IMPACT OF EGFR MUTATION ON PROGNOSIS OF STAGE IV NON-SQUAMOUS NON-SMALL CELL LUNG CANCER NSCLC: A RETROSPECTIVE ANALYSIS

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ABSTRACT:

Background: *Patients with activating somatic mutations in the Epidermal Growth Factor Receptor (EGFR) have better prognosis when treated with Tyrosine Kinase Inhibitors (TKI) as the standard treatment of care in advanced stage NSCLC.*

Aim of the work: *To study the impact of EGFR mutation on prognosis of advanced stage non-squamous NSCLC.*

Patients and Methods: *This is a cross-sectional, retrospective-cohort study of stage IV non squamous non-small cell lung cancer (January 2019- june2021). This study was done at both Clinical Oncology and Nuclear Medicine department Ain Shams university Hospital and Nasser Institute Cancer Centre for research and treatment (NICC)*

EGFR mutation status, treatment, progression free survival, overall survival and response rate were evaluated.

Primary end point: progression free survival of stage IV NSCLC with wild type and mutant EGFR.

Secondary end point: overall survival of stage IV NSCLC with EGFR mutation and wild type, response rate to treatment.

Results: *From the 87 patients which performed screening for EGFR mutations, 20 (23%) had mutations, while 64 (73%) had wild type EGFR.*

The median progression free survival of patients with EGFR mutation who received Gefitinib as standard treatment 20 (23%) were better than progression free survival of wild type patients treated with standard chemotherapy63 (94%) (11.0 vs 6.0 months, respectively; P = 0.016). Overall survival also improved in the population with EGFR mutation treated with Gefitinib as standard treatment than those with wild type treated with standard chemotherapy (24.0 months vs 11.0 months respectively; P = 0.014).

Conclusion: *These data contribute for a better prognosis of stage IV lung cancer population harboring EGFR mutation, confirming a better progression free survival, overall survival and response rate for those patients with EGFR TKI as standard treatment.*

Keywords: *EGFR epidermal growth factor receptor, TKIs tyrosine kinase inhibitors.*

INTRODUCTION:

Lung cancer is the leading cause of cancer-related mortality for both men and women worldwide with 2.1 million new cases and 1.8 million deaths estimated in 2018. Nearly 85% of lung cancer cases are non-small cell lung cancer (NSCLC). Lung cancer is typically discovered at an advanced stage in the majority of patients as a result of

inadequate screening methods and sneaky symptoms. Chemotherapy is still the primary method of treating NSCLC in clinical settings[1].

In Egypt, the lung cancer incidence is about 4.9% of all cancers in both sexes, representing about 12.8% of male cancers and 3.8% of female cancers[2].

According to latest WHO data published in 2018 lung cancer deaths in Egypt reached 5,049 or 0.91% of total deaths.

Adenocarcinoma accounts for 40% of Non-small cell lung cancer (NSCLC), It is the most prevalent subtype. Squamous cell carcinoma (25%) and large cell carcinoma (10%) are next in frequency[3].

Exon 19 deletions (Ex19del) and the exon 21 L858R point mutation are the two most frequent EGFR mutations. In Asian and non-Asian populations, respectively, epidermal growth factor receptor (EGFR) mutations are found in 40% and 20% of NSCLC patients, respectively [4].

First- and second-generation EGFR-TKIs have been recognized as standard-of-care for patients with EGFR mutated advanced NSCLC following phase III trials comparing them to platinum-based doublet chemotherapy. These studies involved the use of first-generation (gefitinib, erlotinib) and second-generation (afatinib, dacomitinib) EGFR-TKIs[5]. Also, osimertinib, a third-generation EGFR-TKI that potently and selectively inhibits both EGFR-TKI sensitizing and EGFR T790 M resistance mutations, has recently demonstrated improvement in progression free survival [6&7].

After a median time of 10 to 14 months, the majority of patients treated with first- and second-generation EGFR TKIs inevitably develop acquired resistance through a variety of mechanisms. Approximately 50% of all EGFR TKI resistance in NSCLC patients results from the EGFR T790M mutation in exon 20, which accounts for more than half of all resistance cases[5].

To solve the aforementioned challenges, numerous third-generation mutation-selective EGFR TKIs have been created, including rociletinib, osimertinib, and almonertinib. Osimertinib is presently the standard of care for EGFR-mutant NSCLC patients who have acquired resistance to first- or second-generation EGFR-TKIs because of the T790M mutation, according to the AURA trials[8].

AIM OF WORK:

To study the impact of EGFR mutation on prognosis of advanced stage non-squamous NSCLC. To determine percentage of EGFR mutation among patients with non-squamous NSCLC and to determine outcome including progression free survival and overall survival and response rate of this group of patients who received gefitinib as the standard treatment in this group of patients and comparing them with patients with Wild EGFR who received standard chemotherapy.

Primary objective: Progression free survival of stage IV NSCLC with wild type and mutant EGFR.

Secondary objectives: Overall survival of stage IV NSCLC with EGFR mutation and wild type, response rate to treatment.

PATIENTS AND METHODS:

This is a cross-sectional, retrospective-cohort study of stage IV non squamous non-small cell lung cancer (January 2019-june2021). This study was done at both Clinical Oncology and Nuclear Medicine department Ain Shams university Hospital and Nasser Institute Cancer Centre for research and treatment (NICC).

Study population:

Inclusion criteria: Patients were eligible if they had stage IV non squamous NSCLC patients, age <70 years old, performance status 1-3 and EGFR status examined.

Exclusion Criteria: Patients were not eligible if they had early stage, squamous cell carcinoma histology, age more than 70 or poor performance status.

Ethical Committee Approval:

The study was conducted after taking the approval of research ethics committee (EC) of Faculty of medicine, Ain Shams University. This study is retrospective research is conducted on already available data.

Clinical Evaluation: Data was collected from medical records and included: Clinical evaluation including physical examination, blood tests (CBC, KFT and LFT) and computed tomography (CT) chest, abdomen and pelvis, bone scan.

Treatment: In this study EGFR mutated patients received Gefitinib either first or second line while non mutated patient received chemotherapy mostly gemcitabine /carboplatin or paclitaxel \carboplatin as first line.

Statistical analysis:

Sample Size Justification

Sample size using Epi Info 7 program for sample size calculation, setting confidence level at 95% and margin of error at 10% and according to [9], the expected prevalence of EGFR mutation among NSCLC patients =32.3%, sample size of 84 patients was needed to detect this prevalence.

Data Management and Analysis:

The collected data was revised, coded, tabulated and introduced to a PC using Statistical package for Social Science (SPSS 15.0.1 for windows; SPSS Inc, Chicago, IL, 2001). Data was presented as Mean and Standard deviation (± SD) for quantitative parametric data, and Median and Interquartile range for quantitative non-parametric data. Frequency and percentage are used for presenting qualitative data. Suitable analysis was done according to the type of data obtained. Student T Test or Mann Whitney test was used to analyze quantitative data while chi square test and fisher exact were be used to analyze qualitative data. P- value: level of significance. P>0.05: Nonsignificant (NS). P< 0.05: Significant (S). P<0.01: Highly significant (HS).

RESULTS:

Patient Characteristics:

In this study, data of 87 patient were collected. The mean patient age was 59.61 years (range 34 to 69 years). There was male predominance 55/87 males (63.2%) and 32/87 females (36.8 %). and 43/87patients were smokers (49.4%). ECOG performance status 1 was 10/87(11.5%), performance status 2 was 69/87(79.3%) patients and performance status 3 were 8/87(9.2%) patients. There was no statistical significance difference between the two arms in patient characteristics including age, sex, co-morbidities, performance status and smoking as shown in table (1).

Table (1): Baseline patient characteristics of all cohort.

Site of metastasis		No.	%
Pleural effusion		36	41.4%
Bone		29	33.3%
Lung metastasis		19	21.8%
Brain		10	11.5%
Liver		5	5.7%
Supra renal mass		5	5.7%
Abdominal LN		2	2.3%
Pleural metastasis		0	0.0%
Pathology		Adenocarcinoma Undifferatiated large cell carcinoma	79(90.8%) 8 (9.2%)
Grade		Grade 2 Grade 3	66 (75.9%) 21 (24.1%)
EGFR	Wild Mutant	67 20	77.0% 23.0%
ALK	Not done Positive Negative	64 3 20	73.6% 3.4% 23.0%

Tumor characteristics:

The most common histological subtype in this specimen was adenocarcinoma in 79/87 (90.8%), while only 8/87 had undifferentiated large cell carcinoma **(**9.2%). Tumor grade 2was diagnosed in 66/87 patients (75.9%), grade 3 in 10/87 patients (11.5%) and grade 4 was 11/87(12.6%). Metastasis to bone was 29/87(33.3%), metastasis to pleurae 36/87(41.4%), liver metastasis 5/87(5.7%), metastasis to suprarenal gland 5/87(5.7%), metastasis to brain was 10/87(11.5%), metastasis to contralateral lung was 19/87(21.8%) and abdominal lymph node metastasis was 2/87(2.3%). EGFR wild type found in 67/87(77%) and EGFR mutation was found in 20/87(23%). There was no statistical significance difference between the two arms in tumor characteristics including histopathology, grade, and site of metastasis as shown in table (3).

Table (2): Tumor characterization among the studied patients

		No. = 87
Age (years)	Mean±SD	59.61 ± 8.78
	Range	34 – 69
Sex	Females	32 (36.8%)
	Males	55 (63.2%)
Smoking	No	44 (50.6%)
	Yes	43 (49.4%)
Co-morbidity	HTN	8 (40.0%)
	DM	6 (30.0%)
	HTN+DM	4 (20.0%)
	IHD	1 (5.0%)
	DM+IHD	1 (5.0%)
PS	1	10 (11.5%)
	2	69 (79.3%)
	3	8 (9.2%)

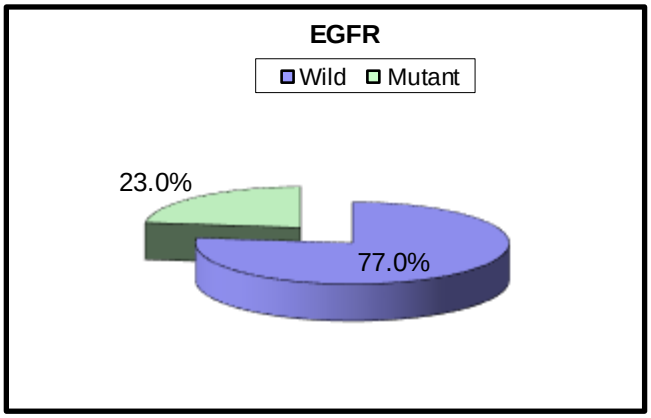


Fig (1): EGFR mutation among the studied patients

Table (3): EGFR mutant and EGFR wild type population characterization.

		Wild EGFR	Mutant EGFR	Test value	P-value	Sig.
		No. = 67	No. = 20			
Age (years)	Mean±SD	58.75 ± 9.20	62.50 ± 6.61	1.696•	0.093	NS
	Range	34 – 69	44 – 69			
Sex	Females	24 (35.8%)	8 (40.0%)	0.116*	0.734	NS
	Males	43 (64.2%)	12 (60.0%)			
Smoking	No	33 (49.3%)	11 (55.0%)	0.203*	0.652	NS
	Yes	34 (50.7%)	9 (45.0%)			
Co-morbidity	HTN	6 (40.0%)	2 (40.0%)	0.889*	0.926	NS
	DM	4 (26.7%)	2 (40.0%)			
	HTN+DM	3 (20.0%)	1 (20.0%)			
	IHD	1 (6.7%)	0 (0.0%)			
	DM+IHD	1 (6.7%)	0 (0.0%)			
Pathology	Adenocarcinoma	59 (88.1%)	20 (100.0%)	2.630*	0.105	NS
	Undifferentiated large cell carcinoma	8 (11.9%)	0 (0.0%)			
Grade	Grade 2	47 (70.1%)	19 (95.0%)	5.439*	0.066	NS
	Grade 3	20 (29.9%)	0 (0.0%)			

P>0.05: Non significant (NS); P <0.05: Significant (S); P <0.01: Highly significant (HS)
*: Chi-square test; •: Independent t-test

Table (4): EGFR mutant and EGFR wild type Tumor characterization.

Site of metastasis		Wild EGFR		Mutant EGFR		Test value*	P-value	Sig.
		No.	%	No.	%			
Pleural effusion	No	40	59.7%	11	55.0%	0.140	0.708	NS
	Yes	27	40.3%	9	45.0%			
Bone	No	46	68.7%	12	60.0%	0.519	0.471	NS
	Yes	21	31.3%	8	40.0%			
Lung metastasis	No	55	82.1%	13	65.0%	2.635	0.105	NS
	Yes	12	17.9%	7	35.0%			
Brain	No	57	85.1%	20	100.0%	3.373	0.066	NS
	Yes	10	14.9%	0	0.0%			
Liver	No	62	92.5%	20	100.0%	1.584	0.208	NS
	Yes	5	7.5%	0	0.0%			
Supra renal mass	No	64	95.5%	18	90.0%	0.867	0.352	NS

	Yes	3	4.5%	2	10.0%			
Abdominal LN	No	66	98.5%	19	95.0%	0.844	0.358	NS
	Yes	1	1.5%	1	5.0%			
Pleural metastasis	No	67	100.0%	20	100.0%	NA	NA	NA
	Yes	0	0.0%	0	0.0%			
PS	1	7	10.4%	3	15.0%	2.772	0.250	NS
	2	52	77.6%	17	85.0%			
	3	8	11.9%	0	0.0%			
ALK	Not done	48	71.6%	16	80.0%	1.143	0.565	NS
	Positive	3	4.5%	0	0.0%			
	Negative	16	23.9%	4	20.0%			
OTHERS	No	58	86.6%	18	90.0%	0.164	0.685	NS
	Yes	9	13.4%	2	10.0%			

P>0.05: Non significant (NS); P <0.05: Significant (S); P <0.01: Highly significant (HS)
*: Chi-square test

Treatment data:

1st line treatment:

EGFR mutation group 15/20 (75%) received gefitinib as a first line of treatment, while only 5/20 patients received chemotherapy. The response in this group was partial response in 4/20 patients (20%), stable disease in 15/20 patients (75%) and progressive disease in1/20 patients (5%).

Patient with EGFR wild type received chemotherapy mostly gemcitabine-carboplatin 34/63 patients (64.2%), the second most commonly used regimen was paclitaxel carboplatin in 11/63 patients (16.4%) with partial response 23/63 patients (37.1%), stable disease in 11/63 patients (17.7%) and progressive disease in23/63 patients (37.1%).

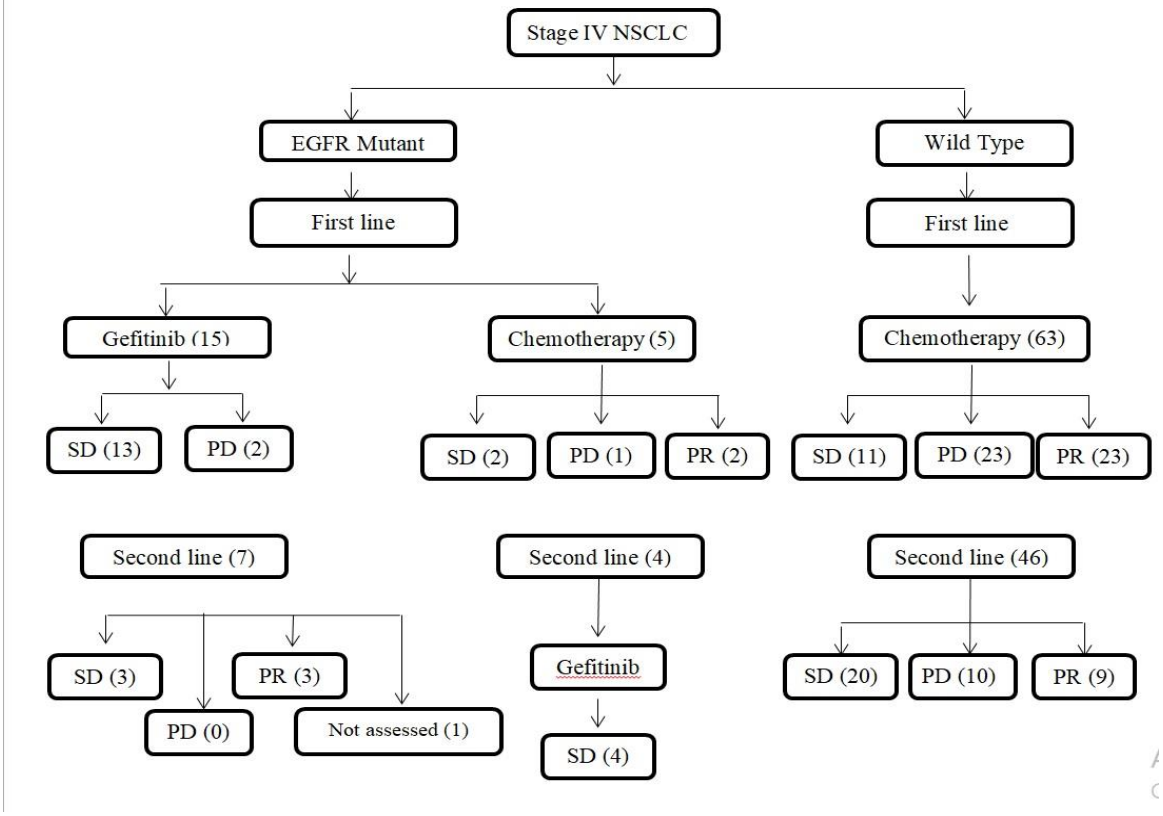
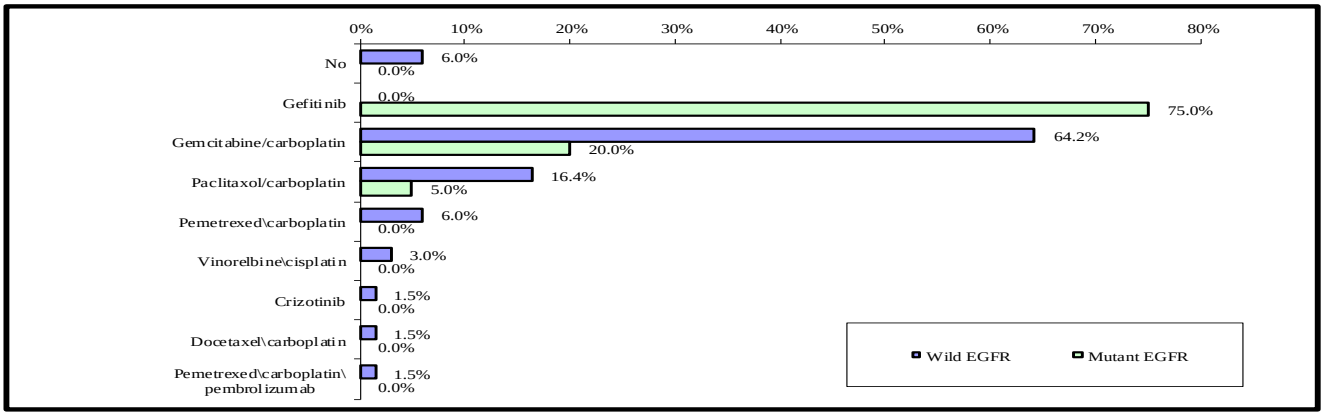


Fig (2): Flow chart showing treatment response among the study population

Table (5): 1st line of treatment among EGFR mutant and EGFR wild type patients

		Wild EGFR		Mutant EGFR		Test value*	P-value	Sig.
		No.	%	No.	%			
1st line treatment	No	4	6.0%	0	0.0%	1.252	0.263	NS
	Yes	63	94.0%	20	100.0%			
Type of treatment	No	4	6.0%	0	0.0%	1.252	0.263	NS
	Gefitinib	0	0.0%	15	75.0%	60.719	<0.001	HS
	Gemcitabine/carboplatin	43	64.2%	4	20.0%	12.103	0.001	HS
	Paclitaxol/carboplatin	11	16.4%	1	5.0%	1.689	0.193	NS
	Pemetrexed\carboplatin	4	6.0%	0	0.0%	1.252	0.263	NS
	Vinorelbine\cisplatin	2	3.0%	0	0.0%	0.611	0.434	NS
	Crizotinib	1	1.5%	0	0.0%	0.302	0.582	NS
	Docetaxel\carboplatin	1	1.5%	0	0.0%	0.302	0.582	NS
	Pemetrexed\carboplatin\pembrolizumab	1	1.5%	0	0.0%	0.302	0.582	NS
Response	PR	23	37.1%	4	20.0%	23.914	0.000	HS
	PD	23	37.1%	1	5.0%			
	SD	11	17.7%	15	75.0%			
	Toxicity	1	1.6%	0	0.0%			
	Not assessed	4	6.5%	0	0.0%			

P>0.05: Nonsignificant (NS); P <0.05: Significant (S); P <0.01: Highly significant (HS)



*: Chi-square test; •: Independent t-test

Fig (3): 1st line treatment among the studied patients. EGFR mutant and EGFR wild type

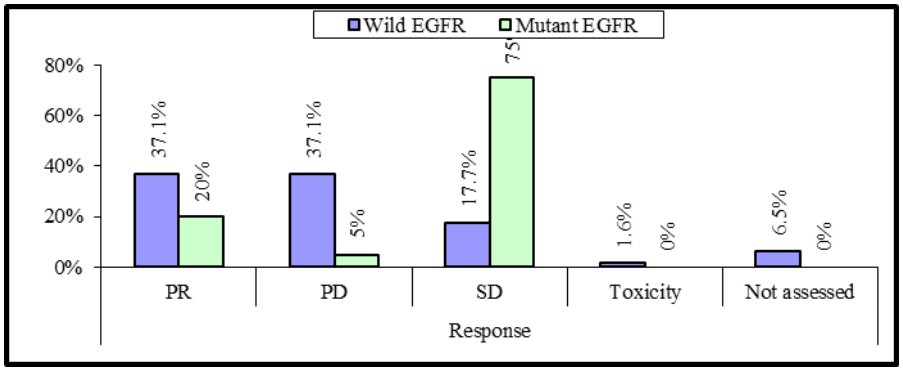


Fig (4): Response to 1st line treatment among EGFR mutation and EGFR wild type

2nd line treatment: 4/11 of EGFR mutation status patients (20%) received gefitinib as a second line of treatment, while 7/20 patients received chemotherapy with partial response in 3/11 patients (27.3%), stable disease in 7/11 patients (63.6%) and no progressive disease in the assessed patients.

Patient with EGFR wild type received chemotherapy most commonly used regimen was paclitaxel carboplatin in 14/46 patients (20%) with partial response 9/46 patients (20%), stable disease in 20/46 patients (44.4%) and progressive disease in10/46 patients (22.2%).

Table (6): 2nd line of treatment among EGFR mutant and EGFR wild type patients

		Wild EGFR		Mutant EGFR		Test value*	P-value	Sig.
		No.	%	No.	%			
2nd line treatment	No	21	31.3%	9	45.0%	1.272	0.259	NS
	Yes	46	68.7%	11	55.0%			
Type of treatment	No	21	31.3%	9	45.0%	1.272	0.259	NS
	Gefitinib	0	0.0%	4	20.0%	14.046	0.000	HS
	Paclitaxel\carboplatin	14	20.9%	3	15.0%	0.341	0.559	NS
	Gemcitabine\carboplatin	7	10.4%	3	15.0%	0.314	0.575	NS
	Gemcitabine maintenance	7	10.4%	1	5.0%	0.547	0.459	NS
	Carboplatin\etoposide	1	1.5%	0	0.0%	0.302	0.582	NS
	Docetaxel	6	9.0%	0	0.0%	1.924	0.165	NS
	Docetaxel\bevacizumab	1	1.5%	0	0.0%	0.302	0.582	NS
	Crizotinib	1	1.5%	0	0.0%	0.302	0.582	NS
	Vinorelbin	4	6.0%	0	0.0%	1.252	0.263	NS
	Cyclophosphamide\ methotrexate maintenance	5	7.5%	0	0.0%	1.584	0.208	NS
	Pemetrexed\carboplatin	0	0.0%	0	0.0%	0.000	1.000	NS
RESPONSE	Not assessed	6	13.3%	1	9.1%	3.465	0.325	NS
	PR	9	20.0%	3	27.3%			
	SD	20	44.4%	7	63.6%			
	PR	10	22.2%	0	0.0%			

P>0.05: Non significant (NS); P <0.05: Significant (S); P <0.01: Highly significant (HS)
*: Chi-square test

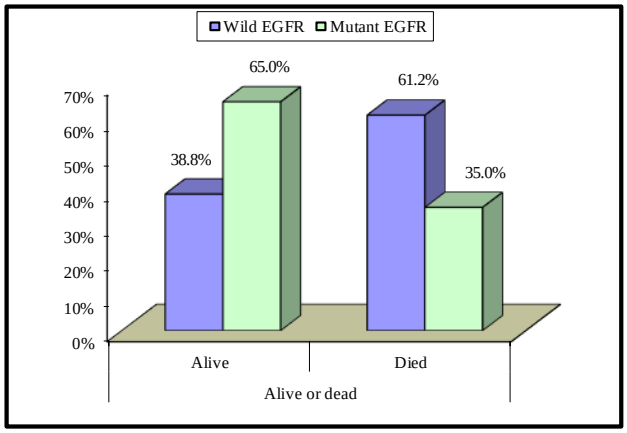


Fig (5): Overall survival among the studied pt. EGFR mutant and EGFR wild type

Progression Free Survival:

By the end of the study follow-up duration, 11/20 patients developed disease progression in the EGFR mutation arm with median PFS about 11 months while in EGFR wild type 43/66 patients developed disease progression with median PFS about 6 month (P value =0.016).

According to the results, there is statistically significant improvement in PFS in EGFR mutated patients treated with gefitinib as standard treatment than the EGFR wild type patients treated with standard chemotherapy (P value =0.016).

Table (7): Kaplan Mayer analysis for PFS (months) among the studied patients.

EGFR	Total N	N of Events	PFS (months)		95% CI		Test value	P-value	Sig.
			Median	SE	Lower	Upper			
Wild	66	43	6	0.73	4.569	7.431	5.784	0.016	S
Mutant	20	11	11	0.695	9.637	12.363			

SE: Standard error CI: Confidence interval

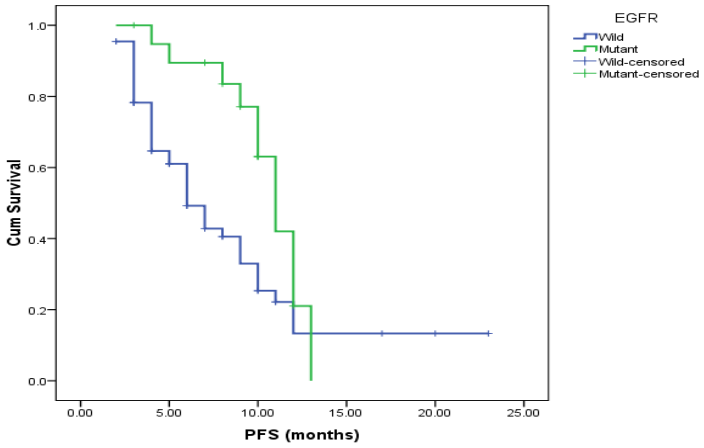


Fig (6): PFS of patients

Overall survival:

By the end of the study follow-up duration, 7/20 patients (35%) were dead in the EGFR mutation arm and 13/20 (65%) were alive while in EGFR wild type 39/64 patients (61.2%) were dead and 25/64 (38.8%) were alive.

The median overall survival among patients with EGFR mutation treated with Gefitinib as standard treatment of care for this group of patients about 24 months while median overall survival among patients with wild type EGFR treated with the standard chemotherapy about 11months (pvalue =0.014). According to the results gefitinib significantly improve OS in the patient's stage IV NSCLC harboring EGFR mutation.

Table (8): Kaplan Mayer analysis for OS (months) among the studied patients

EGFR	Total N	N of Events	OS (months)		95% CI		Test value	P-value	Sig.
			Median	SE	Lower	Upper			
Wild	64	39	11	1.114	8.816	13.184	6.027	0.014	S
Mutant	20	7	24	.	.	.			

SE: Standard error CI: Confidence interval

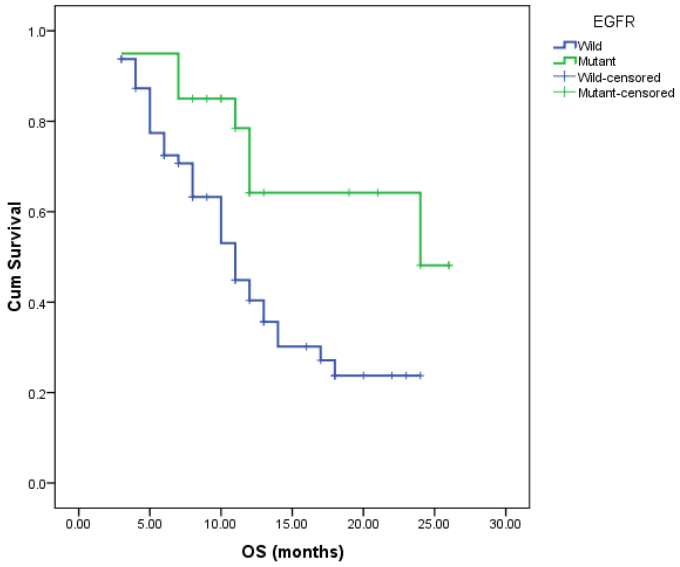


Fig (7): OS of patients

DISCUSSION:

Our results showed a frequency of EGFR mutation of 23% and better progression free survival, overall survival and response rate among EGFR mutated patients who received EGFR TKIS.

In the present study, a total of 87 patients of stage IV NSCLC were retrospectively evaluated for EGFR mutation. The patients were treated at the Clinical Oncology Department and Nuclear Medicine, Ain Shams University and Nasser institute cancer center for research and treatment (NICC).

The frequency of EGFR mutations in the study of Mello et al.[10], was 16.9% while in Castro et al. the global frequency was 13.1% [11]. In this study EGFR mutation frequency of 23% which is higher to those published this may be due to ethnical difference but also to methodological discrepancies.

Clinicopathological criteria: This study showed mean patient age 59.61 years (range 34 to 69 years). There was male predominance (63.2%) while females (36.8%). This study showed smokers (49.4%), ECOG performance status 1(11.5%), performance status 2 (79.3%) patients and performance status 3 (9.2%). The most common histological subtype in this specimen was adenocarcinoma in (90.8%), while only (9.2%) undifferentiated large cell carcinoma. EGFR mutation was found in (23%) while unmutated (77%). There was no statistical significance difference between the two arms in patient characteristics including age, sex, co-morbidities, performance status and smoking. In (Iressa Pan-Asia Study [IPASS]), study was a phase 3, multicenter, randomized, open-label, parallel-group study age rang (24-84), disease stage at screening (stage IIIB or IV), female predominance, smoking status (nonsmoker 93.8% and non-smoker 6.1%).

In other studies EGFR mutations were only identified in adenocarcinoma and NOS samples, reinforcing the histologic type as criteria to the EGFR screening. EGFR mutation frequency varies along studies not only due to ethnical particularities but also to methodological discrepancies, being lower when restrictive clinical criteria were not used. Association between EGFR mutation status and survival is difficult to

estimate, particularly outside of a clinical trial setting. The obstacle to this association could be explained by the different lines of treatment and the crossover of treatments[12].

Treatment categorization: Almost all patients with EGFR mutation in this study received gefitinib as standard treatment either first or second line. Those who received gefitinib as second line were 4/20 (20%) started with chemotherapy this may be due to long waiting time till the result of EGFR testing and availability of treatment. While patients with wild type received chemotherapy as the standard treatment mostly gemcitabine carboplatin and paclitaxel carboplatin.

In IPASS trial, patients with EGFR mutation are randomized to receive gefitinib vs paclitaxel carboplatin.

Survival categorization: In the EGFR mutation patients treated with gefitinib as standard treatment had median PFS about 11 months and overall survival about 24 months while in EGFR wild type patients treated with standard chemotherapy developed disease progression with median PFS about 6 month and overall survival about 11 months (P value=0.016, 0.014 respectively).According to the results, there was a statistically significant improvement in PFS and OS in EGFR mutated patients treated with gefitinib as a standard treatment compared with the EGFR wild type patients treated with the standard chemotherapy . This values for OS are similar to other clinical trials particularly in the EURTAC trial [13]. Which is also consistent with the results in the Iressa Pan-Asia Survival Study (IPASS), comparing gefitinib with paclitaxel plus carboplatin as the firstline treatment in advanced stage non-small cell lung cancer.

Gefitinib, as compared with carboplatin–paclitaxel, prolonged progression-free survival, increased the objective response rate and improved quality of life. The overall benefit was driven primarily by the subgroup of patients with EGFR mutations; in this subgroup, patients treated with gefitinib, as compared with those treated with carboplatin–paclitaxel, had a remarkably high objective response rate (71.2%) and prolonged progression-free survival (hazard ratio for progression or death, 0.48; 95% CI, 0.36 to 0.64; P<0.001)[14].

Limitations of this study, includes being retrospective study with small sample size. Association between EGFR mutation status and survival is difficult to estimate due to different lines of treatment and crossover of treatment.

In future we need more epidemiologic studies with larger population sample to clarify the difference in frequency of EGFR mutation and better evaluation of response rate to EGFR TKIs in comparison to chemotherapy and different generations of EGFRTKIs.

Conclusion:

The study showed that the presence of EGFR mutation considered as a good prognostic factor due to improvement of PFS and OS survival among this group of patients who received gefitinib as the standard treatment of care.

Conflict of interest:

None to be declared

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تأثير طفرة EGFR على تشخيص وعلاج المرحلة الرابعة من سرطان الرئة ذو الخلايا غير الحرشفية الصغيرة NSCLC: تحليل بأثر رجعي

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المقدمة: سرطان الرئة هو السبب الرئيسي للوفيات المرتبطة بالسرطان لكلا الجنسين في العالم. وفقًا للتقديرات ، حدثت ٢,١ مليون حالة جديدة و ١,٨ مليون حالة وفاة بسبب سرطان الرئة في جميع أنحاء العالم في عام ٢٠١٨. سرطان الرئة ذو الخلايا غير الصغيرة يمثل ما يقرب من ٨٥ ٪ من جميع حالات سرطان الرئة. عادة ما يتم اكتشاف غالبية مرضى سرطان الرئة في مرحلة متقدمة بسبب طرق الفحص غير الملائمة والأعراض المخادعة. لذلك ، في الممارسة السريرية ، لا يزال العلاج المنهجي هو الاستراتيجية العلاجية الرئيسية لـ NSCLC.

الهدف من العمل: دراسة تأثير طفرة عامل نمو البشرة على تشخيص سرطان الرئة ذو الخلايا غير الحرشفية في المرحلة المتقدمة.

المرضى والطرق: هذه دراسة مقطعية مستعرضة بأثر رجعي من المرحلة الرابعة من سرطان الرئة ذو الخلايا غير الحرشفية غير الصغيرة (يناير ٢٠١٩ - يونيو ٢٠٢١). أجريت هذه الدراسة في كل من قسم الأورام والطب النووي بمستشفى جامعة عين شمس ومركز السرطان بمعهد ناصر للأبحاث والعلاج. تم تقييم حالة طفرة مستقبل عامل نمو البشرة ، والعلاج ، والبقاء على قيد الحياة بدون تقدم ، والبقاء الكلي ومعدل الاستجابة.

النتائج: من بين ٨٧ مريضًا أجروا فحصًا لطفرات عامل نمو البشرة ، كان لدى ٢٠ (٢٣٪) طفرات ، بينما كان لدى ٦٤ (٧٣٪) مستقبل عامل نمو البشرة من النوع البري. تلقى متوسط البقاء على قيد الحياة الخالي من التقدم للمرضى الذين يعانون من طفرة عامل نمو البشرة الجيفنتيب Gefitinib حيث كان العلاج القياسي أفضل من البقاء على قيد الحياة بدون تقدم للمرضى من النوع البري الذين عولجوا بالعلاج الكيميائي القياسي (١١,٠ مقابل ٦,٠ أشهر ، على التوالي ؛ P = 0.016). تحسن معدل البقاء على قيد الحياة بشكل عام أيضًا في السكان الذين يعانون من طفرة عامل نمو البشرة التي تم علاجها باستخدام الجيفنتيب Gefitinib كعلاج معياري مقارنةً بالنوع البري المعالج بالعلاج الكيميائي القياسي (٢٤,٠ شهرًا مقابل ١١,٠ شهرًا على التوالي ؛ P = 0.014).

الخلاصة: تساهم هذه البيانات في تحسين تشخيص المرحلة الرابعة من سرطان الرئة الذين يؤويون طفرة مستقبلات عامل نمو البشرة ، مما يؤكد بقاء أفضل للبقاء على قيد الحياة وخالية من التقدم ، ومعدل البقاء الإجمالي والاستجابة لأولئك المرضى الذين يعانون من مستقبل عامل نمو البشرة TKI كعلاج معياري.