15.2%)	0
Hospital of residency		
University	33 (100%)	25 (28.4%)
TRH	0	63 (71.6%)
Having routine screening for malnutrition	1 (3%)	2 (2.3%)
Asking for loss of appetite (in routine)	21 (63.7%)	41 (46.6%)
Asking for weight loss (in routine)	25 (75.7%)	43 (48.8%)

* TRH: Training and research hospital.

distance, inspiratory and expiratory muscle strength, life quality, arterial blood gas parameters) would not improve after nutritional support and 69 (57%) participants correctly responded "arterial blood gas parameters". Twenty-eight (23.1%) of the physicians said that they had no idea about this issue. We asked for the participants' view about the statement of "Low fat-free body mass index is an independent risk factor for mortality in COPD". Ninety-six physicians (79.3%) answered "true" correctly, and 17 physicians (14%) reported having no opinion. The physicians' answers were similar when we considered their residency training hospitals and present work place (p= 0.83 or p= 0.92). We gave a true statement that "Nutritional products with low carbohydrate and high lipid content have no additional advantage over other nutritional products in patients with stable COPD." Only 19 physicians (15.7%) agreed, and 34 physicians (28.1%) said that they did not know the answer. Agreeing statements were more common among physicians who had residency training at TRHs (p= 0.005). Physicians who currently worked at a university hospital gave the wrong answer or reported not knowing the answer to this question statistically more commonly (p= 0.02).

There were 43 residents and 65 specialists in this study. The statistical comparison of the answers of these two groups was quite similar. The answers were similar for questioning weight loss or loss of appetite, and routine screening for malnutrition among residents and specialists (p= 0.25, p= 0.09, and p= 0.64). However, 22 residents (52.4%) said that they usually gave nutritional support to patients with COPD who had weight loss. This was statistically significantly different to specialists [n= 18 (27.7%)] who provided less nutritional support (p= 0.01).

DISCUSSION

As an incurable disease, COPD needs new treatment strategies to improve lung function, quality of life, and disease morbidity. Chest physicians must pay attention to the nutritional state of patients with COPD besides prescribing inhalation therapies. Many studies have evaluated the effects of nutritional state in COPD. Although several of them are high quality, there are many lower quality studies addressing the effects of nutrition on COPD. We aimed to study chest physicians' knowledge on nutrition and the use of nutritional support in patients with COPD.

Malnutriton in COPD is more prevalent than we assume. Schols et al studied the prevalence and characteristics of nutritional depletion in 255 patients with stable COPD. They found that the frequency of malnutrition was 25-40% in patients with stable COPD with FEV_1 < 50% and eligible for pulmonary rehabilitation (7). They also reported that malnutrition was more pronounced in patients with chronic hypoxemia and patients with more severe airflow limitation (FEV_1 < 35%). In our study, only 37 (30.6%) physicians correctly identified the exact rate of malnutrition as "25-40%" in patients with COPD. The majority of our physicians estimated higher rates of malnutrition; however, the provision of nutritional support was low. This shows that chest physicians know that malnutrition is frequent among patients with COPD; however, they may underestimate the effects of malnutrition in daily practice. This may result in the neglect of patients'nutritional status.

Mini-nutritional assessment (MNA) is a screening method for malnutrition that is most commonly recommended for use in elderly patients (8,9). In our study only three physicians reported undertaking routine assessment for malnutrition and they used the MNA. This test may be appropriate for COPD because patients with COPD are usually elderly. The MNA was found to be useful for assessing nutritional status of patients with COPD in a recent study (10). Another study from Turkey reported use of Subjective Global Assessment (SGA) for determining malnutrition among patients with COPD (11). They found that SGA was negatively correlated with FEV_1, DLCO and body mass index (BMI). They included 35 patients with COPD and did not use any other nutritional assessment test to evaluate effectivity of SGA, but used BMI. Also, Gunay et al reported that malnutrition according to SGA was related with significantly lower FEV_1, lower walking distance (during shuttle test), and higher dyspnea perception scores (12). On the other hand, Nutritional Risk Screening (NRS) 2002 is another screening method for malnutrition in COPD. The European Society of Clinical Nutrition and Metabolism (ESPEN) favors using NRS 2002 for screening in COPD (13). ESPEN reports that there is limited evidence for benefits of enteral nutrition in COPD, but they also suggest using enteral nutrition in combination with exercise and anabolic pharmacotherapy to improve nutritional status and function in COPD. In order to prevent postprandial dyspnea, ESPEN advises the frequent use of small

amounts of oral nutritional supplements. The major causes of weight loss in COPD are loss of appetite and decreased food intake, which are remarkable, especially during acute exacerbations of COPD (14,15). Muscle wasting due to decreased food intake, increased energy consumption and treatments with steroids during acute exacerbations of COPD result in further respiratory muscle weakness (16,17). As a result of respiratory muscle weakness, we observe impairment in weaning from ventilators and poor outcomes of treatment.

Weight loss and low BMI have been found to be independent predictors of poor survival in patients with COPD (18-20). Recent studies have indicated that fat-free mass index (FFMI) is an independent predictor of mortality in COPD (21-24). Thus, increasing FFMI is an important treatment target in patients with COPD. Our study revealed that our chest physicians know the importance of FFMI in COPD. Although there is no controlled data regarding the effects of long-term nutritional support on disease progression or prognosis in advanced COPD, there is evidence on the importance of restoration of low FFMI for the survival of patients with COPD.

In our study, we asked whether nutritional products with low carbohydrate and high lipid content have additional advantage over other nutritional products in patients with stable COPD. ESPEN suggests no additional advantage in patients with stable COPD (13). The optimal efficacy of oral nutritional supplementation is best achieved by giving nutritional supplementation in frequent small doses, not by manipulating macronutrient compositon. On the other hand, advanced acute exacerbations of COPD would benefit from low carbohydrate and high lipid content nutritional support, because this type of formula induces less ventilatory demand compared with standard rich carbohydrate formulas.

We enrolled physicians from two types of hospitals into our study, chest physicians working in pulmonary medicine departments of university hospitals and at TRHs for Chest Diseases. TRHs for Chest Diseases have greater numbers of chest physicians than university hospitals. As a result of this, there were morephysicians from TRHs than university hospitals in our study, which is a limitation of our study. However, the response rate for our questionnaire from the university hospitals was higher. Therefore our study sample from university hospitals was a good representation of their population. Secondly, our questionnaire was not conducted face-to-face. If we had used a face-to-face method there may have been a higher response rate.

In conclusion, there is a need for new treatment modalities in COPD to improve survival and prognosis. We also have to consider secondary therapeutic options besides pharmacotherapy. There is limited data on the benefits of nutritional supplementation on COPD. Additionally, the Global Initiative for Chronic Obstructive Lung Disease (GOLD) guideline does not include a recommendation to screen patients with COPD for nutritional depletion. We also know that reduced respiratory function and low fat-free mass result in reduced exercise tolerance, peripheral muscle weakness, and poorer quality of life. Nutritonal support alone or as an adjunct to exercise improves some aspects of COPD. As physicians, we must take into consideration the advantages of nutritional supplementation. We must screen and support our patients with COPD to avoid malnutrition and muscle wasting. Our study showed that routine screening for malnutrition in COPD is rare among chest physicians and this did not differ according to the hospital in which they worked or the hospital from which they took their residency training. There is a need for major well-organized and high-quality studies to show benefits of nutritional supplementation and we need definitive statements regarding the importance of the nutritional state of patients with COPD in our guidelines for COPD.

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