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ORIGINAL RESEARCH

Effect of Use of Walnut Leaf Tea on Reduction of Exacerbation Frequency and Quality of Life in Patients with Chronic Obstructive Lung Disease

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Abstract

Objective: This study aims to investigate the effect of tea prepared with walnut leaves on COPD patients' exacerbation frequency, dyspnea score, and life comfort.

Material-Method: 80 patients diagnosed with COPD and selected using the cluster sampling method participated in our study. They were divided into two groups: the first group consumed walnut leaf tea in addition to their treatment, and the second group only received their medical treatment. Both groups were followed up for six-month periods by the researcher and the follow-up was terminated after three interviews. Then, GOLD staging was performed, the mMRC (Modified Medical Research Council Dyspnea Scale), the CAT (COPD Assessment Test), and the Katz daily living activities scale (ADL) were applied, and a combined COPD assessment was made.

Results: The average age of the patients was 67.1±7 years; 57.5 % of them were male, 42.5 % were smokers, and 56.3 % were COPD stage 2. At the end of the year, the rate of hospital admissions in non-tea-drinking participants was 85%, while the rate of tea-drinking participants was 17.5%, and the difference between them was significant, $p<0.001$. The rate of patients who were planned to change treatment due to exacerbation was 7.5% in tea-drinking participants and 40% in non-tea-drinking participants, and the difference between them was significant, $p<0.001$.

Conclusion: Exacerbations, hospital admissions, and hospitalizations were reduced, and the comfort of life was positively affected in COPD patients who consumed walnut leaf tea in addition to treatment.

Keywords: COPD, Walnut Leaf, Quality of Life, Dyspnea, Complementary and Alternative medicine (CAM)

INTRODUCTION

For centuries, people have used various traditional medicine methods like phytotherapy, which has been passed down from generation to generation, to relieve various ailments. Phytotherapy is a method that uses plants whose therapeutic effects have been determined through experience. Walnut leaf (Juglans regia L.) is one of these plants. It has anti-inflammatory, antimicrobial, anthelmintic, antibacterial, keratolytic, and hypoglycemic effects, and its impact in preventing venous insufficiency and hemorrhoid symptoms have been shown.[1] The main compounds found in walnut leaves are phenolic compounds, juglone, flavonoids and vitamin C. Phenolic compounds are defined as 3- and 5-caffeoylquinic acids, 3- and 4-p-coumaroylquinic acids, p-coumaric acid, quercetin 3-galactoside, quercetin 3-pentoside derivatives, quercetin 3-arabinoside, quercetin 3-xyloside and quercetin 3-rhamnoside.[2] It is known that these compounds have radical scavenging activities that reduce oxidative stress.[3]

It has been determined that juglone has antiviral, antibacterial, antifungal, antidiabetic, and antineoplastic effects. It has shown its effects on human tumor types such as glial tumors, melanoma, leukemia, stomach cancer, prostate cancer, and cervical cancer in vitro, with its strong cytotoxic and genotoxic effects by increasing cell membrane damage, inducing oxidative damage and necrotic and apoptotic cell death.

Chronic obstructive pulmonary disease (COPD) is a clinical entity that is usually progressive, characterized by airway abnormalities such as bronchiolitis and/or emphysema and airflow limitation, often accompanied by airway hypersensitivity. It can be characterized by a productive cough for two consecutive years and three months every year after excluding other causes of cough, and sometimes with asthmatic symptoms.[5,6]

It is among the top three causes of death in Turkey and the world and is predicted to cause a disease burden with increasing social and economic aspects,

as well as loss of labor force, as the direct underlying cause of 7.8% of all deaths by 2030.[7]

Chronic respiratory symptoms characterize COPD; patients' hospital admission reasons are often known as dyspnea, cough, hemoptysis, sputum production, wheezing, chest tightness, fatigue, and activity limitation.[8]

Dyspnea is the most prominent symptom in patients whose quality of life is restricted by the current symptoms.[9]

Dyspnea, also known as shortness of breath, can be defined as the subjective respiratory discomfort experienced by the person experiencing it, consisting of uncomfortable or difficult breathing or sensations of varying intensity.[10,11] Subjectively perceived by patients in different ways, such as air hunger, difficulty breathing, feeling of suffocation, heavy breathing due to the influence of cognitive, behavioral and sociocultural factors, these symptoms can affect the patient's quality of life, physical activities, and psychosocial conditions such as sleep quality.[12,13] It is essential to accurately and effectively evaluate the severity of dyspnea, determine the treatment, and plan care and rehabilitation.[14]

Therefore, it is essential to plan the effectiveness of the treatment by evaluating the scores of the CAT scoring and mMRC dyspnea scale commonly used for COPD patients and making a combined COPD assessment. this study aimed to show the effect of walnut leaf tea on dyspnea symptoms and patients' quality of life, as it is thought to positively impact the process of COPD, a chronic progressive disease since it has not been done before.

MATERIALS AND METHOD

Type of study

The structure of this study was planned as a quasi-experimental research.

Universe and sample

The participants consisted of 80 patients diagnosed with COPD who were followed up in the Pulmonary Diseases Department of Atatürk University Faculty of Medicine and accepted to participate. OpenEpi, Version 3, an open-source calculator, and the Gpower 3.1.9.2 program were used to calculate the sample size. 95% confidence (1-α), 95% test power (1-β), d=0.4 effect size, and the number of samples were 80 people were determined. Two groups were created using the cluster sampling method. The first group was selected by the researcher from patients who had previously used walnut leaf tea had no problems, had not consumed it for at least 6 months, and would currently use tea, while the second group was randomly selected from patients who were receiving their medical treatment and did not use any complementary medicine method according to their registration order.

Data collection tools

GOLD staging: For patients diagnosed with COPD, FEV1/FVC < 70% and GOLD stage 1: FEV1 ≥ 80% (of the expected), stage 2: FEV1 50%-79% (of the expected), stage 3: FEV1 30%-49% (of the expected), stage 4: FEV1 < 30% (of the expected).

mMRC (dyspnea) scoring: Four situation assessments can be scored between 0-4; stage 0 is "I only get short of breath during heavy exercise," stage 1 is "I only get short of breath when I walk on a flat road or when I go up a slight hill," stage 2 is "I have to walk slower than my peers on a flat road or stop and rest from time to time due to my shortness of breath," stage 3 is "I get short of breath and stop after walking 100 m or a few minutes on a flat road." Stage 4 is "I cannot leave the house because of my shortness of breath, or I get short of breath when I get dressed or undressed."

CAT scoring calculation was used in which eight situations were questioned and scored between 0 and 5. A scoring system with a two-category evaluation was used: scoring below 10 points and above 10 points.

Katz ADL scale: The scores given with the system where 0-1 points can be provided for six situations were collected and categorized as dependent (0-2), semi-dependent (3-4), and independent (5-6).

A combined COPD assessment was made by evaluating all the results. According to this assessment, Group A: low risk, few symptoms, 0-1 exacerbations/year and no exacerbation-related hospitalization, CAT<10 or mMRC 0-1, Group B: low risk, many symptoms, 0-1 exacerbations/year or no exacerbation causing hospitalization, CAT ≥ 10 or mMRC ≥ 2, Group C: high risk, few symptoms, ≥ two exacerbations/year or ≥ one exacerbation causing hospitalization, CAT< 10 or mMRC 0-1, Group D: high risk, high symptoms, ≥ two exacerbations/year or ≥ one exacerbation leading to hospitalization, CAT ≥ 10 or mMRC ≥ 2.

Inclusion criteria were; agreeing to participate in the study, being between 40-75 years of age, having a diagnosis of COPD,

Exclusion criteria were having a malignancy accompanying COPD, having asthma, having an allergy to walnuts or similar nuts, having another known allergy or being prone to allergy, being pregnant, breastfeeding, receiving chemotherapy,

having an immune deficiency, being hospitalized or needing to be hospitalized due to a different chronic disease.

Data collection process

When all participants came to the study, their complete blood count values, GOLD staging according to spirometry values, Katz ADL scale, mMRC, and CAT scores were evaluated, and their first data was recorded on 01.07.2013. Participants who will consume walnut leaf tea were questioned about the methods and frequency of consumption.

The frequency of tea use was twice a month, brewed with hot water (150-200 ml) for five minutes. It was learned that the tea was prepared with one teaspoon (approximately 1 gram) of dried mechanically crushed walnut leaves, which has no side effects on human health, and that it was an approved product from the Ministry of Agriculture. Participants were not restricted from drinking tea for 6 months, provided that the method and amount would not harm human health.[15]

At the end of the first 6 months, on 01.01.2014, the GOLD staging, ADL scale, mMRC and CAT scores, oxygen saturations, vaccination status, whether they applied to the hospital due to COPD exacerbation, whether they were hospitalized, if they were hospitalized, how many days of treatment they received, and whether their treatment changed in the last 6 months were recorded. In the second 6 months, walnut leaf tea-drinking participants were restricted from consuming walnut leaf tea, and only the evaluations of both groups were made after they received their treatments. At the end of the second 6 months, on 01.07.2014, GOLD staging, ADL scale, mMRC and CAT scores, oxygen saturations, vaccination status, whether or not the patients applied to the hospital due to illness, whether or not they were hospitalized, if they were hospitalized, how many days of treatment they received, and whether or not their treatment changed in the last 6 months were recorded. All data were collected, and a combined COPD assessment was performed.

Statistical analysis

Number and percentage, arithmetic mean, and standard deviation were used as descriptive statistics. The obtained data were analyzed with SPSS version 26, Kolmogorov Smirnov test was used to detect normal distribution, Student- t, Mann-Whitney U, Cochran's q, Friedman test, Marginal Homogeneity test, Chi-square tests were performed to determine the statistical significance level, and the significance value was accepted as $p<0.05$.

Ethical approval: It was approved by the Atatürk University non-drug clinical research ethics committee with decision number B.30.2.ATA.0.01.00/67 and carried out according to the principles of the Declaration of Helsinki.

RESULTS

Table 1 compares the of socio-demographic characteristics and health history of COPD participants. The mean age of patients was 67.1±7 years, and 57.5% were male. 50% of the patients were primary school graduates, 90% were married, 11.3% were smokers and had quit before, 42.5% were still smokers, and 73.8% had another chronic disease. (n=5, 8.5%) had diabetes mellitus, (n=26, 44.1%) had hypertension, (n=17, 28.8%) had both diabetes mellitus and hypertension, (n=4, 6.8%) had thyroid disease, (n=7, 11.9%) had other diseases and 56.3% had COPD stage 2.

At the end of the first 6 months, the hospital admission rate of participants who did not drink walnut leaf tea was 67.5%, while the hospital admission rate of participants who drank tea was 10%, $p<0.001$ (Table 2). While no change was planned in the treatment of participants who drank tea, a change was planned in the treatment of 32.5% of participants who did not drink tea (Table 2). These changes included long-acting beta-2 agonist (LABA) and long-acting muscarinic antagonist (LAMA) treatments. At the end of the first 6 months, there was no hospitalization in the tea-drinking group, while 62.5% of the non-tea group was hospitalized, $p<0.001$ (Table 2).

There was no significant difference in mMRC dyspnea scores between the tea-drinking and non-tea-drinking groups at the end of the first 6 months (Table 2). However, the difference between the mMRC scores of the tea-drinking and non-tea-drinking groups at the 6-month and 1-year evaluations was significant. The difference between the mMRC comparisons of the first 0-6 months and the first 1 year in the tea-drinking group was significant ($p=0.004$, $p=0.011$) (Table 3).

Volume: 6 **Issue:** 1
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Table 1. Comparison of socio-demographic characteristics and health history of COPD patients

	Overall **n (%)** **80 (100.0)**	**Tea user** **n (%)** **40 (50.0)**	**Non-tea user** **n (%)** **40 (50.0)**	**p- value**
Age (years) mean± SD	67.1± 7	67.2± 8.1	67.1± 5.9	>0.05
Gender				
Male	46 (57.5)	22 (55)	24 (60)	>0.05
Female	34 (42.5)	18 (45)	16 (40)	
Marital status				
Married	72 (90)	33 (82.5)	39 (97.5)	0.025
Single	8 (10)	7 (17.5)	1 (2.5)	
Educational status				
Literate	14 (17.5.)	7 (17.5)	7 (17.5)	>0.05
Primary school	40 (50)	20 (50)	20 (50)	
High school	24 (30)	12 (30)	12 (39)	
University and over	2 (2.5)	1 (2.5)	1 (2.5)	
Working status				
Employed	31 (38.8)	17 (42.5)	14 (35)	>0.05
Unemployed	49 (61.3)	23 (57.5)	26 (65)	
Additional disease				
Yes *	59 (73.8)	24 (60)	35 (87.5)	0.005
No	21 (26.3)	16 (40)	5 (12.5)	
Drug use				
Yes	59 (73.8)	25 (62.5)	34 (85)	0.022
No	21 (26.3)	15 (37.5)	6 (15)	
Surgery history				
Yes	7 (8.8)	4 (10)	3 (7.5)	>0.05
No	73 (91.3)	36 (90)	37 (92.5)	
Smoking status				
Yes	34 (42.5)	12 (30)	22 (55)	
No	37 (46.3)	23 (57.5)	14 (35)	>0.05
Quit smoking	9 (11.3)	5 (12.5)	4 (10)	
gold stage				
Stage 1	15 (18.8)	11 (27.5)	4 (10)	
Stage2	45 (56.3)	20 (50)	25 (62.5)	>0.05
Stage3	19 (23.8)	8 (20)	11 (27.5)	
Stage4	1 (1.3)	1 (2.5)	0	
mMRC scale				
Stage0	4 (5)	4 (10)	0	
Stage1	8 (10)	4 (10)	4 (10)	
Stage2	41 (51.2)	17 (42.5)	24 (60)	>0.05
Stage3	24 (30)	14 (35)	10 (25)	
Stage4	3 (3.8)	1 (2.5)	2 (5)	
CAT scoring				
<10	46 (57.5)	30 (75)	16 (40)	0.003
≥10	34 (42.5)	10 (25)	24 (60)	
adl scale				
Low	57 (71.3)	26 (65)	31 (77.5)	
Moderate	23 (28.7)	14 (35)	9 (22.5)	>0.05
High	-	-	-	
Oxygen saturation mean± SD	89.5± 3.9	90.6± 3.3	88.4± 4.2	0.011
Blood sample analysis means± SD				
Hgb	13.9± 1.9	14.3± 1.7	13.4± 2	0.039
Eos	1.4± 1	1.4± 1	1.4± 1	>0.05
Wbc	7877± 3135	7631± 2503	8123± 3677	>0.05
Influenza vaccine				
Yes	7 (8.8)	7 (17.5)	0	0.012
No	73 (91.3)	33 (82.5)	40 (100)	

*Diabetes mellitus, hypertension, thyroid disease

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International Journal of Traditional and Complementary Medicine Research

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Duzce University

Table 2. Comparison of two groups after 6-12 months

	After 6 months *				After 12 months **			
	Overall n (%) 80 (100.0)	Tea user n (%) 40 (50.0)	Non-tea user n (%) 40 (50.0)	p- value	Overall n (%) 80 (100.0)	Tea user n (%) 40 (50.0)	Non-tea user n (%) 40 (50.0)	p- value
Admission to Pulmonary Clinic								
Yes	31 (38.8)	4 (10)	27 (67.5)	<0.001	41 (51.2)	7 (17.5)	34 (85)	<0.001
No	49 (61.3)	36 (90)	13 (32.5)		39 (48.8)	33 (82.5)	6 (15)	
Change of treatment								
Yes	13(16.3)	0	13 (32.5)	0.008	19 (23.8	3 (7.5)	16 (40)	0.001
No	67 (83.8)	40 (100)	27 (67.5)		61 (76.3)	37 (92.5)	24 (60)	
Hospitalization								
Yes	25 (31.8)	0	25 (62.5)	<0.001	31 (38.8)	1 (2.5)	30 (75)	<0.001
No	55 (68.8)	40 (100)	15 (37.5)		49 (61.3)	39 (97.5)	10 (25)	
Hospitalization day								
Mean ± SD	3±5	0	6±5.8	<0.001	4.6±6.2	0.33±2	8.9±6.1	<0.001
CAT scoring								
<10	61 (76.3)	39 (97.5)	22 (55)	<0.001	62 (77.5)	36 (90)	26 (65)	0.007
≥10	19 (23.8)	1 (2.5)	18 (45)		18 (22.5)	4 (10)	14 (35)	
adl scale scoring								
Low	65 (81.3)	31 (77.5)	34 (85)	>0.05	64 (80)	30 (75)	34 (85)	>0.05
Moderate	15 (18.8)	9 (22.5)	6 (15)		16 (20)	10 (25)	6 (15)	
High	-	-	-		-	-	-	
GOLD stage								
Stage 1	16 (20)	12 (30)	4 (10)	>0.05	15 (18.8)	11 (27.5)	4 (10)	>0.05
Stage2	44 (55)	19 (47.5)	25 (62.5)		44 (55)	20 (50)	24 (60)	
Stage3	20 (25)	9 (22.5)	11 (27.5)		21 (26.3)	9 (22.5)	12 (30)	
Stage4	0	0	0		0	0	0	
mMRC scale								
Stage0	5 (6.3)	5 (12.5)	0		6 (7.5)	5 (12.5)	1 (2.5)	
Stage1	9 (11.3)	4 (10)	5 (12.5)	>0.05	7 (8.8)	3 (7.5)	4 (10)	>0.05
Stage2	46 (57.5)	23 (57.5)	23 (57.5)		47 (58.8)	23 (57.5)	24 (60)	
Stage3	18 (22.5)	8 (20)	10 (25)		18 (22.5)	9 (22.5)	9 (22.5)	
Stage4	2 (2.5)	0	2 (5)		2 (2.5)	0	2 (5)	
Oxygen saturation mean± SD	91 ± 3.13	91.6± 2.734	90.4± 3.410	>0.05	92,64± 2.630	92.63± 2.667	92.65± 2.627	>0.05

*LAMA, LABA addition, **LABA, LAMA, theophylline addition

In the tea-drinking group, the rate of patients with a CAT score <10 at the beginning was 75%, while after six months, it was 97.5% (Table 2). When the ADL scale scores were compared for both groups at the end of the first six months, the difference was not significant. However, the rate of patients with a low addiction level in the tea-drinking group was 65% at the beginning, and this rate was determined to be 77.5% at the end of six months p=0.039 (Table 4).

At the end of one year, the hospital admission rate of participants who did not drink walnut-leaf tea was 85%. In contrast, the hospital admission rate of participants who drank tea was 17.5%, and the difference between them was significant p<0.001. In the non-tea-drinking group, the rate of patients who were planned to have a treatment change was 40%, and the difference between the participants in the tea-drinking and non-tea-drinking groups was significant, (p=0.001). Change in the treatments were LAMA, LABA, and theophylline drugs addition (Table 2). When the hospitalizations at the end of one year were evaluated, the difference between the tea-drinking and the non-tea drinking groups was significant (p<0.001). The hospitalization rate in the non-tea-drinking group was 75%, and in the tea-drinking group was 2.5% (Table 2). At the end of one year, there was no significant difference between the groups in terms of dyspnea scores and ADL scores (Table 2).

Volume: 6 **Issue:** 1
Year: 2025
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Publisher
Duzce University

Table 3. Comparison of tea-drinking group and non-drinking group after 6 months and 12 months

	Tea user (beginning) n. (%) 40 (50.0)	Tea user (6 months) n. (%) 40 (50.0)	p-value	Tea user (beginning) n. (%) 40 (50.0)	Tea user (12 months) n. (%) 40 (50.0)	p-value	Non-Tea user (beginning) (n.%) 40 (50.0)	Non-Tea user (6 months) (n.%) 40 (50.0)	p-value	Non-Tea user (beginning) (n.%) 40 (50.0)	Non-Tea user (12 months) (n.%) 40 (50.0)	p-value
Gold stage												
Stage 1	11 (27.5)	12 (30)	>0.05	11 (27.5)	11 (27.5)	>0.05	4 (10)	4 (10)	>0.05	4 (10)	4 (10)	>0.05
Stage2	20 (50)	19 47.5)		20 (50)	20 (50)		25 (62.5)	25 (62.5)		25 (62.5)	24 (60)	
Stage3	8 (20)	9 (22.5)		8 (20)	9 (22.5)		11 (27.5)	11 (27.5)		11 (27.5)	12 (30)	
Stage4	1(2.5)	0		1(2.5)	0		0	0		0	0	
Mmrcscale												
Stage0	4 (10)	5 (12.5)	0.004	4 (10)	5 (12.5)	0.011	0	0	>0.05	0	1 (2.5)	>0.05
Stage1	4 (10)	4 (10.)		4 (10)	3 (7.5)		4 (10)	5 (12.5)		4 (10)	4 (10)	
Stage2	17 (42.5)	23(57.5)		17 (42.5)	23 (57.5)		24 (60)	23 (57.5)		24 (60)	24 (60)	
Stage3	14 (35)	8 (20)		14 (35)	9 (22.5)		10 (25)	10 (25)		10 (25)	9 (22.5)	
Stage4	1 (2.5)	0		1 (2.5)	0		2 (5)	2 (5)		2 (5)	2 (5)	

*****Marginal homogeneity test*

Table 4. 12 months follow-up of the walnut leaf tea-drinking and non-drinking group

	Tea user (beginning) n (%) 40 (50.0)	Tea user (6 months) n (%) 40 (50.0)	Tea user (12 months n (%) 40 (50.0)	p-value	Non-Tea user (beginning) n (%) 40 (50.0)	Non-Tea user (6 months) n (%) 40 (50.0)	Non-Tea user (12 months n (%) 40 (50.0)	p-value
CAT scoring								
<10	30 (75)	39 (97.5)	36 (90)	0.001	16 (40)	22 (55)	26 (65)	0.001
≥10	10 (25)	1 (2.5)	4 (10)		24 (60)	18 (45)	14 (35)	
Adl scale								
Low	26 (65)	31 (77.5)	30 (75)	0.039	31 (77.5)	34 (85)	34 (85)	>0.05
Moderate	14 (35)	9 (22.5)	10 (25)		9 (22.5)	6 (15)	6 (15)	
High								
Oxygen saturation mean± SD	90.68 ± 3.331	91.6± 2.73	92.65± 2.62	<0.001	88.45 ± 4.29	90.4± 3.41	92.63± 2.667	<0.001

Cochran's q, * Friedman test.

When the effects of variables on scale scores according to tea drinking status were examined, it was determined that employment status, education status, presence of chronic disease, and medication use (p=0.040, p=0.005, p=0.012, p=0.019) affected the mMRC dyspnea scale in the year-end evaluations of tea drinking participants (Table 5). When the effects of variables on CAT scale scores according to tea-drinking status were examined, it was determined that gender and education affected the relevant score in the year-end evaluations of tea-drinking participants (p=0.020, p=0.015) (Table 6). In participants who did not drink tea, the effects of smoking status, gender, and whether or not they were employed were determined by the CAT score (p=0.031, p=0.020, p=0.007) (Table 6).

Volume: 6 **Issue:** 1
Year: 2025
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Publisher
Duzce University

Table 5. Effect of variables on mMRC dyspnea scale scores of tea-drinking and non-tea drinking group after 12 months

		mMRC Dyspnea scale of the tea-drinking-group					**mMRC Dyspnea scale of non-tea-drinking- group**					
		stage 0 n (%)	stage 1 n (%)	stage 2 n (%)	stage 3 n (%)	p	stage 0 n (%)	stage 1 n (%)	stage 2 n (%)	stage 3 n (%)	stage n (%)	p
Gender	Man	2 (40)	3 (100)	14(60.9)	3 (33.3)	>0.05	0	3 (75)	16 (66.7)	5 (55.6)	0	>0.05
	Women	3 (60)	0	9 (39.1)	6 (66.7)		1 (100)	1 (25)	8 (33.3)	4 (44.4)	2(100)	
Marital status	Single	2 (40)	0	5 (21.7)	0	>0.05	0	0	1 (4.2)	0	0	>0.05
	Married	3 (60)	3 (100)	18 (78.3)	9 (100)		1 (100)	4 (100)	23 (95.8)	9 (100)	2(100)	
Working status	Unemployed	2 (40)	0	13 (56.5)	8 (88.9)	0.040	1 (100)	2 (50)	14 (58.3)	7 (77.8)	2(100)	>0.05
	Employed	3 (60)	3 (100)	10 (43.5)	1 (11.1)		0	2 (50)	10 (41.7)	2 (22.2)	0	
Education	İlliterate	0	0	3 (13)	4 (44.4)	0.005	0	0	3 (12.5)	3 (33.3)	1 (50)	>0.05
	Primary school	3 (60)	0	12 (52.2)	5 (55.6)		1 (100)	2 (50)	13 (54.2)	3 (33.3)	1 (50)	
	High school	2 (40)	2 (66.7)	8 (66.7)	0		0	2 (50)	7 (29.2)	3 (33.3)	0	
	University and more	0	1 (33.3)	0	0		0	0	1 (4.2)	0	0	
Medication	No	4 (80)	3 (100)	6 (26.1)	2 (22.2)	0.012	1 (100)	1 (25)	3 (12.5)	0	1 (50)	0.048
	Yes	1 (20)	0	17 (73.9)	7 (77.8)		0	3 (75)	21 (87.5)	9 (100)	1 (50)	
Additional disease	No	4 (80)	3 (100)	7 (30.4)	2 (22.2)	0.019	0	1 (25)	3 (12.5)	0	1 (50)	>0.05
	yes	1 (20)	0	16 (66.7)	7 (77.8)		1 (100)	3 (75)	21 (87.5)	9 (100)	1 (50)	
Surgery	no	4 (80)	3 (100)	21 (91.3)	8 (88.9)	>0.05	0	4 (100)	22 (91.7)	9 (100)	2 100)	0.009
	yes	1 (20)	0	2 (8.7)	1 (11.1)		1 (100)	0	2 (8.3)	0	0	
Influenza	no	5 (100)	3 (100)	19 (82.6)	6 (66.7)	>0.05	1 (100)	4 (100)	24 (100)	9 (100)	2 (100)	
	yes	0	0	4 (17.4)	3 (33.3)		0	0	0	0	0	
Smoking status	no	4 (80)	0	15 (65.2)	4 (44.49	>0.05	0	1 (25)	8 (33.3)	3 (33.3)	2 100)	0.040
	yes	1 (20)	1 (33.3)	6 (26.1)	4 (44.4)		0	15 (75)	15 (62.5)	4 (44.4)	0	
	quit	0	2 (66.79	2 (8.7)	1 (11.1)		1 (100)	0	1 (4.2)	2 (22.2)	0	

Table 6. Effect of variables on cat score in the tea-drinking and non-tea drinking group after 12 months

		CAT Score of tea drinking group			**CAT Score non-drinking group**		
		<10 n (%)	≥ 10 n (%)	p	<10 n (%)	≥ 10 n (%)	P
Gender	Man	22 (61.1)	0	0.020	19 (73.1)	5 (35.7)	0.021
	Woman	14 (38.9)	4 (100)		7 (26.9)	9 (64.3)	
Marital status	Single	7 (19.4)	0	>0.05	1 (3.8)	0	>0.05
	Married	29 (80.6)	4 (100)		25 (96.2)	14 (100)	
Working status	Unemployed	19 (52.8)	4 (100)	>0.05	13 (50)	13 (92.9)	0.007
	Employed	17 (47.2)	0		13 (50)	1 (7.1)	
Education	illiterate	4 (11.1)	3 (75)	0.015	3 (11.5)	4 (28.6)	>0.05
	Primary school	19 (52.8)	1 (25)		11 (42.3)	9 (64.3)	
	High school	12 (33.3)	0		11 (42.3)	1 (7.1)	
	University and more	1 (2.8)	0		1 (3.8)	0	
Drug use	No	14 (38.9)	1 (25)	>0.05	5 (19.2)	1 (7.1)	>0.05
	Yes	22 (61.1)	3 (75)		21 (80.8)	13 (92.9)	
Additional disease	No	15 (41.7)	1 (25)	>0.05	4 (15.4)	1 (7.1)	>0.05
	Yes	21 (58.3)	3 (75)		22 (84.6)	13 (92.9)	
Surgery	No	33 (91.7)	3 (75)	>0.05	25 (96.2)	12 (85.7)	>0.05
	Yes	3 (8.3)	1 (25)		1 (3.8)	2 (14.3)	
Smoking status	No	21 (58.3)	2 (50)	>0.05	7 (26.9)	7 (50)	0.031
	Yes	11 (30.6)	1 (25)		18 (69.2)	4 (28.6)	
	Quit	4 (11.1)	1 (25)		1 (3.8)	3 (21.4)	

When the effects of variables on ADL scale scores were examined according to tea-drinking status, the year-end evaluations of tea-drinking participants determined that working status and education status affected the ADL scale score (p=0.016, p=0.037) (Table 7). When the combined COPD evaluation was made, no significant difference was found between the comparisons of tea-drinking participants at the end of the first six months and one year (second six months) (Table 8). A significant difference was found between the comparisons of non-tea drinking participants at the end of the first six months and one year (second six months) (p=0.034). It was seen that the non-tea-drinking group was negatively affected.

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Table 7. Effect of variables on ADL scale score in tea-drinking and non-drinking group after 12 months

		ADL scale score of tea drinking group		p	ADL scale score of non-tea drinking group		P
		Semi-dependent n (%)	Independent n (%)		Semi-dependent n (%)	Independent n (%)	
Gender	Man	3 (30)	19 (63.3)	>0.05	1 (16.7)	23 (67.6)	0.019
	Woman	7 (70)	11 (36.7)		5 (83.3)	11 (32.4)	
Marital status	Single	0	7 (23.3)	>0.05	0	1 (2.9)	>0.05
	Married	10 (100)	23 (76.7)		6 (100)	33 (97.1)	
Working status	Unemployed	9 (90)	14 (46.7)	0.016	5 (83.3)	21 (61.8)	>0.05
	Employed	1 (10)	16 (53.3)		1 (16.7)	13 (38.2)	
Education	illiterate	4 (40)	3 (10)	0.037	3 (50)	4 (11.8)	>0.05
	Primary school	6 (60)	14 (46.7)		3 (50)	17 (50)	
	High school	0	12 (40)		0	12 (35.3)	
	University and over	0	1 (3.3)		0	1 (2.9)	
Drug use	No	2 (20)	13 (43.3)	>0.05	0	6 (17.6)	>0.05
	Yes	8 (80)	17 (56.7)		6 (100)	28 (82.4)	
Additional disease	No	2 (20)	14 (46.7)	>0.05	0	5 (14.7)	>0.05
	Yes	8 (80)	16 (53.3)		6 (100)	29 (85.3)	
Surgery	No	9 (90)	27 (90)	>0.05	4 (66.7)	33 (97.1)	>0.05
	Yes	1 (10)	3 (30)		2 (33.3)	1(2.9)	
Smoking status	No	5 (50)	18 (60)	>0.05	5 (83.3)	9 (26.5)	0.026
	Yes	4 (40)	8 (26.7)		1 (16.7)	21 (61.8)	
	Quit	1 (10)	4 (13.3)		0	4 (11.8)	
İnfluenza vaccine	No	7 (70)	26 (86.7)	>0.05	6 (100)	34 (100)	
	Yes	3 (30)	4 (13.3)		0	0	

Table 8. Combined COPD assessment of tea-drinking and non-tea drinking group for 6-12 months

		Tea drinking group			Non-Tea drinking group		
		(6 month) n (%)	(12 month) n (%)	p	(6 month) n (%)	(12 month) n (%)	p
COPD stage	A	8 (20)	7 (17.5)	>0.05	3 (7.5)	1 (2.5)	0.034
	B	30 (75)	30 (75)		8 (20)	4 (10)	
	C	1 (2.5)	2 (5)		2 (5)	4 (10)	
	D	1 (2.5)	1 (2.5)		27 (67.5)	31 (77.5)	

DISCUSSION

This study was conducted to evaluate the effect of walnut leaf tea on disease exacerbation, dyspnea and quality of life in individuals with COPD; the findings obtained to be discussed are; hospital admission, hospitalization and treatment change rates regarding the patient's physical and functional parameters, ADL, mMRC, CAT scale scores. When the participants were evaluated as two groups consuming and not consuming walnut leaf tea, the difference between the groups in terms of hospital admissions, treatment changes, and hospitalizations was significant both in the first 6 months, and at the end of one year. The rates of hospital admission, change in treatment, and hospitalization were relatively low in the tea-drinking group. This is thought to be due to the anti-inflammatory, antimicrobial, and antineoplastic effects of walnut leaf tea, as determined in previous studies.[15]

In our study, when the ADL scale score calculations made during the follow-up period were compared in the non-tea-drinking group the difference between them was not found to be significant, as shown in other studies conducted on COPD patients. However, it was determined that their quality of life was generally low[18].

The difference between the measurements made during the follow-up period in the tea-drinking-group was found to be significant. While the rate of patients with a low dependency level in the tea-drinking group was 65% at the beginning, this rate was determined as 77.5% in the evaluation at the end of the first 6 months and 75% of the assessment at the last 6 months. This significant change may have occurred with decreased severity and frequency of disease symptoms such as cough and dyspnea. Indeed, it is seen that dyspnea and cough constitute serious obstacles to physical activity. In support of our study, it can be thought that the nutritional support given in addition to the treatment in COPD patients in the study conducted by Lobah et al. and the curcumin treatment used by Safari et al. have a positive effect on the anti-inflammatory process[16,17].

In our study, no significant difference was observed between the two groups regarding mMRC dyspnea score at the end of the follow-up periods. Similar to the results of our study, no significant change was found in the mMRC scale in a study with

curcumin[19]. However, in our study, no change was observed in the periodic follow-ups in the non-tea-drinking group. In contrast, the difference between the mMRC scale scores in the periodic follow-ups of the tea-drinking group was significant. A change was observed in the direction of improvement in dyspnea symptoms. It can be thought that the anti-inflammatory process mentioned before reduced the dyspnea level.

When the tea-drinking group was evaluated in terms of CAT score at 6-month follow-ups, the rate of patients with CAT score <10 at the beginning was 75%, 97.5% after 6 months, and 90% after 1 year, and the difference between them was significant. It can be thought that the number of patients with a score below 10 increased due to the changes caused by the anti-inflammatory effect of walnut-leaf tea and its positive impact on dyspnea and cough.

An adverse effect of smoking on the CAT score was detected in non-tea-drinking group, However, it was determined that smoking status did not affect the CAT score in the tea drinking group. It can be thought that walnut-leaf tea acts as a barrier against the harmful effects of smoking.

When the oxygen saturations of the participants in the tea-drinking group were evaluated at the end of one year in 6-month periods, it was determined that there was a tendency for improvement in oxygen saturations. The difference between the initial measurements and the measurements at the end of one year was found to be significant.

At the end of one year, in the evaluation made in terms of GOLD classification according to FEV1 level, it was determined that there was no significant difference between the two groups. The difference between the initial and end-of-year comparisons of the participants in the tea-drinking group tended to improve, although it was not significant. When the studies in the literature were evaluated, the study of Wang et al. also supported the results of our research and showed that there was no significant change in FEV1 value[20].

When the participants were evaluated, it can be thought that the patients with lower levels of education in the tea-drinking group had higher levels of dyspnea, and that as the level of education increases, patients are more conscious, have better access to treatment, and have better compliance with treatment. The results of studies in the literature support our study[21].

Chronic diseases can negatively affect COPD patients due to organ dysfunction, biochemical disorders, and wound healing disorders. In our study, the difference between the dyspnea levels of patients with chronic diseases and those without was significant in tea-drinking patients. When the literature was reviewed, the study results were similar to our study[22].

Limitations

The limitation of the study is that it was conducted in a single hospital. Future studies should be performed in more than one center, with larger sample groups, and for more extended periods.

CONCLUSION

The results show that tea prepared with walnut leaves may be beneficial in a chronic inflammatory disease such as COPD by reducing the severity of symptoms through various mechanisms, reducing hospitalizations, hospitalizations, exacerbations, and polypharmacy, and improving quality of life. It is thought that patients prefer alternative medicine because the drugs used in the treatment of COPD do not provide a definitive treatment. In addition, it can be assumed that patients using walnut leaf tea pay more attention to their health and treatment, but it should not be neglected that conscious information is essential for patients

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REFERENCES

1. Salık MA, Çakmakçı S. Ceviz (Juglans regia L.) Yaprağı ve Yeşil Kabuğu: Fonksiyonel Özellikleri, Sağlığa Yararları ve Gıdalarda Kullanım Potansiyeli. Akademik Gıda. Mart 2023;21(1):90-100.
2. Pereira JA, Oliveira I, Sousa A, et.al. Walnut (Juglans regia L.) leaves: Phenolic compounds, antibacterial activity and antioxidant potential of different cultivars. Food and chemical toxicology 2007; 45(11):2287-2295.
3. Vieira V, Pereira C, Pires TC, et.al. Phenolic profile, antioxidant and antibacterial properties of Juglans regia L.(walnut) leaves from the Northeast of Portugal. Industrial Crops and Products 2019;134:347-355.
4. Tang YT, Li Y, Chu P, et.al. Molecular biological mechanism of action in cancer therapies: Juglone and its derivatives,

the future of development. Biomedicine & Pharmacotherapy (2022); 148, 112785.
5. Ünal A. Acil Serviste Koah Alevlenme Olgularında Kısa Dönem Prognoz Tahmininde Ottawa Koah Risk Skalası (Ocrs) ile Decaf Skorunun Karşılaştırılması. 2021. PhD Thesis. Dokuz Eylul Universitesi (Turkey). Erişim tarihi: 09 Kasım 2024.
6. Yeh GY, Wayne PM, Litrownik D, et.al.Tai chi mind-body exercise in patients with COPD: study protocol for a randomized controlled trial. 2014; Trials **15**, 337 (2014).
7. Mathers CD, Loncar D. Projections of global mortality and burden of disease from 2002 to 2030. PLoS medicine. 2006; 3(11):e442.
8. Patel N. An update on COPD prevention, diagnosis, and management: The 2024 GOLD Report. The Nurse Practitioner.2024; 49(6):p 29-36.
9. Yohannes AM, Alexopoulos GS, Depression and anxiety in patients with COPD. European respiratory review. 2014; 23(133):345-349.
10. Williams CM,Dyspnea. The Cancer Journal. 2006; 12(5):365-373.erişim tarihi: 10.10.2024
11. Kütmeç YC.Hastanede Yatan Kronik Obstrüktif Akciğer Hastalığı Olan Bireylerde Dispne Şiddeti ve Genel Konfor Düzeyi Arasındaki İlişkinin Belirlenmesi. Dokuz Eylül Üniversitesi Hemşirelik Fakültesi Elektronik Dergisi. 2020; 13(4), 222-230.
12. Özkaraca F, Yılmaz CK. KOAH Hastalarında Dispne Şiddetinin ve Genel İyi Oluş Düzeylerinin İncelenmesi. İzmir Göğüs Hastanesi Dergisi. 2024; 38(1):29-40.erişim tarihi:10.12.2024
13. Tepetam FM. Uzmanlık Tezi.“Stabil Kronik Obstriktif Akciğer Hastalığında Dispneyi Değerlendiren Yöntemlerin ve BODE İndeksinin Fonksiyonel Parametrelerle Karşılaştırılması”. Dr. Lütfi Kırdar Kartal Eğitim ve Araştırma Hastanesi Göğüs Hastalıkları Kliniği, Tez Yöneticisi.Doç. Dr. Benan Çağlayan. İstanbul- 2007. Erişim tarihi: 15.12.2024
14. Yapucu ÜG, Kara D, Erbağcı A. Dispne yakınması olan hastalarda farklı dispne ölçeklerinin karşılaştırılması. Dokuz Eylül Üniversitesi Hemşirelik Yüksekokulu Elektronik Dergisi.2012; 5, (2), pp.65 - 71. erişim tarihi:13.12.2024
15. Yapıcı S, Kıvanç M. Ceviz Yaprak Ekstrelerinin Antioksidan, Antimikrobiyel Ve Antibiyofilm Aktivitesi. GIDA. April 2023;48(2):405-421.
16. Lobach EY, Tokhiriyon B, Poznyakovsky V. et.al. New phytocomplex for chronic obstructive pulmonary disease: Development and clinical evidence of anti-inflammatory effect. Journal of Advanced Pharmacy Education and Research. 2023; 13(3), 102-108.
17. Safari S, Davoodi P, Soltani A, et.al. M. Curcumin effects on chronic obstructive pulmonary disease: A systematic review. Health Science Reports. 2023; 6(3):e1145.
18. Ahmed MS, Neyaz A, Aslami AN.Health-related quality of life of chronic obstructive pulmonary disease patients. Results from a community based cross-sectional study in Aligarh, Uttar Pradesh, India. Lung India. 2016; 33(2):148-153.
19. Demirel Y. Kronik Obstrüktif Akciğer Hastalığı olan bireylerde diyete eklenen curcuminin dispne ve yaşam kalitesi üzerine etkisi. Sağlık Bilimleri Enstitüsü, Hemşirelik Ana Bilim Dalı, Yüksek Lisans Tezi. Kars, Kafkas Üniversitesi, 2018. Erişim tarihi: 10.10.2024.
20. Wang J, Li J, Yu X, Xie Y. Acupuncture Therapy for Functional Effects and Quality of Life in COPD Patients: A Systematic Review and Meta-Analysis. BioMed research international. 2018;(1):3026726.
21. Arslan C, Ünsar S. Kronik Obstrüktif Akciğer Hastalarinda Dispne Algisi Ve Yaşam Kalitesinin Değerlendirilmesi. Anadolu Hemşirelik Ve Sağlık Bilimleri Dergisi. 2021; 24(1):42-50.
22. Van Manen JG, Bindels PJ, Dekker FW, et.al. The influence of COPD on health-related quality of life independent of the influence of comorbidity. Journal of clinical epidemiology. 2003; 56(12):1177-1184.