RESULTS

Table (I): Demographic data of the 2 studied groups

Variable	Total	Control group	Cancer group	p
	N = 20	N = 10	N = 10	
Age				
Mean ± SD	53 ± 13.615	53.7 ± 15.8	52.3 ± 11.8	>0.05
Range	21-74	21-74	28-69	NS
Sex				
Males	12	5	7	>0.05
Females	8	5	3	NS
Smoking habit				
Non smokers	13	10	3	<0.05
Smokers	6	0	6	S
Ex-smokers	1	0	1	
Smoking Index				
Mean ± SD	411 ± 334.147	0	411 ± 334.1	
Range	210-800	0	210-800	

This table clarifies the demographic data of the two studied groups:

The age of patients ranged from 21 to 74 years with mean 53 and Standard Deviation ± 13.615.

Sex distribution: 12 males and 8 females were included.

Patients of control group were non smokers while cancer group included 6 current smokers, 3 non-smokers and only one ex-smoker.

Smoking index among cancer patients ranged from 210-800 with mean 411 and SD ± 334.147.

Cigarette consumption was expressed as Netti Smoking index (number of cigarettes smoked per day × duration of smoking in years).

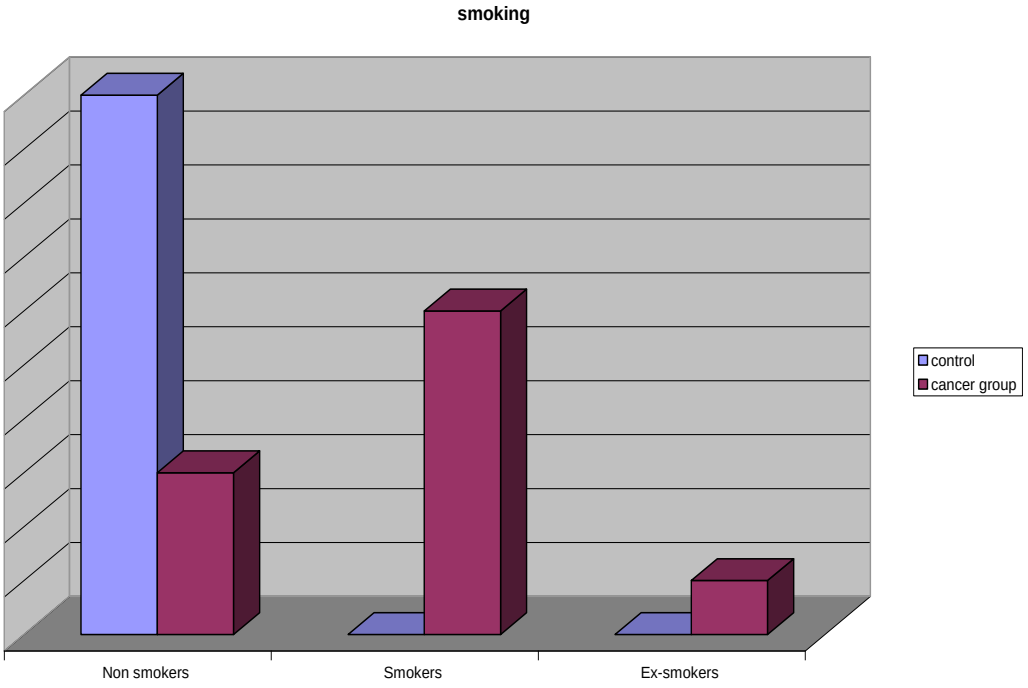


Figure (I): Shows smoking habits among patients of the two studied groups.

Table (II): Clinical data of cancer group

Main presenting symptoms	Patients	
	N = 10	Percentage
Cough		
Dry	2	20%
Productive	6	60%
Dyspnea		
Yes	7	70%
No	3	30%
Hemoptysis		
Yes	1	10%
No	9	90%
Chest Pain		
Yes	1	10%
No	9	90%
Toxic symptoms		
Fever		
Yes	2	20%
No	8	80%
Mediastinal symptoms		
Hoarseness of voice		
Yes	1	10%
No	9	90%

This table clarifies the presenting symptoms of cancer patients

The majority of patients were presented by dyspnea (70%), as well as productive cough (60%). Dry cough was present only in 2 patients (20%), hemoptysis in 1 patient (10%), chest pain in 1 patient (10%), fever in one patient (10%) and hoarseness of voice in one patient (10%).

Table (III): Clinical Data of control group

Main presenting symptoms	Patients	
	N = 10	percentage
Cough		
Dry	1	10%
Productive	9	90%
Dyspnea		
Yes	5	50%
No	5	50%
Hemoptysis		
Yes	4	40%
No	6	60%
Toxic symptoms		
Fever		
Yes	4	40%
No	6	60%

This table clarifies the presenting symptoms of control patients

The majority of patients were presented by productive cough (90%), (50%) presented by dyspnea, hemoptysis in (40%), fever in (40%) and dry cough in only one patient (10%).

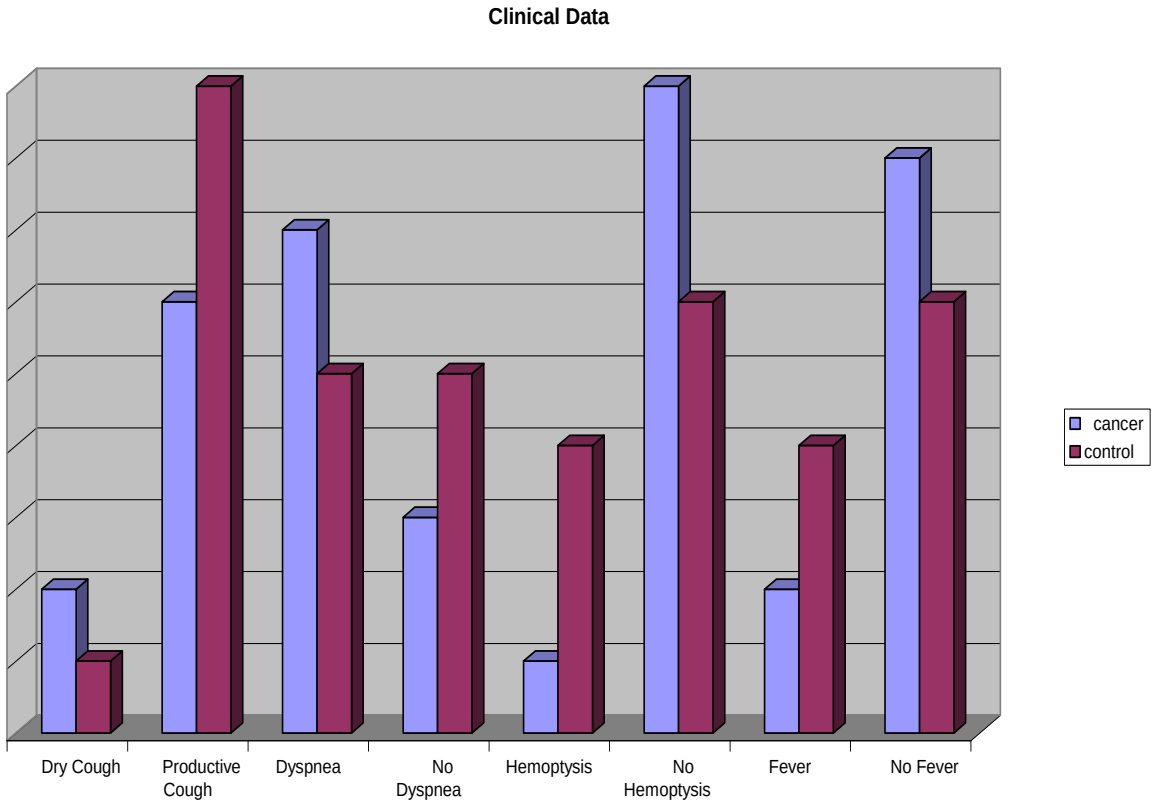


Figure (II): Shows the main presenting symptoms among patients of the two studied groups.

Table (IV): Main Bronchoscopic findings among cancer group

Variable	Patients	
	No = 10	**Percentage**
Endobronchial Mass		
RT	7	70%
LT	1	10%
Mucosal congestion		
RT	2	20%
LT	0	0%
Extrinsic compression		
RT	2	20%
LT	0	0%
Carina		
Sharp	10	10%
Broad	0	0%
Vocal cords		
Mobile	9	90%
Fixed	1	10%

This table demonstrates results of bronchoscopic findings detected in the bronchial tree of cancer patients.

- Endobronchial mass was detected in 8 patients (80%)
- Mucosal congestion was detected in 2 patients (20%).
- Extraluminal compression was detected in 2 patients (20%).
- Vocal cord paralysis (on the left side) was detected in only one patient (10%), while carina was sharp in all cases.

Table (V): Main Bronchoscopic findings among control group

Variable	Patients	
	No = 10	Percentage
Endobronchial Mass		
RT	1	10%
LT	0	0%
Mucosal congestion		
RT	3	30%
LT	1	10%
Extrinsic compression		
RT	1	10%
LT	0	0%
Carina		
Sharp	9	90%
Broad	1	10%
Vocal cords		
Mobile	10	100%
Fixed	0	0%
Excess secretions		
RT	2	20%
LT	2	20%

This table demonstrates results of bronchoscopic findings detected in the bronchial tree of control patients.

- Mucosal congestion was detected in 4 patients (40%).
- Excess viscid secretions were detected in 4 patients (40%).
- Endobronchial mass was detected in 1 patient (10%)
- Extraluminal compression was detected in 1 patient (10%).
- Broad carina was present in 1 patient (10%). Vocal cords were mobile in all cases.

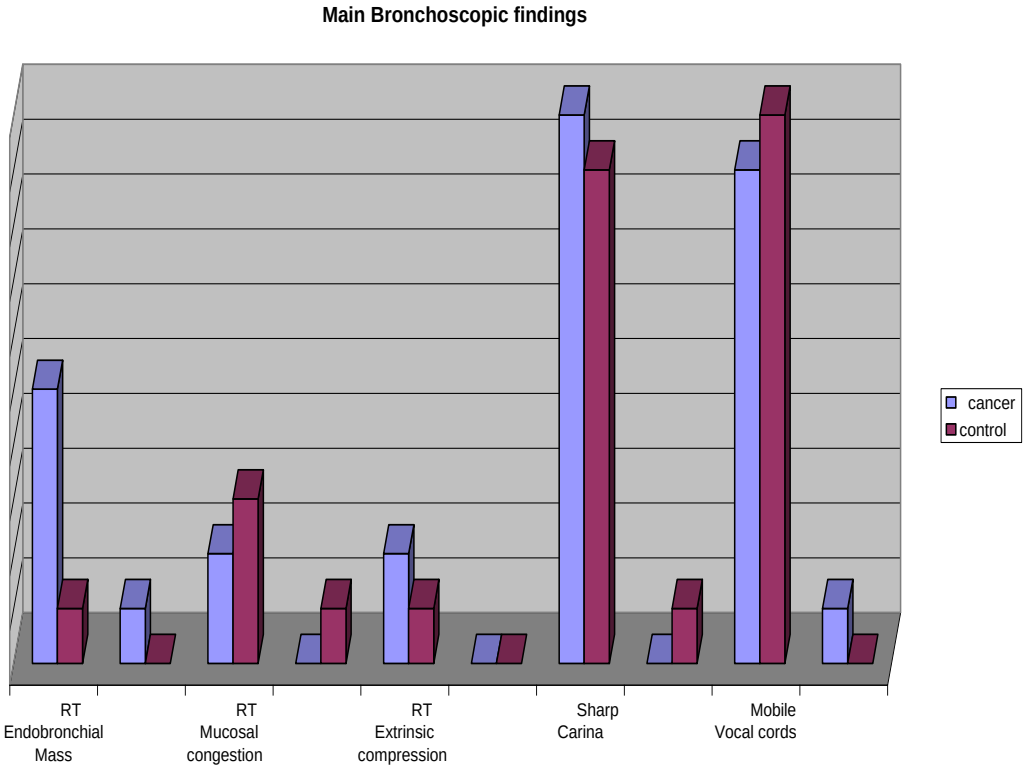


Figure (III): Shows the main bronchoscopic findings among patients of the two studied groups

Table (VI): Final diagnosis of cancer group

Pathology	Patients	
	No = 10	Percentage
Adenocarcinoma	5	50%
Squamous cell carcinoma	4	40%
Adenosquamous cell carcinoma	1	10%

This table clarifies results of final diagnosis of 10 patients of cancer group.

Lung cancer was diagnosed by histopathological examination of bronchial biopsies, CT guided biopsies or open lung biopsy.

Adenocarcinoma was pathologically diagnosed in 50% of cases, squamous cell carcinoma was diagnosed in 40% of cases and adenosquamous carcinoma was diagnosed in 10% of cases.

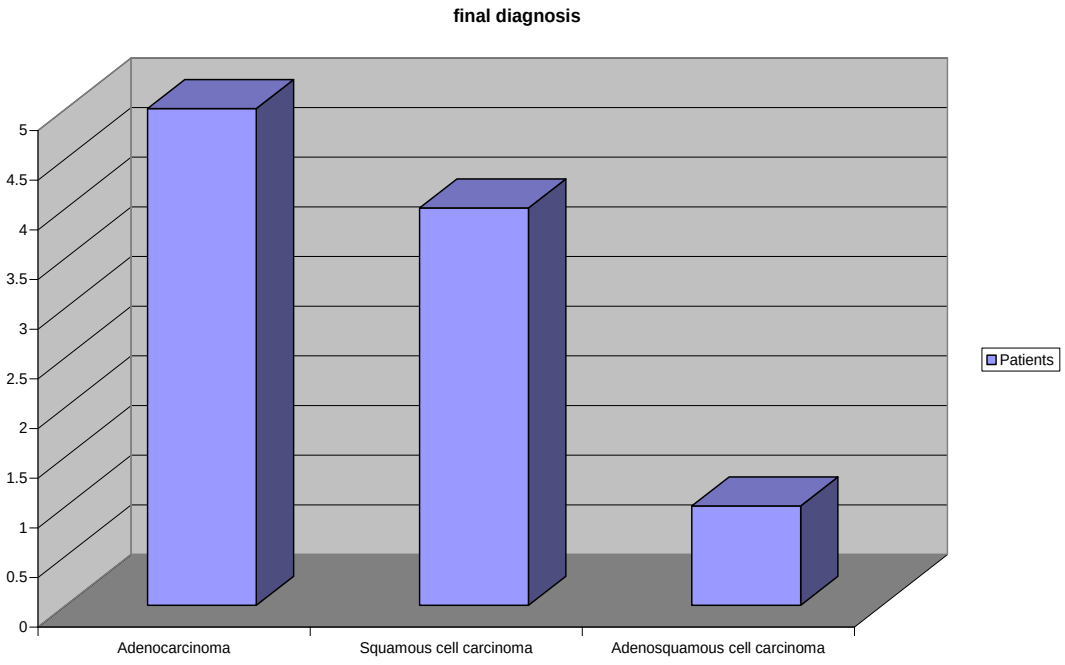


Figure (IV): Shows final pathological diagnosis of cancer group.

Table (VII): Final diagnosis of control group

Diagnosis	Patients	
	No =10	Percentage
Pneumonia	4	40%
Acute exacerbation of COPD	1	10%
Inflammatory mediastinal lymphadenopathy	1	10%
Pulmonary tuberculosis	1	10%
Pyogenic lung abscess	1	10%
Clear cell tumor (sugar tumor)	1	10%
Non specific inflammatory reaction	1	10%

This table clarifies results of final diagnosis of 10 patients of control group.

Non resolving pneumonia in 40% of cases, acute exacerbation of COPD (10%), pulmonary tuberculosis (10%), pyogenic lung abscess (10%), non specific inflammatory mediastinal lymphadenopathy (10%), clear cell tumor (10%) and non specific inflammatory reaction of the airways in (10%).

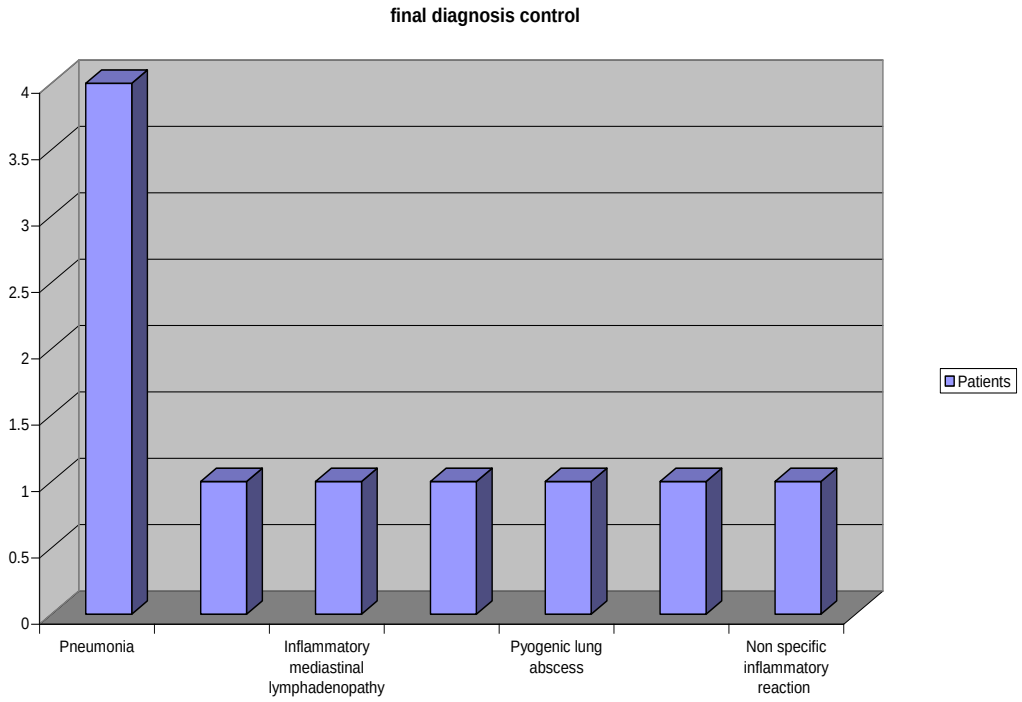


Figure (V): Shows final diagnosis of control group.

Table (VIII): Serum levels of albumin in the two studied groups

Serum Albumin (g/dl)		
	Control group	**Cancer group**
No	10	10
Mean **St.dev.**	3.72 0.57	3.5 0.34
Min **Max**	3.1 4.9	3 4
t	1.05	
p	>0.05	

This table shows that the serum levels of albumin in the two groups were almost identical, no significant difference between two groups, (p >0.05).

Table (IX): Serum levels of CEA in the two studied groups

Serum CEA (ng/ml)		
	Control group	**Cancer group**
No	10	10
Mean **St.dev.**	3.19 2.2	22.22 7.4
Min **Max**	0.854 6.995	11.264 34.542
t	1.05	
p	<0.001	

This table shows that the serum CEA levels of cancer group were significantly higher than those of the control group, (p <0.001).

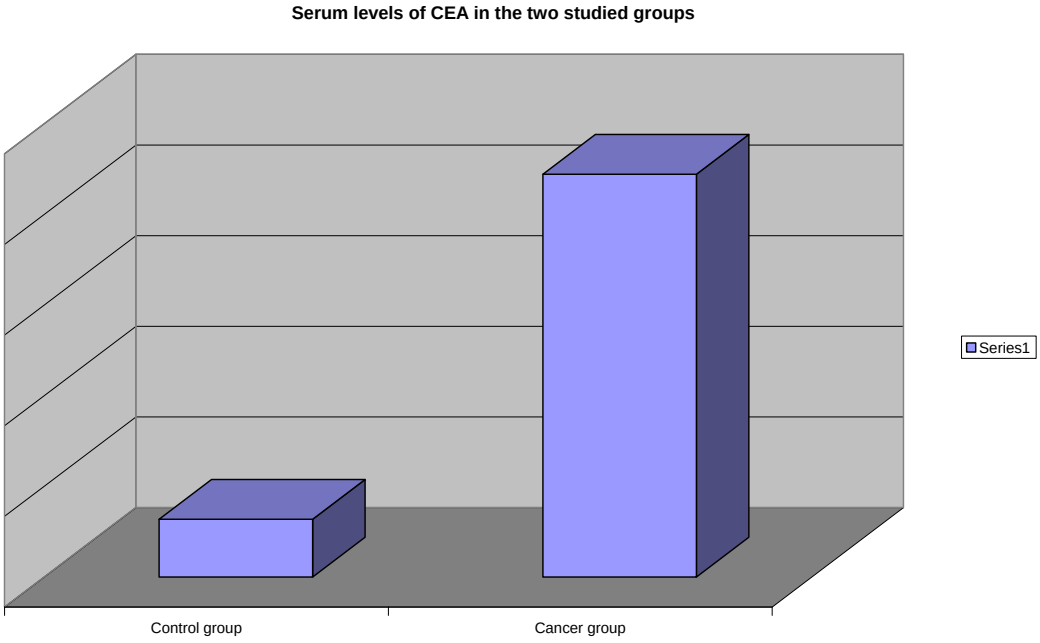


Figure (VI): Shows serum levels of CEA in patients of the two studied groups.

Table (X): Levels of CEA in ELF of the two studied groups

CEA in ELF (ng/ml)		
	Control group	**Cancer group**
No	10	10
Mean **St.dev**	44.02 41.4	163.4 63.7
Min **Max**	2.7 106.3	25.7 249.397
t	4.97	
p	<0.001	

ELF (Epithelial Lining Fluid)

This table shows that the mean level of CEA in ELF was significantly higher in cancer group than that of the control group, (p <0.001).

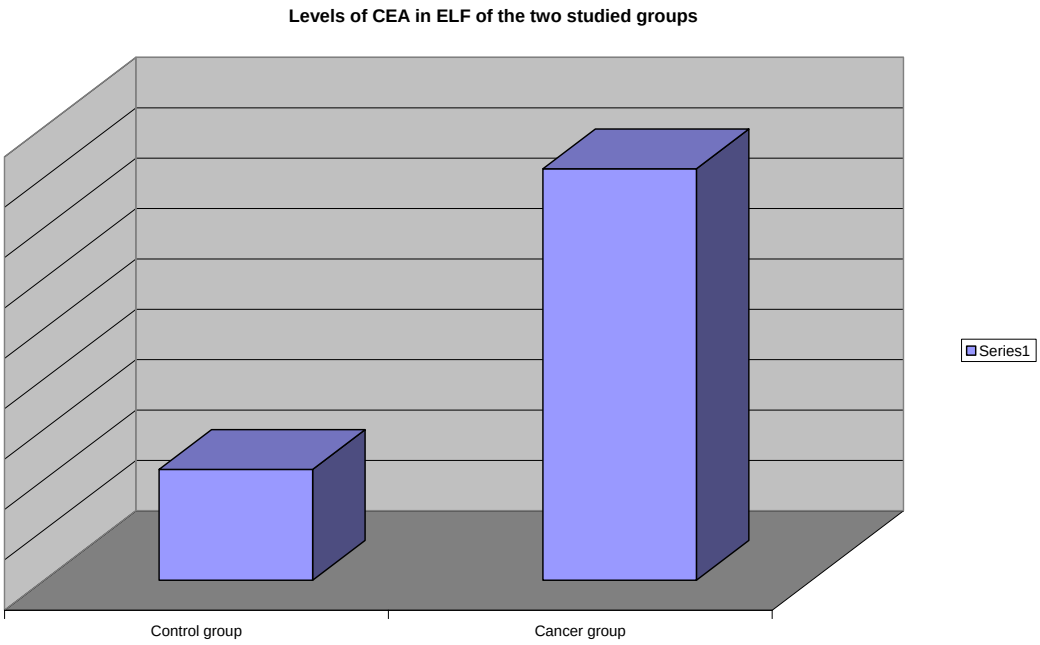


Figure (VII): shows levels of CEA in ELF in patients of the two studied groups.

Table (XI): Levels of Albumin in ELF of the two studied groups

Albumin in ELF (mg/dl)		
	Control group	**Cancer group**
No	10	10
Mean **St.dev**	8.4 3.9	187.7 100.7
Min **Max**	1.7 13.8	72.3 370.1
t	5.6	
p	<0.001	

ELF (Epithelial Lining Fluid)

This table shows that the mean level of Albumin in ELF was significantly higher in cancer group than that of the control group,(p <0.001).

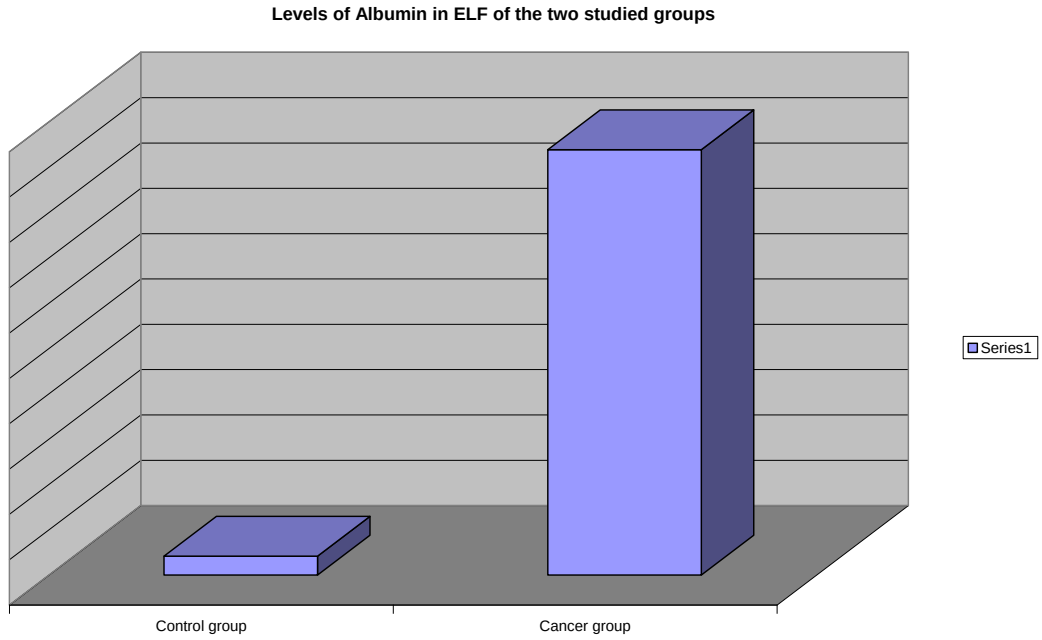
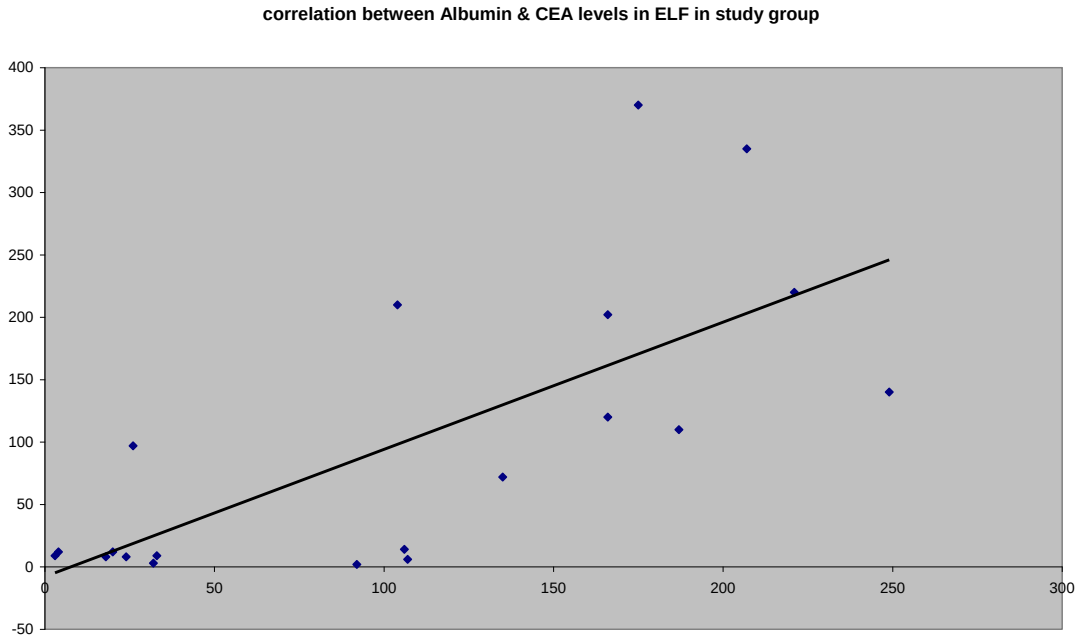


Figure (VIII): Shows levels of albumin in ELF in patients of the two studied groups.

<u>Table (XII):</u> Correlation between Albumin & CEA levels in ELF in study group

r	p
0.7	<0.05

This table shows positive relationship between albumin and CEA in ELF in the study group.



<u>Figure (IX):</u> Shows Correlation between Albumin & CEA levels in ELF in the study groups.

Table (XIII)

	Cut off	**Sen.**	**Spec**	**PPV**	**NPV**
S. CEA	6.6	80	70	72.7	77.8
ELF Albumin	7.1	90	72.7	81.8	88.9

This table shows the cutoff value of serum CEA and ELF albumin, sensitivity, specificity, positive predictive value and negative predictive value.

The cutoff value was that of the 90^{th} percentile

ELF albumin is more sensitive and more specific than serum CEA in the diagnosis of lung cancer

Table (XIV): Comparison between control and cancer groups according to different variables:

	group	N	Mean	Std. Deviation	t	p
ESR	Control group	10	83.00	24.631	1.6	>0.05
	Cancer group	10	100.50	22.292		
HB	Control group	10	11.39	1.384	1.02	>0.05
	Cancer group	10	10.70	1.612		
WBC	Control group	10	9.05	4.846	0.5	>0.05
	Cancer group	10	10.13	5.050		
PLT	Control group	10	276.40	108.469	0.7	>0.05
	Cancer group	10	309.30	81.374		
AST	Control group	10	27.40	13.006	0.8	>0.05
	Cancer group	10	24.40	6.518		

ALT	Control group	10	25.90	13.203	0.7	>0.05
	Cancer group	10	22.40	5.103		
BILIRUBIN	Control group	10	0.73	0.2	1.2	>0.05
	Cancer group	10	0.86	0.284		
S.CR	Control group	10	0.88	0.29	0.9	>0.05
	Cancer group	10	0.98	0.22		
S.UREA	Control group	10	30.00	6.766	1.2	>0.05
	Cancer group	10	33.60	6.786		
BAL UREA	Control group	10	10.50	4.994	0.1	>0.05
	Cancer group	10	10.30	6.056		
DILUTION FACTOR	Control group	10	3.30	1.365	1.5	>0.05
	Cancer group	10	5.80	5.362		
BAL ALBUMIN	Control group	10	3.13	2.161	9.02	<0.05
	Cancer group	10	61.47	58.813		

BAL CEA	Control group	10	13.26	8.085	9.8	<0.05
	Cancer group	10	45.90	38.448		

This table shows significant difference between cancer and control groups as regard BAL albumin and BAL CEA ($p < 0.05$), while there is no significant difference as regard CBC, ESR, LFTs, KFTs or BAL urea ($p > 0.05$).