MANAGEMENT OF LUNG CANCER IN BIHOR COUNTY BETWEEN 2007 - 2010

dr. Suciu Nicoleta Ramona*, dr. Cioara Felicia*, dr. Daina Lucia*

*University of Oradea, Faculty of Medicine and Pharmacy Oradea, Romania, e-mail:
dr_ramona_suciu@yahoo.com

Abstract
Lung cancer represents world wide a serious morbidity and mortality. In Bihor County, Romania – this situation is similar to the international data.
We studied a total number of 640 lung cancer cases registered at Territorial Cancer Registry Bihor County who were eligible to further analysis. Out of our survey, in the analysed period, 20 % cases were female versus 80 % males. The highest incidence of lung cancer was at age group 61-70 with 31.25 % of the cases. The urban/rural distribution of lung cancer is identical with the international literature. Almost 130 cases that represent 20,32% of the cases shows the presence of distant metastasis, when the cancer is diagnosed.
Small cell lung cancer is present in 33.2 % of the cases as compared to international literature – where 20 % are represented by this type of cancer. This difference towards the international data can be explained by smoking habit, environmental influences.

Key words: incidence, distribution, management, lung cancer

INTRODUCTION

Lung cancer, or more specifically carcinoma of the lung, is a disease where epithelial tissue in the lung grows out of control (Macbeth F. et al 2009, Szabo E et al 2008). This leads to invasion of adjacent tissue and infiltration beyond the lungs (Kachroo S et al 2008). Lung cancer, the most common cause of cancer-related death in men and the second most common in women, is responsible for 1.3 million deaths worldwide annually (Cassidy J. et al 2008). The most common symptoms are shortness of breath, cough, and weight loss.

The main types of lung cancer are small cell lung cancer and non-small cell lung cancer. This distinction is important because non-small cell lung cancer is sometimes treated with surgery, while small cell cancer is not. Also, small cell lung cancer usually responds better to chemotherapy. Approximately 10 % of all new patients diagnosed with cancer in the world have lung cancer (Alberts W. M. 2008). In 1980 the World Health Organisation (WHO) estimated to be 660,500 new cases in which 513,600 were males and 146,900 females. Resuming into 15.8% of all cancers for males and 4.7% for females.

In Bihor County lung cancer is situated amongst the first place in the total number of registered cases (***Territorial Cancer Registry 2010). The

morbidity of lung cancer shows a slight increase in tendency from 1986 up to 2008. This tendency is both similar in men and women.

This trend has increased owing to the fact of the increase in smoking habits in both male and female. Passive smoking also plays a major role. Also owing fast developments, industrialization has brought about a rise in the level of pollution leading to increased risk in lung cancer (Macbeth F., et al 2009, Mauer ME et al 2008).

The main causes of lung cancer (and cancer in general) include carcinogens (such as those in tobacco smoke), ionizing radiation, and viral infection. This exposure causes cumulative changes to the DNA in the tissue lining the bronchi of the lungs (the bronchial epithelium). As more tissue becomes damaged, eventually a cancer develops (Ganti AK, et al 2008, Milroy R., 2008).

MATERIAL AND METHOD

The total number of lung cancer patient we have registered during this study rise to 640 that were registered between 2007-2010 at County Clinical Hospital Oradea. All the cases have been taken from the Territorial Cancer Registry Bihor County.

We have studied the distribution of lung cancer cases according to age, TNM staging, performance index, treatments characteristics. The primary aim of our study was to establish patient's data characteristics and general treatment outcome. For statistical we used Kaplan Mayer's survival analysis.

RESULTS AND DISSCUSIONS

Repartition of lung cancer cases according to gender.

We have selected a number of 640 lung cancer cases who fitted the study criteria.

Categorizing this 640 cases into sub-classes according to sex, we could record only women 128 (20 %) and 512 men (80%).

Table 1

Repartition of lung cancer cases according to sex

sex	No of cases	%
male	512	80
female	128	20
total	**640**	**100**

Distribution of lung cancer cases according to age group

During the survey, we distributed the total number of cases among age group. The minimum age was 22 and the maximum was 90. The mean age for all cases was 54.5 years and the median age was 54.5 years. From the age group of 31 – 40 years, the number of cases noted is 12 (1.87 %), group age 41 – 50, 72 cases (11,25%) were registered. The predominant ranges are of 51-60 years which has 170 cases (26.56 %), and 61 – 70 years with 200 cases (31.25%). The last two ranges are 71 – 80 years with 173 cases (27,03%) and 81 – 92 years with 13cases (2,03%)

Table 2

Distribution of lung cancer cases according to age group

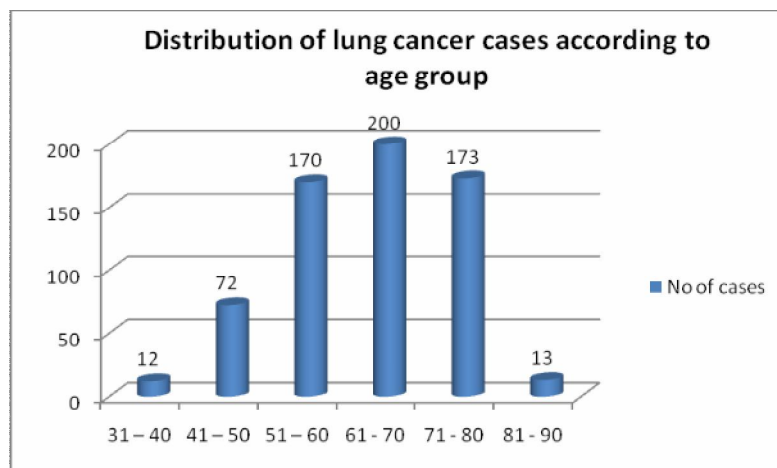| Age group	No of cases	%
31 – 40	12	1,87
41 – 50	72	11,25
51 – 60	170	26,56
61 - 70	200	31,25
71 - 80	173	27,03
81 - 90	13	2,03
Total	**640**	**100**

Fig. 1

Repartition of lung cancer cases according to rural and urban region.

According to the survey – it was found that among the 640 patients, 256 cases (40%) came from urban regions and 384 cases (60%) came from rural regions.

Table 3

Repartition of lung cancer cases according to rural and urban region

U/R	No. of cases	%
Urban	256	40
Rural	384	60
Total	**640**	**100**

Repartition of lung cancer cases according to T stage (according to IUCC TNM classification of malignant tumor, 6th edition – 2002)

T stage which indicates the size of the tumor in the lung tissue has a very significant role in the evolution of the disease. The study conducted has revealed the classification of T stage alongside the number of cases and are presented as Tx with 5 patients (0.79 %), T1 with 96 patients (15 %). T2 has the highest incidence of 110 cases (17.18 %). T3 has value of 256 cases (40 %), T4 with 173 cases (27,03%).

Repartition of lung cancer cases according to N stage (according to IUCC TNM classification of malignant tumor, 6th edition – 2002)

N indicated the lymph node involvement. For all the 640 cases, we noted the highest number of cases of 410 (64,06%) for N2 , Nx with 6 case (0.94%), N0 with 26 cases (4,06%) , N1 with 145 patients (22,65%) cases, N3 with 53 (8.28%) cases.

Repartition of lung cancer cases according to M stage (according to IUCC TNM classification of malignant tumor, 6th edition – 2002)

M indicates metastasis in the progression of the disease. From the 440 cases – it was found that M0 with 330 cases (75 %), Mx with 7 (1.09%), M1 with 130 cases (20,32%), M2 with 7 cases (1.09%), M3 with 16 cases (2.5%).

Repartition of lung cancer cases according to clinical stage (according to IUCC TNM classification of malignant tumor, 6th edition – 2002)

Clinical stage influences treatment decisions and prognosis of the disease. As noticed, stage IIIA has recorded the highest number of patient (210 cases, 32,81 %) and stage 0 with the lowest number 7 cases (1.09 %).

Repartition of lung cancer according to weight loss.

According to the survey it was found that amongst 640 patients – the majority lost between 10 kg and 20 kg during their illness till they were diagnosed. Out of 440 cases, it was found that 150 cases (46.5 %) lost between 10 and 20 kg.

Repartition of lung cancer cases according to anatomopathological findings.

For all the lung cancer cases, the anotomopathological reports showed that the most predominant type of lung cancer was the Adenocarcinoma – 251 cases (39,21%) which predominates. That was followed closely by Small Cell Lung Cancer with 210 cases (32,81%) and epidemoid carcinoma with 179 cases (27,97%) respectively.

Table 4

Repartition of lung cancer cases according to anatomopathological findings

Anatomopathology	Number of cases	% of cases
Small cell lung cancer	210	32,81
Adenocarcinoma (AdenC)	251	39,21
Epidermoid	165	25,78
Undifferentiated carcinoma (Undif. C)	10	1,56
Neuro	4	0,625
TOTAL	640	100

Repartition of lung cancer cases according to treatment

A number of 560 cases (87,5 %) underwent radiotherapy, followed by patients (4.5 %) who received chemotherapy and only a number of 87 patients (13,59%) had surgery.

Table 5

Repartition of lung cancer cases according to types of treatment

Treatment	No. of cases	%
Chemotherapy (CT)	512	80
Surgery (S)	87	13.59
Radiotherapy (RT)	560	87,5
Total	**440**	**100**

Comparison of chemotreated and non-chemotreated lung cancer patients according to clinical stage

Noting the difference between the stages and the treatment employed, there are patient who were given chemotherapy (in multidisciplinary approach) , while for some others, they were given other therapy except chemotherapy. It is noted that in stages IIB and IIIA are the highest number of cases in which chemotherapy was administered.

Table 6

Comparison of chemotreated and non-chemotreated lung cancer patients according to
clinical stage.

| Clinical stage | Chemotherapy | | | | Total cases |
| | Yes | | No | | |
	No. of cases	%	No. of cases	%	
0	8	1,26	0	0	**8**
I	15	2,34	8	1,26	**23**
IIA	96	15	22	3,44	**118**
IIB	128	20	29	4,53	**157**
IIIA	168	26,26	43	6,72	**211**
IIIB	53	8,23	18	2,81	**71**
IV	40	6,26	12	1,88	**52**
Total	**508**	79,35	**132**	20,64	**640**

Comparison of surgically treated lung cancer patient to non-surgically treated patients according to clinical stage.

Not all patients are candidates for surgical intervention. The final
decision relies on the extent of the tumor, the facilities available and the will
of the patient All patients from stage 0 had surgical intervention. Stage I,
IIA and IIB have most patient candidate for surgery. Stage IV has the least
percentage of cases since the tumor is in last evolution.

Table 7

Comparison of surgically treated lung cancer patients non-surgically treated patients
according to clinical stage

| Clinical stage | Surgery | | | | Total cases |
| | Yes | | No | | |
	No. of cases	%	No. of cases	%	
0	0	0	7	1,09	**7**
I	15	2,34	7	1,09	**22**
IIA	42	6,56	96	15	**138**
IIB	15	2,35	145	22,65	**160**
IIIA	7	1,09	200	31,25	**207**
IIIB	7	1,09	58	9,06	**65**
IV	0	0	41	6,42	**41**
Total	**86**	**13,43**	**554**	**86.56**	**640**

Repartition of lung cancer cases according to RADIOTHERAPY (RT)

High energy radiotherapy was administered in 565/440 (88,28%) of the cases while in 75/440 (11,72%) of the cases radiotherapy was not applied. Stage IIIA with 180 irradiated cases that represents 28,13% is on the top of the irradiated lung cancer cases and it is followed by a number of 145 cases (22,65%).

Table 8

Repartition of lung cancer cases according to RADIOTHERAPY (RT)

| Clinical stage | Radiotherapy | | | | Total cases |
| | Yes | | No | | |
	No. of cases	%	No. of cases	%	
0	7	1,09	0	0	**7**
I	16	2,5	7	1,09	**15**
IIA	115	17,97	7	1,09	**85**
IIB	145	22,65	18	2,81	**110**
IIIA	180	28,13	29	4,53	**145**
IIIB	58	9,06	7	1,09	**45**
IV	44	6,88	7	1,09	**35**
Total	**565**	**88,28**	**75**	**11,72**	**640**

CONCLUSIONS

In Bihor county lung cancer is situated on the top of the main cancerous morbidity since 1986. The morbidity curve is slightly ascending up to the present data. Morbidity curve is parallel with the mortality curve emphasizing the need of earlier diagnosis in operable stages and more aggressive combination chemotherapy and radiotherapy for the other stages.

We studied a total number of 640 lung cancer cases registered at Territorial Cancer Registry Bihor County and observed the following data – 80 % of the lung cancer patients were males versus 20 % cases were female which the highest incidence with 61-70 age group (31.25%). 67,03 % of the cases in T3,T4 stages(429). Early T stage is present only 96 cases (15%).

Our thorough analysis suggests that there is place for more aggressive association of chemoradiotherapy with better stratification of cases on different clinical stages by the help of modern imaging facilities, CT, MRI and PET CT and the use of the targeted therapy.

REFERENCES

1. Alberts W. M. (2008) *Diagnosis and Management of Lung Cancer.ACCP Evidence-Based Clinical Practice Guidelines (*2nd Edition) – Journal of lung cancer.
2. Cassidy J., D. Bisset, M. Rayne, Roy A.J Spence (2008) *Oxford handbook of oncology.* 2nd Edition. Lung cancer Pg 192-210
3. Ganti AK, FR Jr Loberiza, A. Kessinger (2008) *Association of positive family history with survival of patients with lung* cancer. Lung Cancer. 2008 Jun 21.
4. Kachroo S, L. Tong, MR Spitz, Y Xing, K Merriman, DK Zhu, J Fueger, CI Amos, CJ Etzel (2008) *Trends in prevalence of prognostic factors and survival in lung cancer patients from 1985 to 2004 at a tertiary care center.* Cancer Detect Prev. 2008;32(2):101-8. Epub 2008 Jul 17.
5. Macbeth F. (2008) *Measuring the outcomes of lung cancer treatment.* J Thorac Oncol. 2008 May;3(5):455-6. No abstract available. PMID: 18448995
6. Macbeth F., R. Milroy, R. Burnett (2009) *Lung cancer, a practical guide to management.* Lung cancer Pg 50-79.
7. Mauer ME, A Bottomley, L Collette, BJ Slotman. (2008) *Palliative-care trials: how best to publish findings* Lancet Oncol. 2008 May;9(5):411-2
8. Milroy R., S. William (2008) Lung Cancer a practical guide to management.
9. Szabo E, A Radu. R Muresan (2008) *Yearly journal.* University of ORADEA. Volume II. Territorial cancer Registry
10. ***Territorial Cancer Registry (2010). Bihor County, Romania