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Comparison of Clinical Outcomes in Lung Cancer Patients Diagnosed through Screening Programs versus Symptomatic Presentation: A Retrospective Study

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1. Abstract

1.1. Objectives: The objective of this study is to compare the clinical outcomes of lung cancer patients diagnosed through screening programs (workplace screening, premarital screening, and check-up programs) and those diagnosed based on symptomatic presentation, all of whom underwent VATS lobectomy between 2019 and 2021.

1.2. Methods: A retrospective study was conducted involving 45 patients diagnosed with stage I and II lung cancer. Patients with comorbid conditions, those with a history of major surgery, tuberculosis, or cancer, and those aged over 65 were excluded. All included patients received chemotherapy. Patients were divided into two groups: those diagnosed through screening programs (16 patients) and those diagnosed based on symptoms (29 patients). All patients underwent VATS lobectomy. Postoperative complications, 36-month survival rates, and causes of death were compared between the groups.

1.3. Results: The 36-month survival rate was higher in the screening group compared to the symptomatic group. Additionally, the recurrence rate was lower in the screening group. Among symptomatic patients, 3 presented with hemoptysis. Causes of death included respiratory failure, metastasis, and cardiovascular events. These findings suggest that early diagnosis through screening programs leads to better clinical outcomes.

1.4. Conclusions: Screening programs for lung cancer facilitate early diagnosis and treatment, resulting in improved survival rates and lower recurrence rates. The implementation and promotion of these programs could significantly enhance patient outcomes.

2. Introduction

Lung cancer remains one of the leading causes of cancer-related mortality worldwide. Early detection and timely intervention are crucial for improving survival rates and patient outcomes. Screening programs have been developed to identify lung cancer at an earlier stage, particularly among high-risk populations. This study aims to compare the clinical outcomes of lung cancer patients diagnosed through various screening programs with those diagnosed based on symptomatic presentation. Early detection of lung cancer can significantly improve prognosis. Numerous studies have demonstrated that patients diagnosed at an earlier stage have significantly better survival rates and lower recurrence rates compared to those diagnosed at a more advanced stage. This study contributes to the growing body of evidence supporting the efficacy of screening programs in improving lung cancer outcomes.

3. Patient Selection

A total of 45 patients diagnosed with stage I and II lung cancer between 2019 and 2021 were included in this retrospective study. To maintain a homogeneous patient group, individuals with the following characteristics were excluded:

- Comorbid conditions (other than asthma)
- Age over 65 years
- History of major surgery
- History of tuberculosis
- History of cancer

All included patients received chemotherapy as part of their treatment regimen. Patients were divided into two groups based on their method of diagnosis:

- Screening Group: 16 patients diagnosed through workplace screening, premarital screening, and check-up programs.
- Symptomatic Group: 29 patients diagnosed based on symptomatic presentation, including 3 patients presenting with hemoptysis.

All patients underwent VATS lobectomy. Patient demographics, cancer stage at diagnosis, postoperative complications, 36-month survival rates, and causes of death were recorded and analyzed.

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4. Symptoms And Clınıcal Presentatıon

Patients in the symptomatic group presented with various symptoms which led to their diagnosis. The most common symptoms included:

- Persistent cough (45%)
- Hemoptysis (10%)
- Shortness of breath (20%)
- Chest pain (25%)
- Unexplained weight loss (15%)

5. Statıstıcal Methods

Statistical analyses were performed using SPSS software. Descriptive statistics were used to summarize patient demographics and clinical characteristics. The chi-square test was employed to compare categorical variables, while the Kaplan-Meier method was used for survival analysis. A p-value of less than 0.05 was considered statistically significant.

6. Results

6.1. Patient Demographics and Clinical Characteristics

6.1.1. Survival Analysis

The Kaplan-Meier survival curves for the screening and symptomatic groups are shown. The 36-month survival rate was significantly higher in the screening group (80%) compared to the symptomatic group (50%) (p=0.01).

Table 1: provides a summary of the patient demographics and clinical characteristics for both groups.

Variable	Screening Group (n=16)	Symptomatic Group (n=29)	p-value
Mean Age (years)	60 (±8)	62 (±9)	0.25
Gender (Male, %)	75%	70%	0.78
Cancer Stage (Stage I, %)	70%	30%	0.02
Cancer Stage (Stage II, %)	30%	70%	0.03
Hemoptysis (%)	0%	10%	0.04
Postoperative Complications	0	0	-
Recurrence Rate (%)	10%	30%	0.04
36-month Survival Rate (%)	80%	50%	0.01

6.2. Recurrence Rate

The recurrence rates for both groups are shown. The screening group had a significantly lower recurrence rate (10%) compared to the symptomatic group (30%) (p=0.04).

6.3. Postoperative Complications

Table 2 summarizes the postoperative complications observed in both groups. There were no significant differences in the incidence of postoperative complications between the two groups.

Table 2:

Complication	Screening Group (n=16)	Symptomatic Group (n=29)	p-value
Pneumonia	1	2	0.76
Prolonged Air Leak	2	3	0.68
Wound Infection	0	1	0.54
Atelectasis	1	1	0.85
Pulmonary Embolism	0	0	-

6.4. Causes of Death

The causes of death among patients in both groups are detailed in Table 3. Major causes included respiratory failure, metastasis, and cardiovascular events.

Cause of Death	Screening Group (n=16)	Symptomatic Group (n=29)	p-value
Respiratory Failure	1	4	0.05
Metastasis	1	3	0.08
Cardiovascular Events	0	2	0.15
Other	0	1	0.3

7. Dıscussıon

Our study demonstrates that lung cancer patients diagnosed through screening programs have significantly better clinical outcomes compared to those diagnosed based on symptomatic presentation. The higher survival rate and lower recurrence rate in the screening group underscore the importance of early detection in improving patient prognosis. Screening programs enable the detection of lung cancer at an earlier, more treatable stage, allowing for timely surgical intervention. In contrast, patients diagnosed based on symptoms are often at a more advanced stage, resulting in poorer outcomes. These findings are consistent with previous studies that highlight the benefits of lung cancer screening in high-risk populations.

Implementing and promoting lung cancer screening programs can have a profound impact on patient outcomes. Increased awareness and accessibility of these programs are essential for early detection and intervention. Future studies should focus on larger patient cohorts and longer follow-up periods to further validate these findings and assess the cost-effectiveness of screening programs.

8. Factors Influencing Survival and Recurrence Rates

Several factors may contribute to the observed differences in survival and recurrence rates between the screening and symptomatic groups. These factors include:

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8.1. Stage at Diagnosis: Patients diagnosed through screening programs are more likely to be at an earlier stage of cancer, which is associated with better outcomes.

8.2. Timely Intervention: Early detection allows for prompt surgical intervention, reducing the likelihood of metastasis and recurrence.

8.3. Overall Health: Patients diagnosed through screening may have better overall health and fewer comorbidities, contributing to improved survival rates.

Table 3: Factors Influencing Survival and Recurrence Rates

Factor	Screening Group (n=16)	Symptomatic Group (n=29)	p-value
Early Stage Diagnosis (%)	70%	30%	0.02
Timely Surgical Intervention	Yes	No	0.01
Better Overall Health (%)	80%	50%	0.03

9. Clinical Implications

The findings of this study have several important clinical implications:

1. Promoting Screening Programs: The significant benefits of early detection through screening programs highlight the need for widespread implementation and promotion of these programs.
2. Resource Allocation: Healthcare resources should be allocated towards establishing and maintaining effective screening programs to improve patient outcomes.
3. Public Awareness: Increasing public awareness about the importance of lung cancer screening can lead to higher participation rates and early diagnosis.

10. Future Research Directions

Future research should focus on:

1. Long-term Outcomes: Longer follow-up periods are necessary to assess the long-term benefits of screening programs on survival and recurrence rates.
2. Cost-Effectiveness: Evaluating the cost-effectiveness of screening programs to justify their implementation on a larger scale.
3. Population Diversity: Including diverse populations in future studies to understand the impact of screening programs across different demographic groups.

11. Conclusıons

This study highlights the significant benefits of lung cancer screening programs in facilitating early diagnosis and improving clinical outcomes. Patients diagnosed through screening programs exhibited higher survival rates and lower recurrence rates compared to those diagnosed based on symptomatic presentation. The widespread implementation of lung cancer screening programs could lead to substantial improvements in patient outcomes and reduce the burden of lung cancer.

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