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Evaluation of non-preoperative chest diseases consultations

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ABSTRACT

Aims: This study was conducted to evaluate non-preoperative patients in the chest diseases department of the training and research hospital.

Methods: 990 patients were evaluated retrospectively between 01.10.2023 and 01.03.2024 in Ankara Training and Research Hospital, Department of Chest Diseases. The services that requested consultation and the reasons for the request, the patients' comorbidities, chest radiography and, when deemed necessary, the requested lung computed tomography were examined. The data obtained was analyzed with IBM SPSS (Statistical Package for Social Sciences). As descriptive statistics, mean±standard deviation and median (minimum-maximum) were given for quantitative variables, and number (percentage) was given for qualitative variables.

Results: Within the hospital, 990 non-preoperative chest diseases consultations were requested within a 6-month period. Those younger than 18 years of age, those who were to be evaluated preoperatively, and those who were asked for consultation from the pulmonology department but did not attend the evaluation were excluded from the study. The average age of the patients for whom consultation was requested was 69.12±16.07 years. 52.1% of the patients were female and 47.9% were male. 470 (47.5%) of the patients were smokers. Among the services where consultation was requested, the first services were 163 (16.5%) emergency services, 129 (13.0%) emergency intensive care units and 112 (11.3%) infectious diseases. 398(40.2%) patients had shortness of breath. It was observed that 411 (41.5%) patients had DM, 285 (28.8%) patients had hypertension, and 108 (10.9%) patients had heart failure. While chest radiography was requested for all patients for whom consultation was requested, 570 (57.6%) thorax computed tomography scans were performed when deemed necessary.

Conclusion: Chest diseases consultations is performed mostly for diagnostic support and treatment recommendation. In our study, patients were included retrospectively. In retrospective studies, it is of great importance to keep proper records in consultations and to take a complete examination and anamnesis. However, unnecessary requested chest diseases consultations brings a serious workload.

Keywords: Pulmonary diseases, consultation, non-preoperative evaluation

INTRODUCTION

It is inevitable for more than one medical department to work together in order to approach a patient holistically. Consultation is defined as scientific and technical assistance or counseling received by the primary physician who follows and treats a patient from physicians working in a different field.[1] Chest diseases is among the departments where consultation is requested most frequently from other departments.

Chest diseases consultation is requested from all clinical branches due to the diagnosis and treatment of any pathology involving the respiratory system, evaluation of preoperative patients in terms of the respiratory system, and postoperative pulmonary problems. Article 19 of the Turkish Medical Association's Code of Ethics for the Profession of Medicine describes the requesting and responding to consultations in detail.[2] One of the guidelines published on this subject was published at Bülent Ecevit University Faculty of Medicine.[3] However, most physicians cannot comply with the guidelines on consultation in routine due to busy working conditions and lack of time.

METHODS

This study was performed retrospectively by examining the consultations requested for 990 patients in the Department of Chest Diseases between October 01, 2003 and March 01, 2024 in Ankara Training and Research Hospital. Approval was obtained from Ethical Committee of Faculty of Medicine, Ankara University (Date:21.09.2023, Decision No: 22499618). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

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Consultations from inpatient units were also included in the study. The clinic where the consultation was requested, demographic data of the patient, symptoms, smoking habits, comorbidities, postero-anterior (PA) chest radiography, C-reactive protein (CRP), specific and nonspecific culture of sputum, routine hemogram, sedimentation and biochemistry findings, arterial blood gas findings were recorded. Anamnesis was obtained from relatives of patients who were unable to give anamnesis. Advanced radiologic examinations such as thorax computed tomography (CT) were added to the orders when deemed necessary. Statistical analysis was performed with the data obtained.

RESULTS

In a 6-month period, 990 preoperative external chest diseases consultations were requested. Those younger than 18 years of age, those who were to be evaluated preoperatively, and those who were asked for consultation from the pulmonology department but did not attend the evaluation were excluded from the study. The mean age of the patients for whom consultation was requested was 69.12±16.07 years. 516 (52.1%) were female and 474 (47.9%) were male. 470 (47.5%) of the cases were smokers. Non-smokers were 355 (34.89%). 175 (17.7%) patients had quit smoking. In non-preoperative consultations, the emergency department ranked first with 163 (16.5%) patients, followed by emergency intensive care with 129 (13%) and infectious diseases with 112 (11.3%) patients (Table 1).

Table 1. Clinics requesting chest diseases consultation

Clinic	n	%
Emergency service	163	16.5
Emergency intensive care	129	13.0
Infectious diseases	112	11.3
Neurology	57	5.8
Orthopedics	51	5.2
General surgery	45	4.5
Nephrology	44	4.4
General internal medicine	43	4.3
Anesthesiology intensive care	34	3.4
Cardiovascular surgery intensive care	31	3.1
Cardiovascular surgery	29	2.9
Neurosurgery intensive care	28	2.8
Cardiology	26	2.6
Internal medicine intensive care	26	2.6
Neurosurgery	25	2.5
Dermatology	21	2.1
Neurology intensive care	20	2.0
Gastroenterology	19	1.9
Romatology	16	1.6
Cardiology intensive care	12	1.2
Endocrinology and metabolism	11	1.1
Urology	11	1.1
Eye diseases	11	1.1
Ear nose throat	9	0.9
Gynecology and obstetrics	9	0.9
AMATEM*	3	0.3
Surgical oncology	3	0.3
Plastic surgery	2	0.2
Total	990	100.0

*AMATEM (Research, Treatment and Training Center for Alcohol and Substance Dependence)

The most common symptom was dyspnea with 398 (40.2%) patients. The second most common symptom was chest pain with 232 (23.4%) patients and the third most common symptom was cough with 165 (16.7%) patients (Table 2).

Table 2. Symptoms of patients for whom chest diseases consultation was requested

Symptoms	n	%
Dyspnea	398	40.2
Chest pain	232	23.4
Cough	165	16.7
Phlegm	75	7.6
Hemoptysis	54	5.5
Fever	46	4.6
Other	20	2.0
Total	990	100.0

In terms of comorbidities, 411 (41.5%) patients had diabetes mellitus, 285 (28.8%) had hypertension, and 108 (10.9%) had heart failure (Table 3).

Table 3. Co-morbidities of patients for whom chest diseases consultation is requested

Additional diseases	n	%
Diabetes mellitus	411	41.5
Hypertension	285	28.8
Heart failure	108	10.9
Chronic obstructive pulmonary disease	46	4.6
Pneumonia	31	3.1
Renal failure	30	3.0
Asthma	25	2.5
Other cardiac diseases	16	1.6
Neurologic diseases	12	1.2
Thyroid diseases	10	1.0
Dermatology diseases	10	1.0
Gastrointestinal diseases	6	0.6
Total	990	100.0

All of the patients had chest radiography and thorax CT was performed in the patients who were deemed necessary. Chest X-ray findings were within normal limits in 80 (8.1%) patients. The most common findings on chest radiography were consolidation in 203 (20.5%) patients, hilar fullness in 146 (14.7%) patients and increased bronchovascular arborization in 110 (11.1%) patients (Table 4).

Thorax CT was performed in 570 (57.6%) patients. Thorax CT findings were within normal limits in 148 (14.9%) patients. The most common findings on thorax CT were consolidation in 81 (8.2%) patients ground glass appearencein 45 (4.5%) patients and increased pleural effusion in 43 (4.3%) patients. (Table 5).

CT angiography was performed in 104 (10.5%) patients with suspected pulmonary embolism in whom dimer was ordered. Pulmonary embolism was detected in 24 (2.4%) patients who underwent CT angiography.

Table 4. Chest X-ray findings of patients for whom chest diseases consultation is requested

Chest X-ray findings	n	%
Consolidation	203	20.5
Hilar fullness	146	14.7
Increased bronchovascular arborization	110	11.1
Normal	80	8.1
Increased aeration	79	8.0
Reticulo linear density increase	71	7.2
Pleural effusion	69	7.0
Atelectasis	66	6.7
Interstitial involvement	64	6.5
Nodule	33	3.3
Sinus blunting	28	2.8
Diaphragm elevation	15	1.5
Mass	14	1.4
Flattening of the diaphragm	12	1.2
Total	990	100.0

Table 5. Thorax CT findings of patients for whom chest diseases consultation is requested

Thorax CT findings	n	%
No CT scan	420	42.4
Normal	148	14.9
Consolidation	81	8.2
Ground glass appearance	45	4.5
Pleural effusion	43	4.3
Mediastinal lymph adenopathy	35	3.5
Reticulo linear density increase	35	3.5
Atelectasis	34	3.4
Pulmonary embolism	24	2.4
Malignancy	22	2.2
Cavity	19	1.9
Cyst	16	1.6
Thickening of the pleura	16	1.6
Mass	14	1.4
Bronchiectasis	13	1.3
Nodule	13	1.3
Emphysema	12	1.2
Total	990	100.0

CT: Computed tomography

The most common reasons for consultation were respiratory symptoms in 274 (27.7%) patients, radiologic reasons in 209 (21.1%) patients and desaturation in 193 (19.5%) patients (Table 6).

After consultation, 109 (11.0%) patients had normal pulmonary findings. The most common diagnoses were respiratory failure in 213 (21.5%) patients, followed by COPD exacerbation in 144 (14.5%) patients and pneumonia in 133 (13.4%) patients (Table 7).

Table 6. Reasons and rates of patients for whom chest diseases consultation is requested

Reason for requesting consultation	n	%
Respiratory symptoms	274	27.7
Radiological causes	209	21.1
Desaturation	193	19.5
D-dimer increase	104	10.5
Request for oxygen concentrator and nebulizer	84	8.5
Physical examination findings	49	4.9
Consent for medication (rheumatology and dermatology)	49	4.9
For CPAP, BIPAP and mechanical ventilation needs	28	2.8
Total	990	100.0

CPAP: Continuous positive airway pressure, BIPAP: Bilevel positive airway pressure

Table 7. Diagnosis of patients after chest diseases consultation

Diagnosis	n	%
Respiratory failure	213	21.5
Chronic obstructive pulmonary disease exacerbation	144	14.5
Pneumonia	133	13.4
Normal lung	109	11.0
Pulmonary embolism	83	8.4
Heart failure	79	8.0
Pulmonary hypertension	70	7.1
Pleurisy	63	6.4
Asthma exacerbation	61	6.2
Lung cancer	18	1.8
Interstitial lung disease	10	1.0
Lung metastasis	7	0.7
Total	990	100.0

DISCUSSION

The physician requesting consultation is asked to provide information about the patient and clearly state the request for help. The physician responding to the consultation should also write down the patient's complaints, comorbidities, physical examination, and recommendations clearly and comprehensibly.[4] Contrary to the studies stating that the most common reason for requesting a GCT was for preoperative evaluation, Zamani[5] and Uçar et al.[6] reported that 61% of GCTs were requested for non-preoperative reasons.[5,6] Karnak et al.[7] found that most consultations were performed by internal departments to contribute to the diagnosis and to obtain treatment recommendations 61.4%.

When the patients included in the study were evaluated according to gender, Çakmak et al.[8] In a study in which more than 5000 GCTs were analyzed, it was found that 58% of male patients were asked for more consultation. The fact that men smoke more and that lung cancer and COPD are associated with smoking shows such a result. In our study, there were 516 (52.1%) more female patients. Advanced age, especially over 70 years, is an important risk factor that increases postoperative morbidity and mortality.[5,9,10] In our study, the mean age was 69.12±16.07 years.

Smoking increases preoperative mortality and postoperative pulmonary complications. The risk is high even in patients

without chronic lung disease.[11] In our study, 470 (47.5%) patients were smokers.

Karnak et al.[7] found dyspnea 63%, cough 58%, sputum 47%, chest pain 27%, hemoptysis 4% in their study. Zamani et al.[5] found dyspnea 32%, cough 29%, sputum 22%, chest pain 9%, hemoptysis 2%. Annakkaya et al.[12] found these rates to be 30%, 33%, 23%, 5%, 3%, respectively; Öztürk et al.[13] found these rates to be 58%, 20%, 8%, 9% and hemoptysis 5%. In our study, dyspnea was the most common symptom in 40.2% of 398 patients. While taking anamnesis of the patients, especially the patient's age, respiratory symptoms and smoking history should be questioned.[5]

In our study, 398 (40.2%) patients were most commonly referred for ILC due to dyspnea. While dyspnea was the most common reason for consultation in the study by Arslan et al.,[13] cough was the most common reason for consultation in the study by Öztürk et al.[14] In our study, the most common reason for consultation was respiratory symptoms (n:274; 27.7%). Respiratory failure was the most common group consulted (n:213; 21.5%).

In preoperative and asymptomatic patients with lung disease, chest radiography is not routinely performed under the age of 60 years. In the presence of history and physical examination findings indicating cardiac or pulmonary disease, in suspicion of metastasis in a patient with cancer, before thoracic surgery, and in regions with a high incidence of tuberculosis, PA chest radiography is recommended. In other studies conducted in our country, it was observed that PA chest radiography was requested in all patients.[12,13] In our study, PA chest radiography was performed in all patients and 80 (8.1%) patients had normal chest radiography. Thorax CT was performed in 570 patients and lung findings were found to be normal in 148 (14.9%) patients who underwent thorax CT.

In non-preoperative consultations, risk factors that play a role include the presence of lung disease, age, smoking, obesity.[14] In non-preoperative consultations, pulmonary complications include respiratory failure, pneumonia, bronchospasm, atelectasis and exacerbation of existing chronic lung disease.[7,14] In our study, we observed respiratory failure, COPD and pneumonia, respectively.

COPD is an important factor that plays a role in the development of postoperative pulmonary complications.[5,15] It is known that the rate of postoperative atelectasis in patients with COPD is 25-70%.[15] Mortality rates are known to be 0-8% according to various references.[16,17] In a group of patients with COPD who underwent major surgical intervention, complications developed at a rate of 29%. While the incidence of postoperative pulmonary complications is 5-10% in healthy individuals, it is 25-90% in COPD patients.[18] The risk of respiratory failure in patients with severe COPD is 5%, and the risk of complications increases significantly in hypercapnic patients.[19] In our country, COPD was found to be 31.6% among the results of chest diseases consultations.[5,6,12] Karnak et al.[7] found COPD rate to be 31.4%, Zamani[5] 27.1%, Uçar et al.[6] 22%, Annakkaya et al.[12] 14%, Arslan et al.[13] 36%. In our study, the number of consultations followed and treated with the diagnosis of COPD, which ranked second after respiratory failure, was 144 (14.5%). In studies, the rate of chest diseases consultations due to asthma varies between 1.4-14.5%.[14,20,21] In our study, the number of patients with asthma was 61 (6.2%).

The rate of hospitalization due to pneumonia is higher in the elderly compared to young people.[22] The risk of pneumonia increases with advancing age in the presence of various conditions such as increased comorbid conditions (COPD, cardiovascular, endorinologic, neurologic diseases), impaired swallowing function, repeated aspirations, impaired cognitive functions, inadequate and unbalanced nutrition, and immunosuppressive treatment.[8,22] In our study, pneumonia was the third most frequently diagnosed disease in patients n:133; (13.4%). Neurology is another department where ILC is most frequently requested. The risk of pulmonary infection and pulmonary embolism increases in the neurology patient group due to long-term immobility, senility, high risk of aspiration, and long hospitalizations, and GHK is required due to respiratory symptoms.[20] In the studies of Öztürk et al.,[13] Annakkaya et al.[12] and Aslan et al.,[14] the rates of consultation requested from neurology were found to be 10%, 4.9% and 9%, respectively. In our study, 57 (5.8%) consultations were requested from the neurology service and 20 (2.0%) from the neurology intensive care unit.

CONCLUSION

Chest diseases is the department most frequently requested for consultation by other services. However, there is no standardized approach for consultations. It would be appropriate to develop standardized forms for consultations, to keep proper records, and to take complete examinations and anamnesis. In addition, it is thought that requesting a consultation after a good evaluation by the relevant clinic before requesting a GHK will be of great clinical benefit and will reduce labor loss.

ETHICAL DECLARATIONS

Ethics Committee Approval

The study was carried out with the permission of Ethical Committee of Faculty of Medicine, Ankara University (Date:21.09.2023, Decision No: 22499618).

Informed Consent

Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

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Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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