

Non-Small Cell Lung Cancer Treatment Comparison to NCCN Guidelines

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Data Source: Cancer registry data of stage III non-small cell lung cancers diagnosed 1/1/2004 to 8/31/07. Derived AJCC stage group was used in determining which cases to select. Cases that were diagnosed and expired in the same hospital admit without treatments were excluded from this study.

Reason for Report: A process improvement project for the evaluation of the treatment of lung cancer has been a hospital initiative for the past one and a half years. The cancer committee has been asked to assess the quality of our current care and to monitor it over time. The purpose of this study to determine if St. Joseph Hospital is following the current NCCN guidelines (published in 2005 and updated 1/2007) for non-small cell lung cancer and to see if there was any improvement since the 2004 study was completed.

Findings: There were 104 cases of stage III non-small cell lung cancer diagnosed for the above time period. This study separated the stage IIIA and IIIB cases to evaluate the information closer. There were 31 Stage IIIA cases and 72 Stage IIIB.

Both Stage IIIA and IIIB cases recommend the following pretreatment evaluation studies: Chest CT, PFT, bronchoscopy, PET scan, pathologic mediastinal LN evaluation and brain MRI. 100% of both Stage IIIA and IIIB cases had chest CT done. The following tables show the percentage of cases that had various pretreatment evaluation modalities broken down by stage and resectability.

Pretx eval of Nonsmall cell Lung Cancer		
	IIIA	IIIB
CT	100%	100%
PFT	65%	33%
Bronch*	48%	37%
PET	97%	64%
Brain MRI	35%	22%
LN eval	48%	22%

*Including intraoperatively

Pretx eval of Nonsmall cell Lung Cancer 2004-2007 Resected cases		
	IIIA	IIIB
CT	100%	100%
PFT	64%	92%
Bronch*	73%	42%
PET	100%	92%
Brain MRI	18%	17%
LN eval	100%	92%

Total cases 11 12

*includes intraoperative bronch

Pretx eval of Nonsmall cell Lung Cancer 2004-2007 Non-resected cases		
	IIIA	IIIB
CT	100%	100%
PFT	65%	18%
Bronch*	35%	37%
PET	95%	60%
Brain MRI	45%	23%
LN eval	20%	5%

Total cases 20 60

*includes intraoperative bronch

Of the 103 patients diagnosed with Stage IIIA or IIIB non-small cell lung cancer; 74% (24/31) of Stage IIIA and 76% (55/72) of Stage IIIB patients had pulmonary consults.

The following table shows what treatments were given by stage:

Stage III Non-Small cell Lung Cancer		
	Stage IIIA	Stage IIIB
Surg	5**	5*
XRT	8*	19**
Surg/chemo	4	4
XRT/Chemo	4	16
Surg/XRT	0	1
S/C/XRT	3	2
chemo	3	2
refused all	2	20
contraind	2	3
TOTAL	31	72
*2 refused chemo		
**3 refused chemo		

Stage IIIA information: There were 31 patients in this category; 11 had surgical resection and 20 were deemed unresectable. One patient refused all treatment options.

Number following all NCCN treatment recommendations = 12/31 (38.71%)
 Number patients refusing part/all of treatment recommend = 7/31 (22.58%)
 Number not offered all NCCN recommendations = 12/31 (38.71%)
 (all of these patients had no documentation that they were offered and/or received chemo)

The following is a breakdown of the patient getting recommended treatment or refusing a portion by resectability:

6/11 (54.5%) had surgery with recommended chemo
 3/11 (27.3%) had surgery but patient refused chemo
 3/11 (18.2%) had no documentation that they were offered and/or did receive chemotherapy.

6/20 (30%) who were unresectable had chemoradiotherapy
 4/20 (20%) who were unresectable; patient refused chemo
 10/20 (50%) who were unresectable; patient had no documentation that they were offered and/or did receive chemotherapy.

In summary, 19/31 or 61.3% of the patients were given or refused recommended treatment for Stage IIIA non-small cell lung cancer. 12/31 or 38.7% had no documentation that chemotherapy was offered.

Stage IIIB information: (Generally considered unresectable disease unless aggressive neoadjuvant pre-operative therapy indicated.) There were 73 patients in this category; 12 had surgical resections and 60 were deemed unresectable.

Number following all NCCN treatment recommendations = 22/73 (31.13%)
 Number refusing part or all of treatment recommendations = 12/73 (16.44%)
 Number not offered all NCCN recommendations = 39/73 (53.42%)

Of those that had surgery:

6/12 (50%) had recommended chemo or radiation post op
 1/12 (8.33%) refused recommended chemo
5/12 (41.67%) did not have documentation that chemotherapy or radiation was offered

3/12 (25%) had known Stage IIIB disease. (One of those was treated with pre-op chemoradiation.)

7/12 (58.3%) were all upstaged due to satellite tumors found in the same lobe making them all T4 N0 M0 cases. None of these satellite lesions were seen on PET scans.

2/12 (16.7%) had satellite tumors found at surgery and positive lymph nodes.

Of the patients that were given radiation therapy only, 8/27 (29.6%) did not have an offer of chemotherapy consult clearly stated in dictation. The other patients, 19/27 (70.4%) either refused chemotherapy, had risk factors that contraindicated chemotherapy or expired during radiation treatment.

The following table shows the above information regarding Stage IIIB disease (by TNM grouping) that met NCCN guidelines or the reasons why recommendations were not followed in absolute numbers. The information in this table reflects what was documented in the patient's medical record. If treatment was not recommended but documentation did not state why, it was recorded in the NOT MET column.

Nonsmall cell lung CA diagnosed 2004-2007					
NCCN treatment guideline - Stage IIIB					
	met	pt refused tx	pt too sick	not met	TOTAL
T4N0-1(S)	6	1	0	5	12
T4N0-1(N)	2	0	0	9	11
T1-3N3	3	2	1	2	8
T4N2-3	11	8	2	20	41
S-had surgery; N-no surgery					

Demographics and Survival:

Expired Patients: = 70 (67%)
 Median survival (in months) Stage IIIA = 19.5
 Median survival (in months) Stage IIIB = 10.17
 Average age of expired patients = 69.91

Average age of patients alive as of April 2007 Stage IIIA = 67.79
 Average age of patients alive as of April 2007 Stage IIIB = 66.75

Nonsmall cell lung cancer diagnosed 2004-2007			
Average age of patients			
	Stage IIIA	Stage IIIB	Both Stages
Alive	67.79	66.95	67.63
Expired	71.12	69.53	69.91
All patients	69.61	68.77	69.15

Average interval between date of diagnosis and date of treatment.

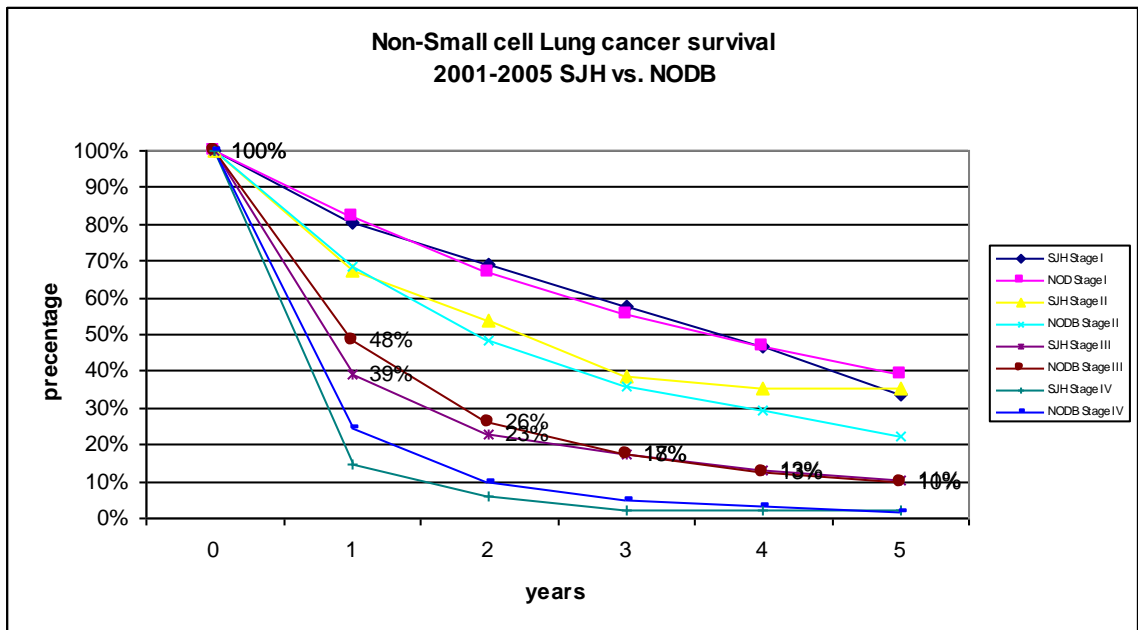
Stage IIIA = 23.1 days (range 0-83 days)
 Stage IIIB = 23.4 days (range 0-94 days)

The previous study done on 2003 showed an average interval between date of diagnosis and date of treatment to be 25.7 days with range from 0-103 days.

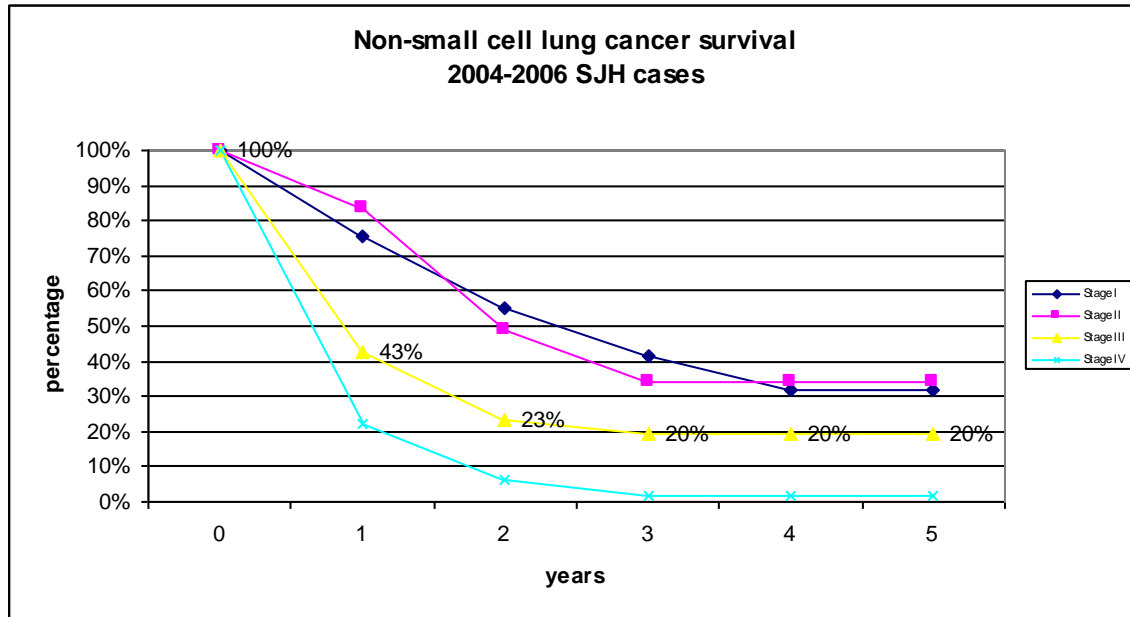
The average interval between symptoms and first biopsy for this group of patients was 28 days (range 0-168) and a median interval of 17 days. The average interval between biopsy and first course of treatment was 22 days with a median of 20 days. (This is different from date of diagnosis since that could be a clinical diagnosis on imaging before pathologic diagnosis.) The previous study done last year on ALL lung cancers diagnosed January 1, 2005 to June 30, 2006 showed an average time from imaging symptom to biopsy of 21 days. The average biopsy to first course of treatment on this same group was 25 days.

There were 2 patients in this study who were on a clinical trial. Both were unresectable and received chemotherapy and radiation therapy.

The following graph compares all stages of non-small cell lung cancer survival with the National Oncology Data Base (NODB) from IMPAC medical systems. The survival rates after 5 years for this period is identical at 10%.



This graph shows the survival rates for all non-small cell lung cancers seen at St. Joseph Hospital for the years 2004-2006 (years included in this study). The stage III cases percentages only are noted.



Conclusions: As part of a St. Joseph Hospital Lung Cancer initiative, the Cancer committee was charged with measuring the quality of care provided. Since Lung Cancer is both deadly and frequent, it's appropriate care has a great impact on our community. This study was designed to look at Stage 3 Lung Cancer as this is the stage of lung cancer for which multidisciplinary care and meticulous workup is the most critical.

The Cancer Committee, when reviewing St. Joseph patient outcomes has traditionally used NCCN Guidelines as a measure of national standard of care. Consensus panels of specialists from NCI approved Comprehensive Cancer Centers utilizing the best-published evidence based medicine create NCCN Guidelines. The Cancer Committee has accepted a standard of 80% compliance to be in alignment with NCCN Guidelines, a goal that has almost always been previously met with all other varieties of cancer. Unfortunately our Compliance was found to be a bit under 40% in this analysis.

STAGING

Our data shows that our patients are not staged as completely as recommended in NCCN guidelines. Most notable outliers are pre or intra-operative bronchoscopies and preoperative head imaging.

TREATMENT

If one looks at treatment, what is most clear is that patients are not receiving, or being offered systemic therapy (chemotherapy), which is now well established as an appropriate adjuvant treatment as well as consideration for neo-adjuvant therapy. This is true for both surgical and nonsurgical patients.

TIMELINESS

Compared to a previous study looking at 2005 and 2006 data, there was an increased delay in average time from symptom to biopsy (although the median was 17 days which was an

improvement) with about the same delay time as previous between biopsy and start of treatment. If added together, the average time (mean) imaging to treatment was 28+23=51 days. This is nearly a 2-month delay when the one-year survival is only 39%.

SURVIVAL

It is unlikely that our survival data is statistically different than the national survival data. Our one-year survival for Stage 3 patients is noticeably lower than the national numbers, but after the first year, the curves merge. Interestingly our Stage 2 patients have a noticeable improved survival at 5 years when compared to national data.

RECOMMENDATIONS

- Physicians need to be more thorough in staging our patients, especially now that we have Endoscopic Bronchial ultrasound (EBUS) technology.
- All stage III Lung Cancer patients should have case discussed with Medical Oncology (either through Tumor Board, informal consult or formal consultation).
- Physicians involved with the patient's care should dictate (Zubrod or Karnofsky) Performance Status in addition to the specific objective data according to NCCN and/or ACCP guidelines.
- The patient's Cancer Care Team needs to expedite the work up, diagnosis, staging, and initiation of treatment.
- All practitioners involved in the care of Lung Cancer patients need to be well versed in the NCCN/ACCP guidelines.
- Discussion of clinical trials with patients should be when appropriate by physicians.

References:

1. NCCN Practice Guidelines in Oncology V.2.2008. Available at www.nccn.org Accessed March 2008.
2. Commission on Cancer, National Cancer Database (NCDB). Available at: <http://web.facs.org/ncdbbmr/ncdbbenchmarks9.cfm> Assessed April 2008.
3. National Oncology Database (NODB) of IMPAC Medical systems. Available at: www.impac.com/, support plus (restricted access). Accessed April 2008.

Reported to cancer committee: 6/12/08

Distributed to Administration, surgeons, pulmonologists & medical oncologists: 6/13/08

STAGE of Lung, Bronchus - Non-Small Cell Carcinoma Cancer Diagnosed 2004

All Reported Cases - HOSP. TYPE: All Types/Systems

St. Joseph Hospital, Bellingham, WA vs Hospitals in ACS Division: Great West - Data From 105 H

	N (cases)		% (percent)	
	Sum		Sum	
	Reported by		Reported by	
	Other	My Hosp.	Other	My Hosp.
STAGE	17	0	0.24	0.00
0				
I	1,633	21	22.70	22.58
II	529	4	7.35	4.30
III	1,726	27	24.00	29.03
IV	2,504	40	34.81	43.01
Unknown	784	1	10.90	1.08
Total	7,193	93	100.00	100.00

Source: NCDB, Commission on Cancer, ACoS. Benchmark Reports, v9.0