

## Original Research Article

# Clinical response to chemotherapy in non-small cell lung carcinoma patients

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## ABSTRACT

**Background:** Lung carcinoma is the most common. With this, a study was conducted to assess the clinical profile of Non-small cell lung carcinoma (NSCLC) and also to evaluate the response to chemotherapy in various stages of NSCLC.

**Methods:** It was a prospective study. All the clinically confirmed cases with NSCLC were taken into consideration. Clinical staging was done, diagnosis was confirmed by histopathological findings. Treatment was given depending on the stage of carcinoma. Patients were evaluated before each cycle of chemotherapy for any progression of disease. Pathological response was evaluated after completion of 6 cycles of chemotherapy. Chi square test was used to find the statistical significance;  $p < 0.05$  was considered statistically significant.

**Results:** Total 153 patients admitted to oncology wing were taken to the study, with mean age  $59.07 \pm 10.618$  years, 2.6 male female ratio. In this 73% were in stage III and the remaining in stage IV NSCLC. Majority (56.10%) of the study subjects in stage III NSCLC showed partial response, Majority (68%) of the subjects in stage IV NSCLC showed partial response; the difference was Statistically significant ( $p < 0.05$ ).

**Conclusions:** NSCLS is common in older people with male dominance due to habits.

**Keywords:** Cancer, Lung, Patient, Response

## INTRODUCTION

Lung cancer was a rare entity in early 1990s but since became far more prevalent. In India, lung carcinoma constitutes 6.9% of all new cases and 9.3% of all cancer related deaths in both men and women. Highest reported incidences of cancer related mortalities are seen in Mizoram in both gender and age adjusted rate 28.3 and 28.7 per 100,000 population in males and females respectively.<sup>1,2</sup>

Over the years, the process of understanding of disease biology has evolved. Histological classification is now stretching to molecular classification. Newer molecular

targets and driver mutations have been identified which play a major role in pathogenesis.<sup>3,4</sup> In view of newer histology guided therapeutic modalities and genomic classification, there has been a new interest in the histological characterization of lung cancer.<sup>5,6</sup>

In most of the Asian countries Adenocarcinoma has surpassed squamous cell carcinoma.<sup>7,8</sup> This may be due to the smoking habits, especially filtered cigarettes. There is also increasing incidence of lung carcinoma in females and in non-smokers.<sup>9,10</sup> At present, 50% of adenocarcinoma's and 1/3<sup>rd</sup> of squamous cell carcinoma's can be categorized based on mutation profile.<sup>11</sup>

With this, a study was conducted to assess the clinical profile of Non-small cell lung carcinoma (NSCLC) and also to evaluate the response to chemotherapy in various stages of NSCLC.

**METHODS**

It was a prospective study, conducted in GSL Medical College from November 2015 to April 2017. All the clinically confirmed cases with NSCLC were taken into consideration. A pretested and predesigned schedule of questionnaire was used to collect the data from the subjects.

Informed and written consent was obtained from all the study subjects. A pretested and predesigned schedule of questionnaire was used to collect the data from the subjects. All the patients admitted with NSCLC underwent detailed assessment, clinical staging (TNM staging) was done and diagnosis was confirmed by histopathological findings. Based on the stage of carcinoma, treatment was initiated. All the patients were evaluated before each cycle of chemotherapy for any progression of disease. Pathological response was evaluated after completion of 6 cycles of chemotherapy.

Data was entered in Microsoft excel and analysis was done using SPSS version 21. Descriptive statistical analysis was done. Results on continuous measurements are presented as Mean and Standard deviation. Categorical variables were presented as Number and Percentages. Chi square test was used to find the statistical significance of study parameters on a categorical scale between two groups, p<0.05 was considered statistically significant.

**RESULTS**

Total 153 patients admitted to oncology wing were taken to the study. Majority of the study subjects belongs to age group of 56-70 years 81 (52.9%) followed by 41-55 years 47 (30.7%), 71-85 years 17 (11.1%) and 25-40 years 8 (5.2%). The overall mean age of the study subjects was 59.07±10.618 (Table 1).

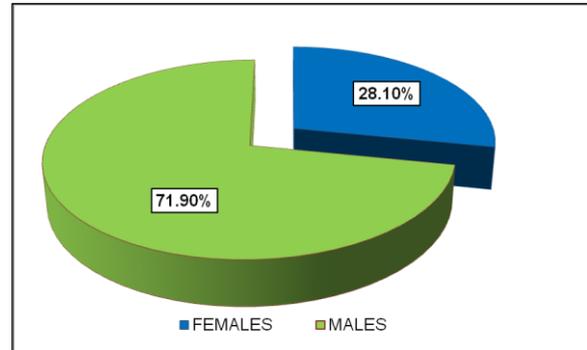
**Table 1: Age wise distribution of the participants.**

| Age in years | N (%)     |
|--------------|-----------|
| 25-40        | 8 (5.2)   |
| 41-55        | 47 (30.7) |
| 56-70        | 81 (52.9) |
| 71-85        | 17 (11.1) |
| Total        | 153 (100) |

Majority of the study subjects were males 110 (71.9%). Females constitute 43 (28.1%) of the total study subjects (Figure 1). In this study, majority of the study subjects were belonging to stage IV 112 (73.2%), followed by stage III 41 (26.8%) cancer stage (Table 2).

**Table 2: Staging of NSCLC in the study group.**

| Stage | Frequency; n (%) |
|-------|------------------|
| III   | 41 (26.8)        |
| IV    | 112 (73.2)       |
| Total | 153 (100)        |



**Figure 1: Gender distribution among the study participants.**

Patients in stage 3 were 6 cycles of paclitaxel along with carboplatin. According to the treatment response, in stage 3, majority of the study subjects 23 (56.10%) showed partial response, 9 (22%) subjects had no response, 8 (19.5%) patients showed complete response and 1 (2.4%) subject was expired before completion of chemotherapy.

Patients in stage 4 were 6 cycles of cisplatin along with etoposide. According to the treatment response, in stage 4, majority of the study subjects 76 (67.90%) showed partial response, 18 (16.1%) showed complete response, 11 (9.8 %) had no response and 7 (6.3 %) subjects expired before completion of chemotherapy; the difference was statistically significant (p<0.05).

**DISCUSSION**

NSCLC accounts for 85% of all cases of lung carcinoma.<sup>12,13</sup> Regional incidence variations reflect smoking prevalence. Unlike many other malignancies, whose cause is largely unknown but 90% of cases tobacco is the only cause. Smokers have a 10 fold or greater increased risk of developing lung carcinoma compared to nonsmokers. The effect of cigar and pipe use on lung carcinoma is similar to that of light smoking.<sup>14, 15</sup>

In the present study, majority of the subjects belong to the age group of 56 - 70 years (52.9%) followed by 41-55 years (30.7%) (Table 1). Similar findings were reported, Brown JS et al, showed a mean age of 60.02±10.76 years and mean age of 58.06±10.2 years was reported by Miron L et al.<sup>16,17</sup>

When gender was considered Hsu et al, reported 54.6% males with NSCLC and 45.3% females.<sup>18</sup> This difference may be attributed to the differences in personal habits and cultural aspects in the society. Similarly, in this study

also majority (72%) were males, the male female ratio was 2.6 (Figure 1).

Response was evaluated based on RECIST criteria. Out of 153 patients, 41 belong to stage III. These study subjects were given 6 cycles of Paclitaxel along with Carboplatin once in 3 weeks. Response was evaluated after 6 cycles of chemotherapy. Out of 41 subjects, complete response was seen in 8 (19.5%) subjects. Partial response was seen in 23 (56.1%) of subjects, 9 (22.0%) subjects showed no response and 1 (2.4%) expired before completion of 6 cycles of chemotherapy. In the present study 17 patients received radiotherapy. Similar findings were reported by Hirsh V et al., 22% patients with complete response, 56.1% partial response and there was no response in 24.4% of patients.<sup>19</sup>

Majority (112) of the participants in this study were in stage IV, given 6 cycles of Cisplatin and Etoposide. Response was evaluated after 6 cycles of chemotherapy. Out of 112 patients, 18(16.1%) attained complete response. Partial response was seen in 76 (67.9%) of patients and there was no response in 11(9.8%) patients. The rate of mortality was more in stage IV compared to stage III, 7 (6.3%) patients expired before the completion of chemotherapy. The results were compared to Ramalingam et al, study which also showed efficacious results for platinum based combination therapy in stage IV.<sup>20</sup> There were similar results of better response in platinum based combination therapy in stage IV when compared to Akhtari et al, study.<sup>21</sup>

## CONCLUSION

NSCLC is prevalent among males with mean of 59.07±10.618. Response was good among stage IV cases. However, studies on large samples size with histological correlation should be conducted.

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