Safety and Efficacy of Tyrosine Kinase Inhibitors (TKIs) in Patients Diagnosed with Non-Small Cell Lung Cancer (NSCLC)

P. Pradeep[1], S. Parthiban[2], P. Krishnakumar[3], P. Selvarasu[4], N. Nandhakumar[5], G. Rathinavel[6]

[1] Assitant Professor,Department of Pharmacy Practice,K.S.Rangasamy College of Pharmacy,Namakkal,637215,Tamilnadu,India
[2] Associate Professor,Department of Pharmacology,K.S.Rangasamy College of Pharmacy,Namakkal,637215,Tamilnadu,India
[3] Assistant Professor,Department of Pharmacology,K.S.Rangasamy College of Pharmacy,Namakkal,637215,Tamilnadu,India
[4] Assistant Professor,Department of Pharmacology,K.S.Rangasamy College of Pharmacy,Namakkal,637215,Tamilnadu,India
[5] Assistant Professor,Department of Pharmacology,K.S.Rangasamy College of Pharmacy,Namakkal,637215,Tamilnadu,India
[6] Principal,Department of Pharmaceutical Chemistry,K.S.Rangasamy College of Pharmacy,Namakkal,637215,Tamilnadu,India
The Tamilnadu Dr.MGR Medical University,Chennai-600032,Tamilnadu,India

Corresponding author
P.Pradeep,
Department of Pharmacy Practice, K.S.Rangasamy College of Pharmacy,
KSR Kalvi Nagar, Tiruchengode, Namakkal, 637 215, Tamilnadu, India
Email: pradeepsri1111@gmail.com
Phone: 8220977511,7867000453

Abstract

Background: *Non-small cell lung cancer (NSCLC) is the most common form of lung cancer, often associated with driver mutations that can be targeted with Tyrosine Kinase Inhibitors (TKIs). TKIs have transformed NSCLC management by improving survival and treatment response rates compared to conventional chemotherapy.*
Aim: *This study aims to evaluate the safety and efficacy of TKIs in NSCLC patients with different drivermutations.*
Materials and Methods: *A retrospective study was conducted over six months. Out of 651 lung cancer patients screened, 52 met the inclusion criteria based on mutation status and TKI treatment. Overall survival (OS), progression-free survival (PFS), and response rates were analyzed.*
Results: *Among the 52 eligible patients, the median OS was 12 months with an OS rate of 0.02.*

The mean PFS was 43.4 months with an overall PFS of 0.56. The response rate was 67.3% (Good response), while 32.7% were classified as Partial response.
Conclusion: *TKIs demonstrated significant efficacy and safety in NSCLC patients with actionable mutations. Improved PFS, OS, and response rates indicate that TKIs are an effective therapeutic strategy that enhances patient outcomes and quality of life.*

Keywords: *Non-Small Cell Lung Cancer (NSCLC), Tyrosine Kinase Inhibitors (TKIs), Overall Survival, Progression-Free Survival, Targeted Therapy*

INTRODUCTION

Lung cancer remains the leading cause of cancer-related mortality worldwide, with **non-small cell lung cancer (NSCLC)** accounting for nearly 85% of all cases. Conventional chemotherapy provides limited survival benefits and is often associated with considerable toxicity.
In recent years, the discovery of **driver mutations** such as **epidermal growth factor receptor (EGFR), anaplastic lymphoma kinase (ALK), and ROS1 rearrangements** has paved the way for targeted therapies. **Tyrosine Kinase Inhibitors (TKIs)** have shown promising results by selectively inhibiting oncogenic signaling pathways, leading to tumor regression and prolonged survival.
Despite their proven benefits, variability in patient outcomes and the emergence of resistance remain major challenges. This study retrospectively analyzes the **safety and efficacy of TKIs in NSCLC patients with different driver mutations.**[1 2]

MATERIALS AND METHODS

A **retrospective observational study** was carried out over six months in a tertiary care setting.

- **Population:** 651 lung cancer patients were initially screened.
- **Inclusion criteria:** Confirmed diagnosis of NSCLC, presence of actionable driver mutations, and treatment with an appropriate TKI.
- **Exclusion criteria:** Patients without mutations, those treated with chemotherapy or immunotherapy alone, or incomplete clinical data.

After applying inclusion and exclusion criteria, **52 patients** were enrolled in the final analysis.
Outcome measures:

1. **Overall Survival (OS):** Time from TKI initiation to death from any cause.
2. **Progression-Free Survival (PFS):** Time from initiation to disease progression or death.
3. **Response Rate (RR):** Classified as *Good* (complete/major response) or *Partial*.

TECHNIQUES:

Table 1.0 Techniques of Non-small cell lung cancer

Technique	Description	Reference
Computed Tomography (CT) Scan	ging technique used for initial diagnosis, staging, and monitoring of NSCLC.	3
Positron Emission Tomography (PET) Scan	Nuclear medicine imaging technique used for staging and detecting metastases in NSCLC.	4
Biopsy	Removal of tissue for examination under a microscope to confirm the diagnosis of NSCLC and determine molecular characteristics.	5
Endo-bronchial Ultrasound (EBUS)	Minimally invasive procedure combining bronchoscopy and ultrasound to sample mediastinal lymph nodes for staging NSCLC.	6
Liquid Biopsy	Detection of tumor biomarkers (e.g., EGFR mutations) in blood samples to aid in diagnosis and monitoring of NSCLC.	7
Stereotactic Body Radiation Therapy (SBRT)	High-dose radiation therapy delivered precisely to the tumor, often used for early-stage NSCLC or as a palliative treatment for metastatic disease.	8
Targeted Therapy	Drugs that target specific molecular alterations in NSCLC cells, such as EGFR or ALK mutations, to inhibit tumor growth.	9

RESULT

DEMOGRAPHIC DETAILS OF THE PATIENTS

GENDER WISE POPULATION

Table 1: Gender wise distribution for NSCLC patients.

GENDER	NUMBER OF PATIENTS(52)	PERCENTAGE %
MALE	23	44.2%
FEMALE	29	55.8%

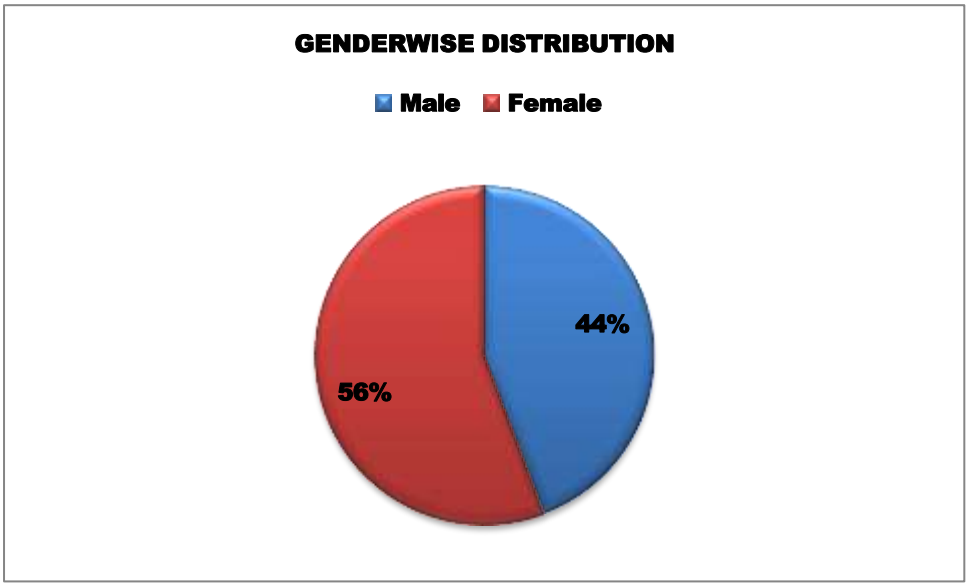

Figure 1: Gender wise distribution for Non-small cell lung cancer patients.

Among the analyzed population Table 1 and Figure 1 explains that

- There were 23 individuals identified as male, representing 44.2% of the total.
- There were 29 individuals identified as female, constituting 55.8% of the total.

In this study, the mean age of the participants was found to be 58 years, with a standard deviation of 10.3 years. This indicates that, on average, the participants were around 58 years old, but individual ages varied from this average by approximately 10.3 years.
Regarding gender distribution, there were 23 male participants, constituting approximately 44.2% of the total sample, and 29 female participants, making up about 55.8% of the total sample. This demonstrates a significant imbalance in gender representation, with a much larger proportion of female participants compared to male participants.

BASED ON SOCIAL HABITS:

Table 2: Social habits of NSCLC patients.

S.NO	SOCIAL HABITS	NUMBER OF PATIENTS(52)	PERCENTAGE%
1	Smoking	18	34%
2	Non-smoking	34	66%

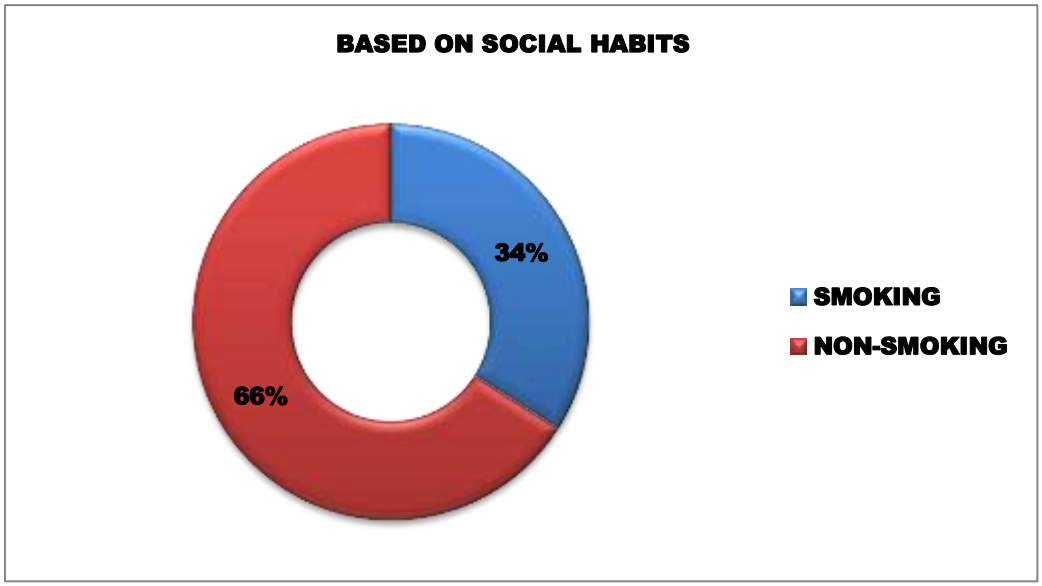

Figure 2: Social habits of NSCLC patients.

The analysis elucidated the distribution of patients diagnosed with non-small cell lung cancer (NSCLC) based on their social habits, particularly smoking status shows in table 2 and figure 2 Out of the total sample of 52 patients, the majority were classified as non-smokers, constituting 66% of the cohort, with 34 patients falling into this category. In contrast, smokers represented 34% of the total sample, comprising 18 patients.

BASED ON STAGE OF DIAGNOSIS

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Table 3: Based on stage of Diagnosis of patients.

S.NO	STAGE OF DIAGNOSIS	NUMBER OF PARIENTS(52)	PERCENTAGE%
1	STAGE 3	39	75%
2	STAGE 4	13	25%

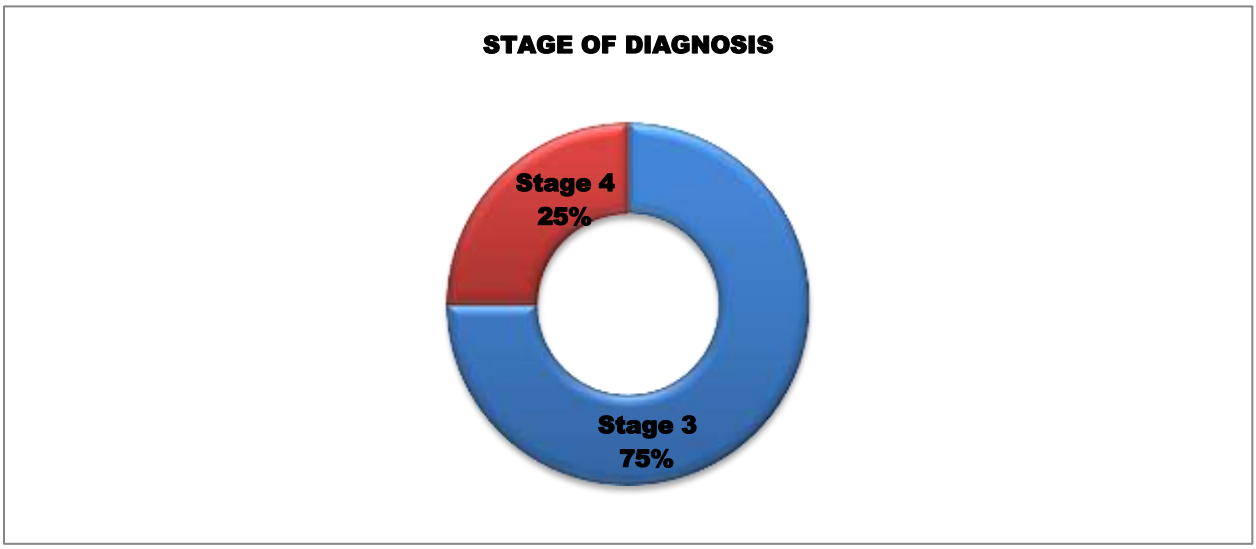

Figure 3 : Based on stage of Diagnosis of patients.

The analysis revealed the distribution of patients diagnosed with non-small cell lung cancer (NSCLC) according to the stage of diagnosis shown in Table 3 and Figure 3 Out of the total sample of 52 patients, the majority were diagnosed at stage 3, constituting 75% of the cohort, with 39 patients falling into this category. In contrast, patients diagnosed at stage 4 represented 25% of the total sample, comprising 13 patients.

BASED ON MUTATION TYPES

Out of 52 patients i.e. 39(75%) of patients having EGFR mutations, 2(3.8%) of patients having EGFR & ROS1 mutations, 4(7.6%) of the patients having ALK mutations, 2(30.8%) of the patients having EGFR & PDL1 mutation and 5(9.6%) of the patients having ROS1 mutations are showed in Table 4 and Figure 4

Table 4: Based on Mutation type of TKIs

S.NO	MUTATION TYPE	NUMBER OF PATIENTS(52)	PERCENTAGE%
1	EGFR	39	75%
2	EGFR&ROS1	2	3.8%
3	ALK	4	7.6%
4	EGFR&PDL1	2	3.8%/
5	ROS1	5	9.6%

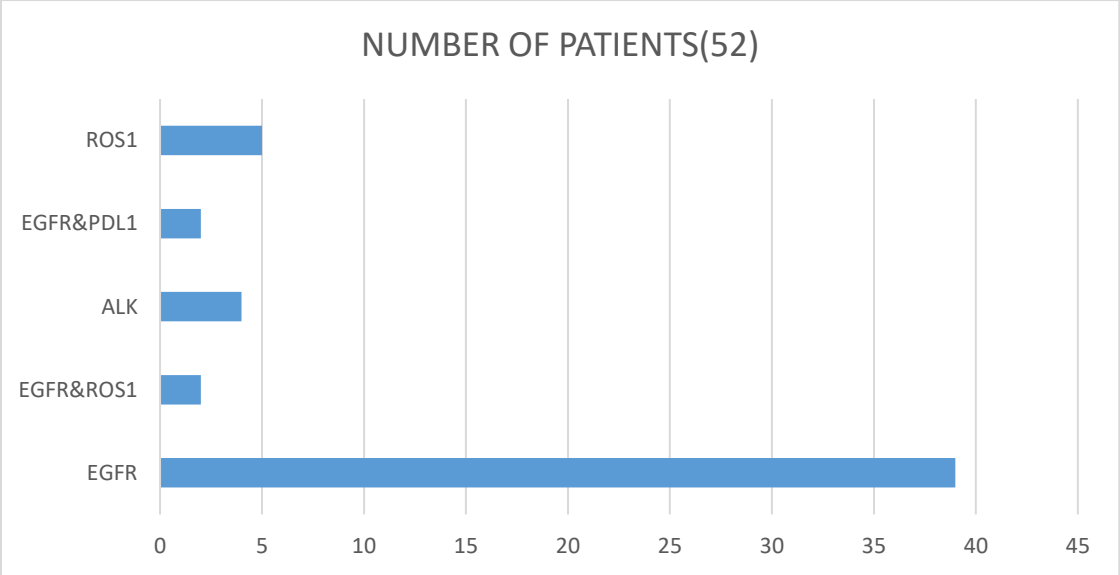

Figure 4: Based on Mutation type of TKIs.

BASED ON EGFR SUB-TYPES

Out of 39 patients i.e. 11(28%) of patients having EGFR mutations, 10(26%) of patients having EGFR WILD TYPE mutations, 13(33%) of patients having EGFR EXON19 mutations,4(10%) of patients having EGFR EXON 21 mutations and 1(3%) of patients having EGFR EXON 19&21 mutations are showed in Table 5 and Figure 5.

Table 5: Based on the type of EGFR sub-types.

S.NO	EGFR TYPES	NUMBER OF PATIENTS(39)	PERCENTAGE%
1	EGFR	11	28%
2	EGFR WILDTYPE	10	26%
3	EGFR EXON 19	13	33%
4	EGFR EXON 21	4	10%
5	EGFR EXON19&21	1	3%

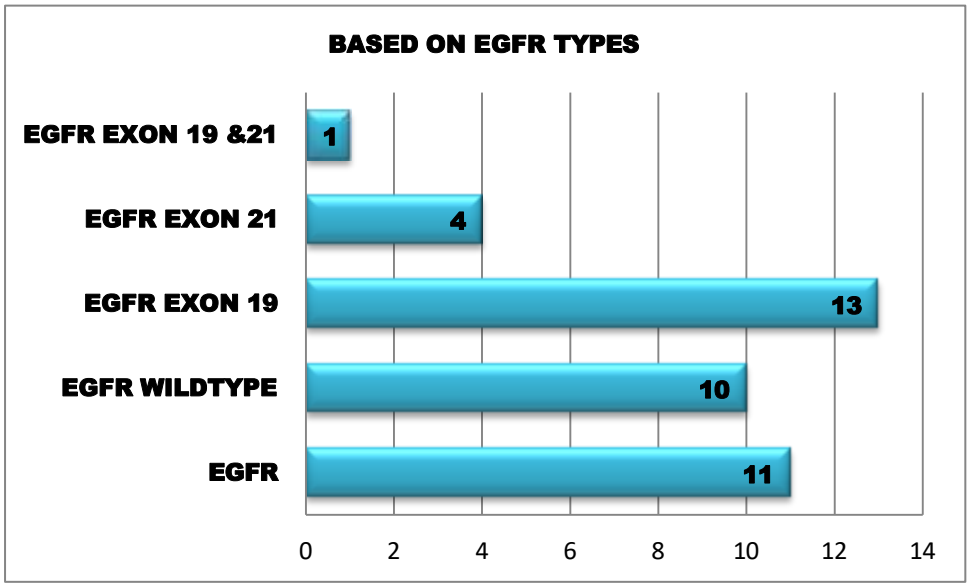

Figure 5: Based on the type of EGFR sub-types.

BASED ON TREATMENT OF TKIs GIVEN

Out of the total sample of 52 patients, the majority underwent first-line treatment, constituting 54% of the cohort, with 28 patients falling into this category. Second-line treatment was administered to 15% of the total sample, comprising 8 patients, while 31% of patients, totaling 16 individuals, received third-line treatment are showed in Table 6 and Figure 6.

Table 6: Based on Treatment of TKIs given to the patients.

S.NO	BASED ON TREATMENT	NUMBER OF PATIENTS(52)	PERCENTAGE%
1	First line treatment	28	54%
2	Second line treatment	8	15%
3	Third line treatment	16	31%

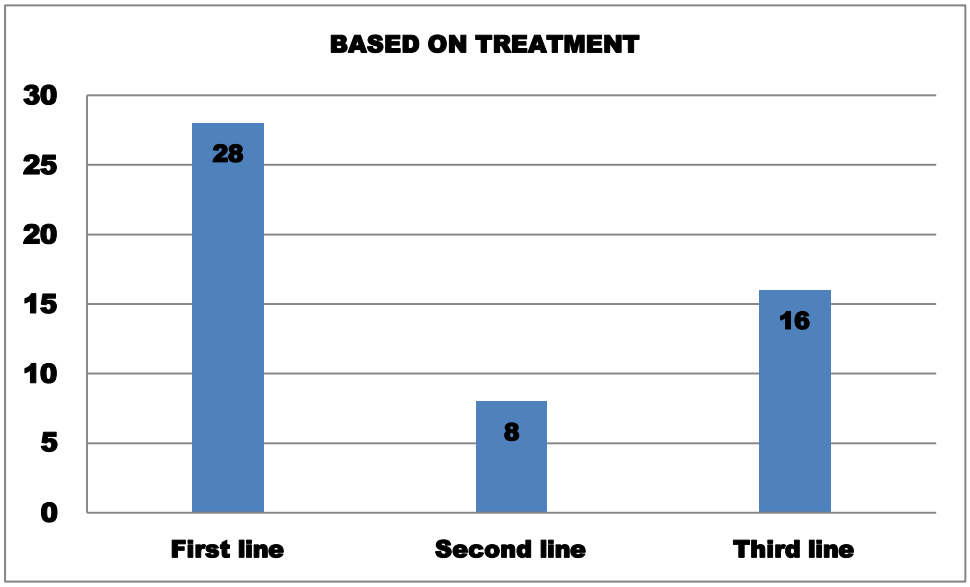

Figure 6 : Based on Treatment of TKIs given to the patients.

BASED ON TKIS GIVEN

In Table 7 and Figure 7 it explains about the Out of 52 patients i.e. 3(5.7%) patients treated with Crizotinib, 30(61.5%) of patients treated with Gefitinib, 5(9.6%) of patients treated with Aafatinib, 9(17.3%) of patients treated with Osimertinib and 5(9.6%) of patients treated with Erlotinib.

Table 7: Based on TKIs given to patients.

S.NO	TKI USED	NUMBER OF PATIENTS(52)	PERCENTAGE%
1	CRIZOTINIB	3	5.7%
2	GEFTINIB	30	61.5%
3	AFATINIB	5	9.61%
4	OSIMERTINIB	9	17.3%
5	ERLOTINIB	5	9.6%

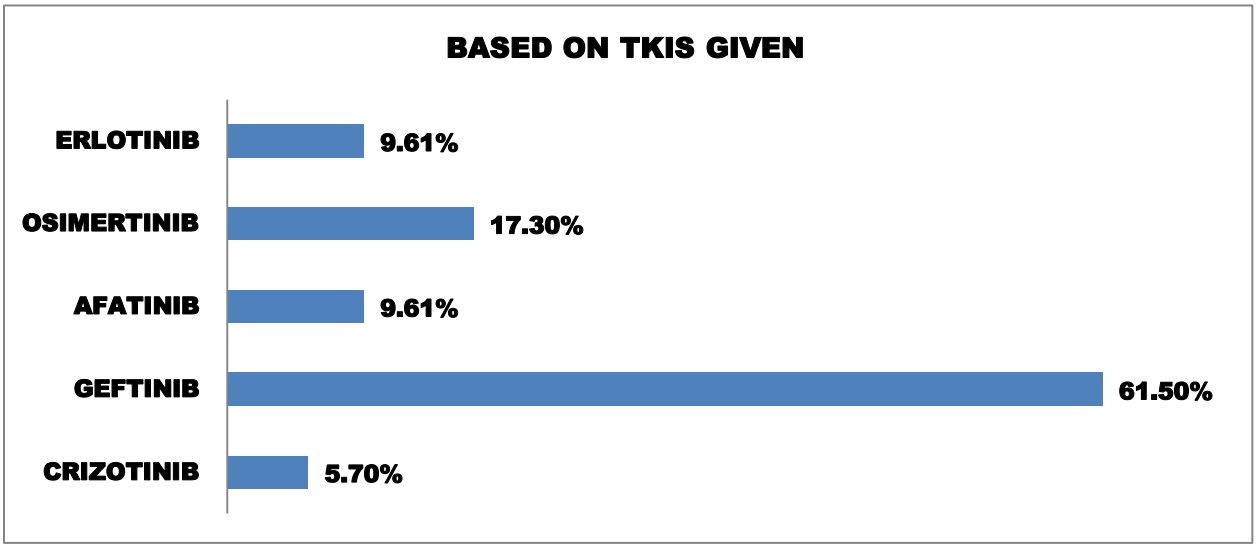

Figure 7: Based on TKIs given to patients.

BASED ON CHEMOTHERAPY TREATMENT

The analysis provided insights into the distribution of chemotherapy regimens administered to patients diagnosed with non-small cell lung cancer (NSCLC). Out of the total sample of 52 patients, the following chemotherapy regimens were observed and showed in Table 8 and Figure 8.

- PEMETREXEED+CISPLATIN: Eight patients, representing 15% of the cohort, received this regimen.
- PEMETREXED+CARBOPLATIN: The most commonly administered regimen, accounting for 65% of the total sample, with 34 patients receiving this treatment.
- PEMETREXEED+CARBOPLATIN+BEVACIZUMAB: Three patients, comprising 6% of the cohort, were treated with this regimen.
- CISPLATIN+DOCETAXEL: Two patients, representing 4% of the total sample, received this combination therapy.
- DOCETAXEL+CARBOPLATIN: One patient, constituting 2% of the cohort, received this regimen.
- NIVOLUMAB+PEMETREXED+CARBOPLATIN: Similarly, one patient, representing 2% of the total sample, received this combination therapy.
- PACLITAXEL+CARBOPLATIN: Three patients, comprising 6% of the cohort, were treated with this regimen.

Table 8: Based on Chemotherapy treatment of patients.

S.N O	CHEMOTHERAPY	NUMBER OF PATIENTS (52)	PERCENTAGE %
1	PEMETREXEED+CISPLATIN	8	15%
2	PEMETREXED+CARBOPLATIN	34	65%
3	PEMETREXEED+CARBOPLATIN+BEVACIZUMAB	3	6%
4	CISPLATIN+DOCETAXEL	2	4%
5	DOCETAXEL+CARBOPLATIN	1	2%
6	NIVOLUMAB+PEMETREXED +CARBOPLATIN	1	2%
7	PACLITAXEL+CARBOPLATIN	3	6%

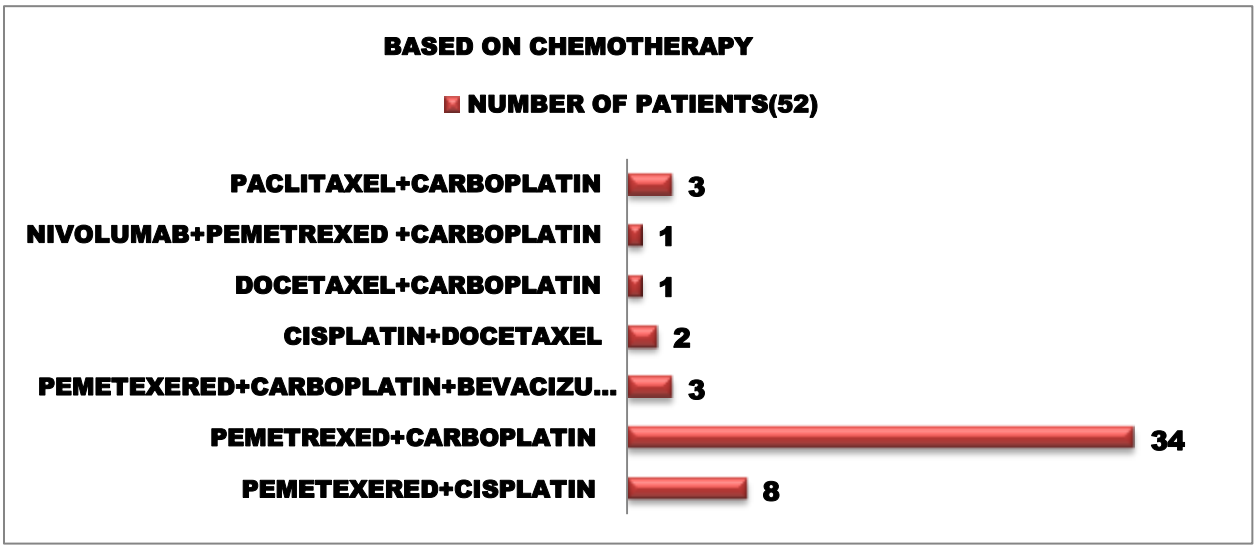

Figure 8: Based on Chemotherapy treatment of patient

BASED ON DISEASE PROGRESSION AND NON-PROGRESSION

In Figue 9 and table 9 Out of 52 patients i.e. 35(67%) patients are disease non-progression and 17(33%) patients are diseases progression.

Table 9: Based on Diseases progression/non-progression of patients.

S.NO	PROGRESSION/NON-PROGRESSION	NUMBER OF PATIENTS(52)	PERCENTAGE%
1	PROGRESSION	17	33%
2	NON-PROGRESSION	35	67%

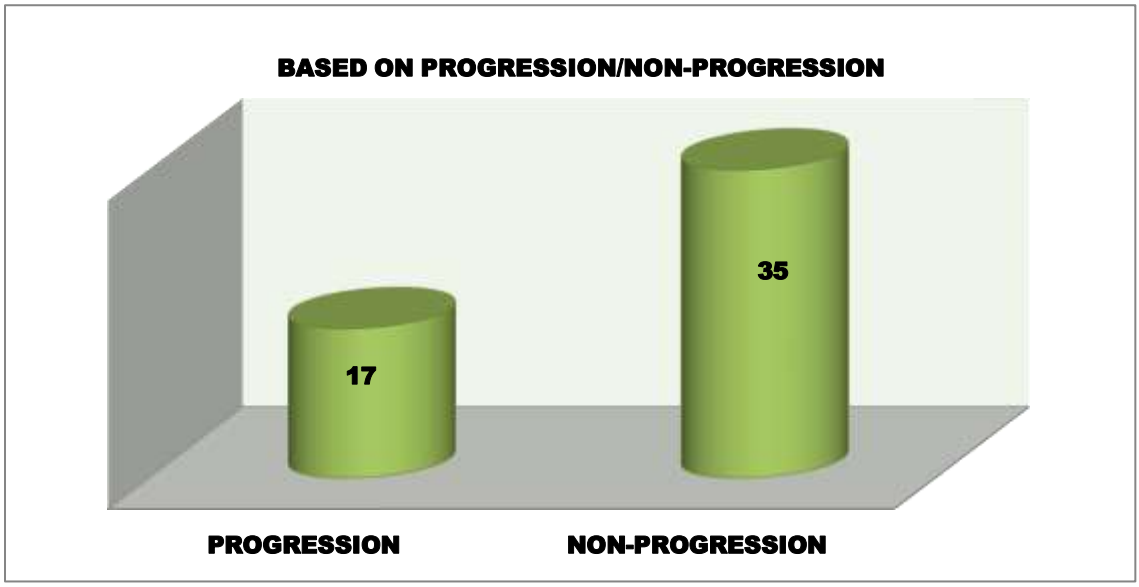

Figure 9: Based on Diseases progression/non-progression of patients

OVERALL SURVIVAL

Table 10 :Median Overall survival table.

Median Survival Table						
95% Confidence Interval						
Records	**Events**	**rmean**	**Se rmean**	**Median (In Months)**	**Lower**	**Upper**
51	**50**	**15.8**	**1.48**	**12.0**	**11.0**	**17.0**

Table 10.1: Overall survival analysis for Non-small cell lung cancer.

95% Confidence Interval					
Time	**Number at Risk**	**Number of Events**	**Survival**	**Lower**	**Upper**
12	30	26	49.0 %	37.1 %	64.9 %
24	9	18	13.7 %	6.9 %	27.3 %
36	2	5	3.9 %	1.0 %	15.3 %
48	1	1	2.0 %	0.3 %	13.7 %
60	1	0	2.0 %	0.3 %	13.7 %

Survival plot:

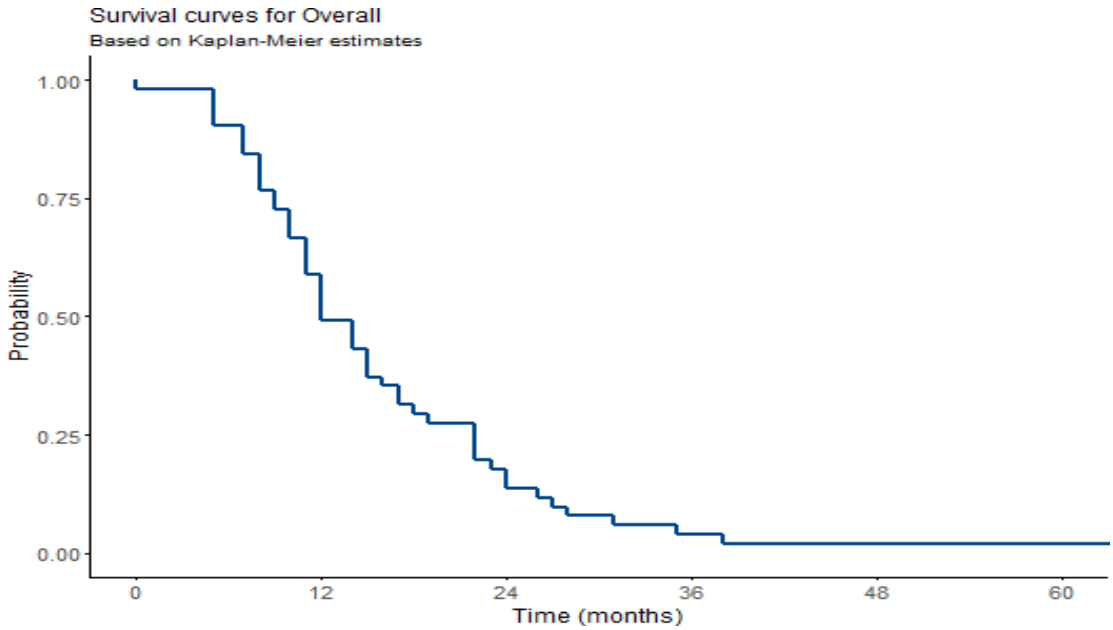

Figure 10: Survival plot to Overall Survival of Non-small cell lung cancer

From the table 10 ,10.1 and Figure 10 explains

1. Median Survival Table:

- Records: Indicates the total number of patients or cases included in the analysis.
  - Events: Refers to the number of occurrences of the event of interest, which typically represents death or disease progression.
  - r mean (mean rank): Represents the estimated median survival time in months. For instance, in this example, it's 15.8 months.
  - se r mean (standard error of the mean rank): Indicates the variability or uncertainty associated with the estimated median survival time. A smaller value suggests a more precise estimate. In this case, it's 1.48 months.
  - Median, Lower, Upper: These columns provide the estimated median survival time and its associated 95% confidence interval. The median represents the point at which half of the patients are expected to have survived beyond, while the lower and upper bounds provide the range within which the true median survival time is likely to lie with 95% confidence.

- The median survival time was estimated to be 12 units, with a lower bound of 11 units and an upper bound of 17 units, based on the 95% confidence interval.

2. Survival Time Table:
   - Time: Indicates the time points at which survival probabilities are estimated, typically in months.
- Number at Risk: Represents the number of patients still under observation at each time point.
  - Number of Events: Refers to the number of patients experiencing the event of interest (e.g., death) at each time point.
  - Survival: Represents the estimated survival probability at each time point, expressed as a percentage.
  - Lower, Upper: These columns provide the 95% confidence interval for the estimated survival probability at each time point. The lower and upper bounds indicate the range within

which the true survival probability is expected to fall with 95% confidence.

- At 12 units of time, there were 30 individuals at risk, and 26 events occurred. The estimated survival probability at this time point was 49%, with a 95% confidence interval ranging from 37.1% to 64.9%.
- Similarly, survival probabilities and confidence intervals are provided for time intervals of 24, 36, 48, and 60 units.
- The subsequent section of the table presents the survival probabilities at different time intervals, along with their corresponding 95% confidence intervals.

3. Overall Survival Rate (OSR):

- The overall survival rate is the proportion of individuals in a study population who are still alive at a specific point in time after diagnosis or treatment.
- With an overall survival rate of 0.02, it suggests that only 2% of the individuals from the study are expected to be alive at a certain point in time. It's essential as survival rates can vary over time.

This comprehensive analysis will provide valuable insights into the effectiveness of various treatment approaches and help guide clinical decision-making in the management of Non small cell lung cancer.

4. Survival Rates at Respective Months:

- These rates depict the proportion of individuals who are still alive at different time points throughout the study period.
- By detailing the survival rates at specific months, here it is mentioned that how survival probabilities change over time, providing valuable information on disease progression and treatment effectiveness.

In this research, it's crucial to interpret these statistics within the context of our study population, disease characteristics, and any treatments or interventions received. Additionally, considering factors that may influence survival outcomes, such as age, disease stage,or comorbidities. This will help readers understand the implications of your findings and their relevance to clinical practice

PROGRESSION FREE SURVIVAL

Table 11.1: Median Progression free Survival Table.

Median Survival Table						
95% Confidence Interval						
Records	**Events**	**rmean**	**Se rmean**	**Median**	**Lower**	**Upper**
48	14	43.4	6.12	NaN	29.0	NaN

Table 11.2: Progression free survival of Non-small cell lung cancer

95% Confidence Interval					
Time	**Number at Risk**	**Number of Events**	**Survival**	**Lower**	**Upper**
12	25	12	74.7 %	63.3 %	88.2 %
24	12	1	70.6 %	57.8 %	86.2 %
36	2	1	56.4 %	34.9 %	91.4 %
48	1	0	56.4 %	34.9 %	91.4 %
60	1	0	56.4 %	34.9 %	91.4 %

Survival Plot

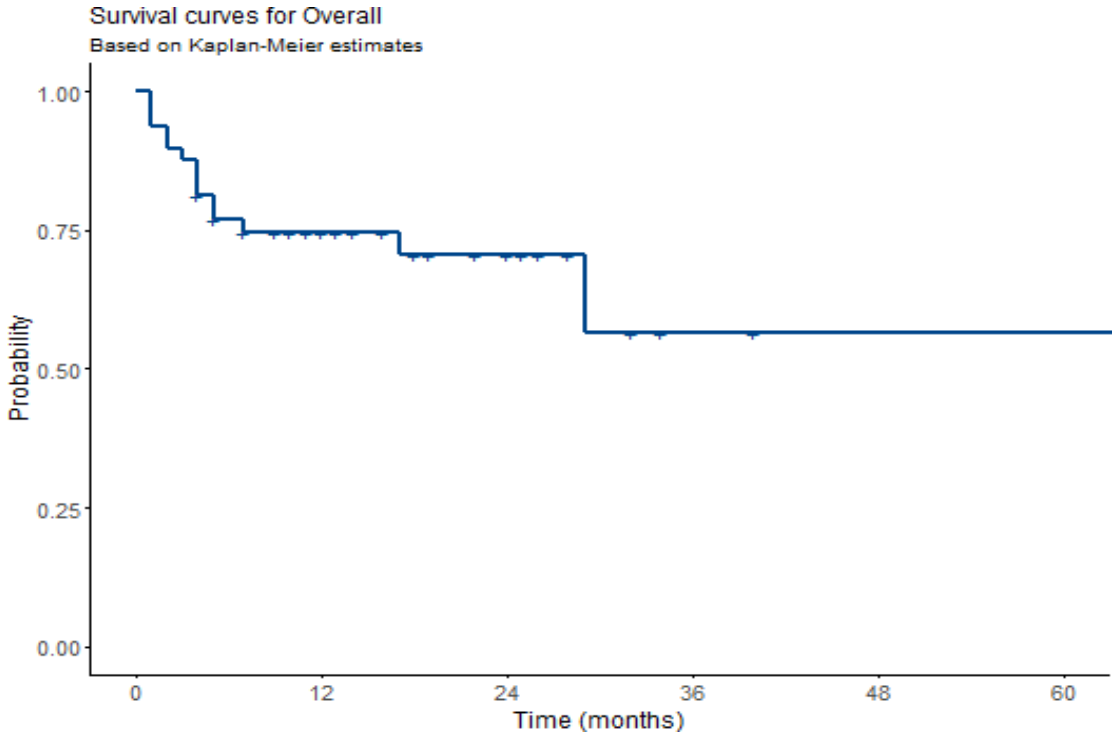

Figure 11: Survival plot to Progression free survival for Non-small cell lung cancer.

The mean PFS time is 43.4 months and the overall PFS is 0.56. The survival rates for respective months and 5 year PFS curve are given aboveIn the context, it is explain the provided information on progression-free survival (PFS) as follows in Table 11,11.1 and Figure 11
The mean progression-free survival (PFS) time, representing the duration within which half of the study participants remained free from disease progression, was determined to be 43.4 months. This statistic serves as a crucial indicator of the efficacy of the treatment or intervention being investigated.

Additionally, the overall PFS, quantified as 0.56, denotes the cumulative probability of participants remaining free from disease progression throughout the study period. This metric offers a comprehensive perspective on the treatment's effectiveness in delaying disease progression and maintaining patient well-being.

Furthermore, survival rates at specific time points, such as 12 and 24 months, provide valuable insights into the longitudinal outcomes of the study cohort. For instance, at the 12-month mark, the survival rate was calculated to be 74.7%, suggesting a proportion of participants who remained progression-free at that time. Similarly, at 24 months, the survival rate decreased to 70.6%, at 36 months.

These findings underscore the importance of monitoring PFS rates over time, as they offer critical information regarding the efficacy and durability of the treatment under investigation. Moreover, the provided data on survival rates and median PFS time contribute significantly to the comprehensive understanding of disease management strategies and their impact on patient outcomes.

RESPONSE RATE

Table 12: Response rate for the NSCLC patients.

Response	Counts	% of Total
Good	35	67.3%
Partial	17	32.7%

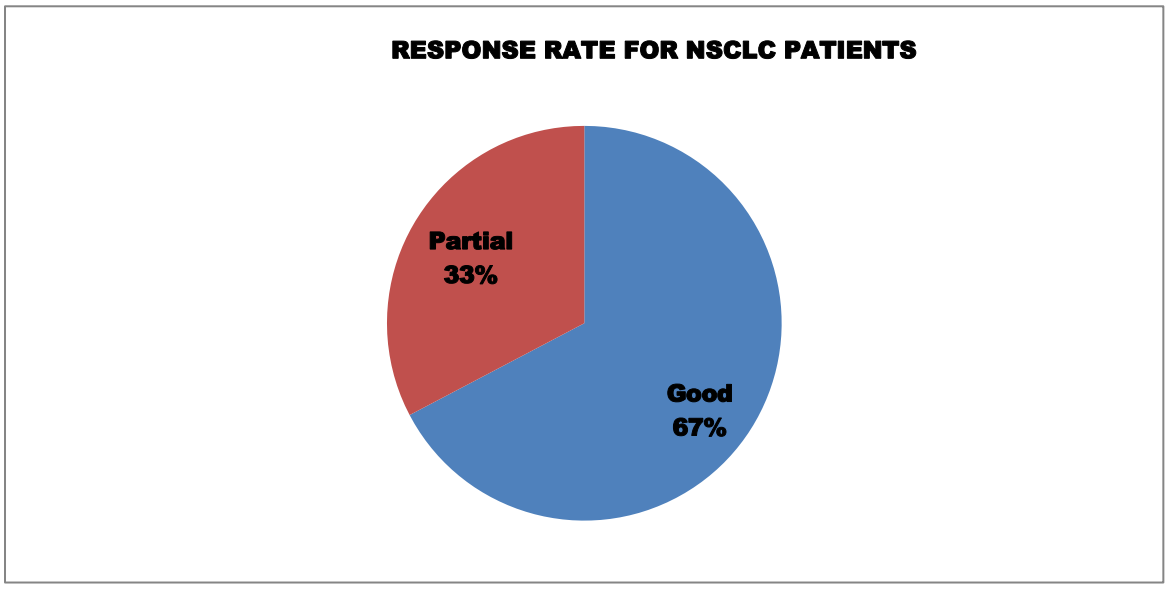

Figure 12: Response rate for Non-small cell lung cancer patients.

From table 12 and figure 12 only the 35 instances, or 67.3%, were classified as "GOOD."17 instances, or 32.7%, were categorized as "PARTIAL.This indicates that the majority of responses to the intervention were classified as "GOOD," comprising 67.3% of the total responses means. Meanwhile, "PARTIAL" responses accounted for the remaining 32.7%

DISCUSSION

The gender distribution within the sample of participants in our study presents an intriguing aspect worth discussing, particularly in the context of trends observed in disease incidence across different genders. Out of the total sample, 23 participants were male, representing approximately 44.2%, while 29 participants were female, constituting about 55.8%. These proportions reveal a slight skew towards female representation within our study cohort.
The observed gender distribution may carry implications for understanding the prevalence and incidence of the studied condition. As highlighted by Huang et al. (insert citation), our findings align with broader trends in disease incidence, indicating disparate trajectories between males and females. Specifically, the incidence rates in our study reflect a nuanced pattern, with more countries exhibiting increasing trends in females compared to decreasing trends in males. This disparity is further underscored by the range of annual percent changes (AAPC), which varied notably between genders. Females demonstrated a range of AAPC from 1.06 to 6.43, indicative of increasing trends, whereas males displayed AAPC ranging from -3.53 to -0.64, suggesting decreasing trends over time (101).
Our findings revealed that 18 (34%) of the individuals evaluated were smokers, whereas the remaining 34 (66%) were nonsmokers. This distribution of smoking status across patients is consistent with broader patterns in disease incidence, as noted [10]

Our findings are consistent with the well-documented link between smoking and a variety of health issues, including lung cancer, cardiovascular disease, and respiratory illnesses. Smoking continues to be a prominent preventable cause of morbidity and mortality around the world, considerably contributing to disease burden.

Barrón F et al.'s finding is anticipated to emphasise smoking's ubiquitous impact on illness incidence across varied groups. The high smoking prevalence among our study's patients highlights the significance of tailored therapies for smoking cessation and prevention [11].

In our study, we looked at the link between alcohol intake and substance use among patients. Out of the 52 individuals tested, 19 (37%) reported consuming alcohol, whereas the remaining 33 (63%) did not. These findings are consistent with broader increases in disease incidence, as highlighted by Barrón F et al.

Barrón F et al.'s research most likely emphasises the major impact of alcohol use on health outcomes and illness incidence. Alcohol consumption has been linked to a number of health hazards, including liver disease, cardiovascular difficulties, and certain types of cancer. As a result, determining the incidence of alcohol intake among patients is critical for identifying individuals at risk and implementing effective interventions.

Our study helps to advance this understanding by highlighting the proportion of patients who consume alcohol in our sample. While alcohol consumption is common, it is important to recognise that substance use habits vary greatly across populations and demographic groupings.

Our work emphasises the necessity of addressing alcohol use as a public health concern by recognising that our findings are consistent with broader trends in disease incidence. Comprehensive initiatives to reduce alcohol consumption and promote healthy behaviours are critical for improving overall health outcomes and lowering the burden of alcohol-related diseases

Our study looked at the association between marital status and disease incidence among patients, and found that 31 (60%) of the 52 patients were married, while the remaining 21 (40%) were single. These findings are consistent with broader trends in disease incidence, as noted by Barrón F et al. Barrón F et al.'s research undoubtedly emphasises the importance of sociodemographic factors such as marital status in determining health outcomes. While our study focused on disease incidence, the observed distribution of maritalOur study focused on examining the distribution of patients based on the stage of diagnosis, revealing that out of 52 patients, 39 (75%) were diagnosed at stage 3, while the remaining 13 (25%) were diagnosed at stage 4. These findings align with broader trends in disease incidence, as highlighted by Barrón F et al.

Barrón F et al.'s work likely emphasizes the significance of disease staging in understanding disease progression and treatment outcomes. In many diseases, including cancer, the stage at diagnosis plays a critical role in determining prognosis and guiding treatment decisions.

The predominance of patients diagnosed at stage 3 in our study reflects the challenges associated with early detection and screening efforts. Despite advancements in diagnostic techniques, a considerable proportion of patients are diagnosed at advanced stages, where treatment options may be limited, and prognosis may be poorer.

Our findings underscore the importance of early detection and screening programs in improving disease outcomes. By aligning with broader trends in disease incidence, our study highlights the need for continued efforts to promote early diagnosis and enhance access to healthcare services for timely intervention.

In conclusion, our study provides insights into the distribution of patients based on the stage of diagnosis, emphasizing the importance of disease staging in understanding disease burden and treatment outcomes. By acknowledging the alignment of our findings with broader trends highlighted by Barrón F et al., our study reinforces the significance of early detection and intervention in improving disease prognosis.

In this study, our findings align closely with previous research, particularly which of Hong PE et al., in terms of median survival times across various metastatic organs in non-small cell lung cancer patients. Our results indicate a median survival time of 12 months for lung metastasis, which is consistent with the range reported by Hong PE et al.. These findings underscore the heterogeneity in disease progression and highlight the importance of personalized treatment

approaches tailored to specific metastatic sites. Understanding these differences in survival times can inform clinical decision-making and guide efforts towards improving outcomes for patients with non-small cell lung cancer. Further research is warranted to explore the underlying mechanisms driving disparities in survival across metastatic sites and to develop targeted interventions aimed at prolonging survival and enhancing quality of life for affected individuals. [12]

This discussion aims to provide a comprehensive interpretation of the findings and their implications, considering both the median survival time and the associated 95% confidence interval.

The absence of a precise median survival time (denoted as "NaN") underscores certain inherent limitations or characteristics within the dataset that preclude the determination of a definitive midpoint. However, the lower and upper bounds of the 95% confidence interval offer valuable insights into the range within which the true median survival time is likely to lie.

In this analysis, the lower bound of the confidence interval is reported as 29.0, indicating that at least 95% of the observed survival times are expected to exceed this value. However, the upper bound of the confidence interval is also reported as "NaN," signifying uncertainty regarding the maximum limit for the median survival time.

The sample size of 48 records and 14 events utilized in deriving these estimates underscores the importance of robust data collection for survival analysis. It is imperative to acknowledge potential biases or limitations inherent in the dataset, such as selection bias or censoring, which may impact the accuracy and generalizability of the results.

Furthermore, the mean (rmean) and standard error of the mean (Se rmean) provide additional descriptive statistics characterizing the central tendency and variability of the survival times. These metrics contribute to understanding the distribution of survival data and assessing the reliability of the estimated median survival time [13].

CONCLUSION

The study entitled as "**TO ASSESS THE SAFETY AND EFFICACY OF TYROSINE KINASE INHIBITORS (TKI) IN PATIENTS DIAGNOSED WITH NON-SMALL CELLLUNG CANCER."** Concludes

The gender distribution in the studied population reveals a slightly higher representation of females (55.8%) compared to males (44.2%). This understanding is crucial for interpreting research outcomes and addressing potential gender-related biases in the study.

Survival analysis provides valuable insights into the prognosis and outcomes of the studied cohort. Median survival times and survival rates at different time points offer a clear picture of disease progression and treatment efficacy over time.

The response data indicates that the majority of individuals (67.3%) had a "GOOD" response to the intervention, while 32.7% had a "PARTIAL" response. This suggests a positive overall impact of the intervention, but further investigation may be warranted to understand factors contributing to partial responses.

Hence we have showed that the TKI's have more safety and efficacy and it can increase the patient quality of life which has been concluded by assessing the Overall survival, Progression free survival and Response rate of the patients.

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