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ONCOLOGY REPORT

with 2013 Data



A Look at Lung Cancer

*Prevention, Detection
Treatment*



BON SECOURS KENTUCKY HEALTH SYSTEM

The Current State of Lung Cancer



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Lung cancer continues to be a leading cause of cancer-related morbidity and mortality in the United States. In recent years, significant advances have been made in both the detection and treatment of lung cancers. Here, we take a quick overview of some of these advances.

Lung Cancer Risk Reduction and Prevention

Smoking remains the strongest risk factor for the development of lung cancer. Smoking cessation remains a public health challenge, but the fact remains: cessation represents the single most powerful risk reduction strategy in preventing the development of lung cancer. OLBH offers resources to aid in smoking cessation.

Screening and Early Detection

Screening refers to a program in which certain procedures or tests are performed for the purpose of detecting cancers in their earliest stages, and in some cases as “pre-cancers.” In the past, chest x-rays and CT scans were used to look for cancers. Chest x-rays, while cheap and with very low radiation exposure, had limited sensitivity. CT scans on the other hand were more sensitive in detecting cancers but exposed patients to excessive doses of radiation and were more expensive. This ultimately led to the idea of using a low-dose CT scan of the chest in “high-risk” patients.

The National Lung Cancer Study looked at more than 50,000 patients using both low-dose CT scans and chest x-rays to see which test, if any, was better at detecting lung cancers and reducing mortality from lung cancer. The results showed that the use of low-dose CT scans resulted in a decrease in lung cancer related deaths, primarily as a result of earlier detection.

The current guidelines recommend the use of low-dose CT screening in patients aged 55-80 years with a minimum 30 pack-year smoking history (pack-years are defined by the number of packs smoked per day multiplied by years of smoking, i.e. $\frac{1}{2}$ pack per day \times 50 years = 25 pack-years). These recommendations also apply to patients with a 30+ pack-year smoking history who also quit smoking in the past 15 years.

Advances in Treatment of Small Cell Lung Cancer Treatment

Small cell lung cancer (SCLC) remains a challenging disease, but clinicians are making significant improvements in helping patients survive longer. For earlier stage SCLCs, treatment typically consists of a combination of chemotherapy and radiation. However, most patients with SCLCs present with advanced stage disease, leaving a number of questions about what is the best treatment approach.

Traditionally, the approach has been to treat advanced stage patients with chemotherapy alone and assess their response to treatment. Radiation is not added because of the length of treatment time, inconvenience to the patient, and unclear benefit to the patient. However, that paradigm has recently been challenged.

In a large Phase III clinical trial from Europe, advanced stage SCLC patients received either chemotherapy alone or chemotherapy along with radiotherapy directed to the chest (delivered in a short time frame of two weeks); the results revealed that patients who received radiation to the chest lived longer. A number of other studies are being conducted to look at adding radiation to other areas of the body in addition to the chest, using a similarly protracted treatment duration of two weeks, with the hope of improving outcomes for SCLC patients.

Advanced in Treatment of Non-Small Cell Lung Cancer

The term non-small cell lung cancer (NSCLC) represents a diverse group of lung cancers. The two primary types are squamous cell carcinomas and adenocarcinomas. There has been a tremendous amount of interest in the research community in both the early identification of NSCLC and treatment of all stages of NSCLC.

Early Stage NSCLC

With improved early detection and screening, those in the oncology community expect to see more early stage NSCLCs. For early stage NSCLCs in which the cancer is still localized to the lung and has not spread to lymph nodes, the standard of care is surgery. For patients who are able to undergo surgery, the control rates can be as high as 90 percent at five years after surgery. However, many lung cancer patients also have other medical problems such as heart disease or underlying pulmonary disease (emphysema/COPD) which make surgery too risky to perform.

For patients with early stage NSCLCs who cannot undergo surgery, radiation therapy is the preferred treatment approach. In the past, radiation therapy for such cancers would consist of daily treatment for approximately seven weeks. This type of radiation was inconvenient for patients and not very effective, with long term control rates of 20-30 percent—much lower than surgery. Such radiation treatment could also have significant side effects. Indeed, many of my patients recall stories of their own family members undergoing radiation treatment many years ago, and the memories aren't happy ones.

The Current State of **Lung Cancer** continued...

Radiation therapy has made remarkable advances in the past five years. In particular, a new type of radiation treatment technique called stereotactic ablative body radiation therapy (SABR) has revolutionized the treatment of early stage NSCLC. Using this treatment technique, doctors can deliver high doses of radiation to lung cancer in as few as three-five total treatments, delivered during a one-two week period (as opposed to 35-40 treatments over seven to eight weeks). Not only is the treatment time much shorter, but the outcomes have been comparable to surgery, with long term control rates of 90 percent and higher. When properly administered, SABR is safe and well-tolerated. This treatment is highly sophisticated and technically demanding, and requires a physician specially trained and experienced in using this technology as well as in selecting patients who are likely to benefit from it.

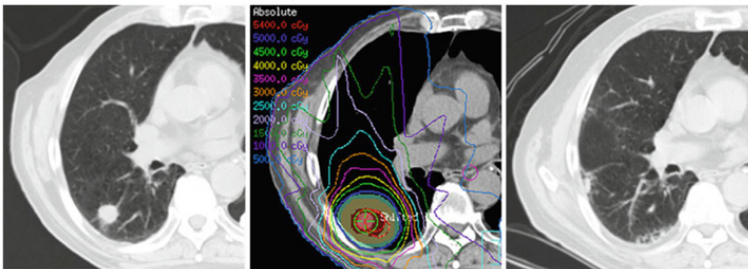


Figure 1. Example of SABR Treatment for Lung Cancer. The left panel demonstrates a non-small cell lung cancer in the right lung. The middle panel represents an example of a radiation treatment plan that focuses a high-dose of radiation on the cancer itself, sparing the normal tissues around it from excessive dose. The right panel demonstrates a follow-up CT scan approximately four-years after treatment showing a complete remission.

Locally Advanced and Advanced NSCLC

For patients with advanced NSCLC, there has been a surge in new treatment options. These treatment options are the result of many years of research focused on identifying new treatment targets, combinations of existing treatments, and the patients who are likely to benefit. The cornerstone of this surge is molecular and genetic testing.

Molecular and genetic testing is performed by pathologists and used by oncologists to decide whether patients may be candidates for certain new treatments. Doctors now routinely look for certain biomarker targets in NSCLC, such as EGFR, ALK, and BRAF. These biomarkers provide important predictive and prognostic information in terms of how a patient may respond to a particular type of treatment. A number of new treatments are oral medications which come in pill form and specifically target certain types of NSCLC. Examples include erlotinib, crizotinib, and ceritinib.

The next frontier is immunotherapy. This type of treatment involves giving therapies which utilizes the body's own immune system to fight cancer. Although such a strategy was tried many years ago with little success and great toxicity, a new generation of immunotherapy treatments is showing promising results. Immunotherapy is currently being investigated in clinical trials.

Conclusion

The oncology community continues to make strides in the treatment of lung cancer. At the core of lung cancer treatment is prevention through smoking cessation. OLBH offers free smoking cessation courses. For dates of the next available course, call the OLBH CareLine at **(606) 833-CARE (2273)**. Screening and early detection are allowing the discovery of lung cancers in the beginning stage cancers, when they are most treatable. Excellent treatments are now available for patients who may not be candidates for surgery. For more advanced disease, there are many promising therapies and treatment strategies emerging, and with that comes a great deal of hope for all our patients. OLBH offers many therapies, procedures, support groups and other resources related to cancer. For more information, visit olbh.com or call **(606) 833-CARE (2273)**.

Lung Cancer:

Good News, Screening Options and New Treatments



Jeffrey Lopez, M.D.
Radiation Oncologist

Often we only hear bad news when it comes to cancer and especially lung cancer, but there is some good news. The National Cancer Institute (NCI) Annual Report to the Nation in 2013 on the Status of Cancer, covering the period 1975–2010, showed death rates for lung cancer, which accounts for more than one in four cancer deaths, dropping at a faster pace than in previous years. The recent larger drop in lung cancer deaths is likely the result of decreased cigarette smoking prevalence over many years and is now being reflected in mortality trends. The use of smokeless cigarettes may also contribute to this in the future. The lung cancer death rate declines, as well as declines in colorectal, breast, and prostate cancer death

rates, has also helped drive decreases in death rates for all cancer types combined, a trend that began nearly 20 years ago.

Also mentioned in the NCI report is the prevalence of other disease conditions (diabetes, chronic lung disease, cardiovascular disease, and 13 others) in cancer patients over 65 years of age and how they affect survival. Studying comorbid conditions is especially important because cancer is primarily a disease of aging and the prevalence of comorbidities also increases with age. Comorbidity is defined as having two or more medical conditions at the same time. The report shows that one-third of patients in this study population have comorbidities, with a higher frequency of comorbidities in patients with lung or colorectal cancer, and that survival is influenced by the presence of other medical conditions as well as the type of cancer, stage at diagnosis, and age.

Death Rates

According to the 2014 American Cancer Society Statistic Report, lung cancer death rates declined 36 percent between 1990 and 2011 among men and 11 percent between 2002 and 2011 among women due to reduced tobacco use. Lung cancer incidence rates began declining in the mid-1980s in men and in the late 1990s in women. The differences reflect historical patterns in tobacco use, where women began smoking in large numbers about 20 years later than men.

The NCI found that lung cancer death rates for men dropped approximately two percent per year during the period 1993-2005 and fell by approximately three percent per year from 2005-2010. For women, rates declined less at about 1.5 percent per year during the period 2004-2010, which was a turnaround from an increase of 0.3 percent per year during the period 1995-2004. These shifts have been

attributed to many factors that have reduced the prevalence of cigarette smoking in the United States. Of particular note is the smaller drop in lung cancer death rates for women, most probably due to a later decline in cigarette smoking rates among females.

Unfortunately, lung cancer remains the leading cause of cancer death among both men and women.



Comorbidities and Lung Cancer

The cancers with a high prevalence of comorbidities (other illnesses) were most commonly seen in lung cancer (52.9 percent), compared to colorectal cancer (40.7 percent), while the prevalence of comorbidities for those with breast cancer (32.2 percent) or prostate cancer (30.5 percent) was similar to that seen in non-cancer patients (31.8 percent). Often, patients in our area who are diagnosed with lung cancer also have heart disease, diabetes and/or chronic lung disease which makes it difficult for them to tolerate the surgery, chemotherapy and/or radiation that they may be indicated to treat their cancer.

Lung Cancer Screening

One of the ways we can improve the survival from lung cancer is by screening. According to the National Comprehensive Cancer Network Guidelines, the five-year survival rates for lung cancer are only 16.6 percent, partly because most patients have advanced-stage lung cancer at initial diagnosis. We have noted the success of screening in improving outcomes in cervical, colon, and breast cancers. This success has led to studies to develop an effective lung cancer screening test. Ideally, effective screening will lead to earlier detection of lung cancer (before patients have symptoms and when treatment is more likely to be effective) and will decrease mortality.

Currently, most lung cancer is diagnosed clinically when patients present with symptoms such as persistent cough, chest pain, and weight loss; unfortunately, patients with these symptoms usually have advanced lung cancer. Early detection of lung cancer is an important opportunity for decreasing mortality. Considerable interest has been shown in developing screening tools to detect early-stage lung cancer. Recent data support using spiral (helical) low-dose computed tomography (LDCT) of the chest to screen select patients who are at high risk for lung cancer. These scans can be performed at OLBH if indicated. Chest x-ray is not recommended for lung cancer screening.

Lung Cancer continued...

New Treatments for Lung Cancer

Traditionally, early stage lung cancer has been treated with surgery, and it is still the treatment of choice today for those that can tolerate surgery. For those patients whose other health problems make surgery impossible, they may be candidates for focused radiation therapy known as Stereotactic Ablative Radiotherapy (SABR), also known as Stereotactic Body Radiation Therapy (SBRT). This is typically delivered in one to five outpatient treatments over one to three weeks.

There also have been advances in surgery with minimally invasive surgery allowing the thoracic surgeon to remove lung cancers with smaller incisions and shorter recovery times. There are various tests for tumor markers that help determine which systemic treatment options would be indicated for the lung cancer patient's specific cancer.

Until recently, there was no need to distinguish among the various subtypes of lung cancer other than small cell or non-small cell as there were no clear systemic treatment outcomes different in the treatment of non-small cell lung cancer. This changed in 2004 with the discovery of the epidermal growth factor receptor (EGFR) mutation present in lung adenocarcinoma and is related to a favorable response to EGFR tyrosine kinase inhibitors (TKI). Anaplastic lymphoma kinase (ALK) fusions were later found to also



be limited to adenocarcinoma, and current guidelines recommend initial EGFR and ALK testing in patients with adenocarcinoma or mixed tumors with adenocarcinoma components. These tests allow medical oncologists to determine the best systemic treatments.

So, with these advances and future developments in surgery, systemic therapy and radiation, we will hopefully see the future for lung cancer patients continue to improve. But as always, the best way to prevent lung cancer is to never smoke and if you do smoke, stop!

If you need help in stopping, OLBH offers free smoking cessation courses. Call the OLBH **CareLine** at **(606) 833-CARE (2273)** for information.

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Lung Cancer and Pulmonary Rehabilitation

Lung cancer is the leading cause of cancer deaths among men and women in the United States and elsewhere in the world. Lung cancer accounts for nearly 27 percent of all cancer deaths. Each year, more people die of lung cancer than of colon, breast, and prostate cancer.

Cigarette smoking is the major cause of lung cancer, and women are more susceptible to tobacco carcinogens than men. Until tobacco use is sharply decreased, lung cancer will continue to be the number one cause of cancer deaths in the United States.

The chances that a man will develop lung cancer in his lifetime are approximately one in 13. For women, the risk is one in 16. Asbestosis and other environmental exposures, including passive smoke exposure, also factor into the likelihood of development.

Many patients with lung cancer are excellent candidates for the OLBH Pulmonary Rehabilitation program, especially given that they may have underlying lung disorders. Once they are medically stable, these patients should undergo a program of pulmonary rehabilitation pre- and post-treatment.

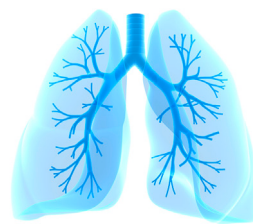
Lung cancer may be associated with a variety of disease and treatment related symptoms including: dyspnea, cough, fatigue, weight loss and altered functional and psychological states. Many patients have reduced lung function which may decline further after cancer treatments. These symptoms may affect an individual's activities of daily living and quality of life. In pulmonary rehabilitation, the goal is to avoid inactivity and return to normal daily activities as quickly as possible. Pulmonary rehabilitation is individualized to the patient's needs and consists of education and exercise training sessions delivered by a multi-disciplinary team.

In pulmonary rehabilitation, education consists of breathing retraining, pacing activities, energy conservation, nutrition, stress management, coping with lung disease and smoking cessation. With a physician's referral, the patient will attend rehab three days a week for a total of 24 sessions. Along with the staff of pulmonary nurses and exercise physiologists, available on an as-needed basis are dietitians, social services, and members of the Pastoral Care and Palliative Care departments.

For patients, pulmonary rehab allows them:

- To be the best they can be before, during and after treatment
- To improve lung treatment outcomes and recovery
- Improvement of cancer-related fatigue and quality of life
- Improvement of performance status during chemotherapy and/or radiation
- Self-management for better symptom control
- Increase of hope
- Survival

For more information concerning OLBH Pulmonary Rehabilitation, contact **Jean Bowling BSN**, OLBH pulmonary nurse clinician, at **(606) 833-3516**.



2013 Cancer Data Summary

Percentage of OLBH Cancer Incidence by Primary Site

BREAST, FEMALE & MALE	23.16	OTHER ORAL CAVITY	.74
TRACHEA, BRONCHUS, LUNG-NSC	12.5	OROPHARYNX	.74
TRACHEA, BRONCHUS, LUNG-SMALL	9.56	PANCREAS	.74
PROSTATE	7.35	STOMACH	.74
BLADDER	6.99	CERVIX	.37
COLON	6.25	CONNECTIVE & SOFT TISSUE	.37
ENDOMETRIUM (CORPUS UTERI)	4.41	HYPOPHARYNX	.37
NON-HODGKIN'S LYMPHOMAS	3.31	MYELOID LEUKEMIAS	.37
MALIGNANT MELANOMA	3.68	MYELOPROLIF. & MYELOYDYPPLAS.	.37
RECTUM/ANUS	3.68	OTHER DIGESTIVE TRACT	.37
KIDNEY	2.57	OTHER RESPIRATORY	.37
THYROID	1.84	OTHER SKIN	.37
OVARY	1.47	OTHER URINARY ORGANS	.37
OTHER FEMALE GENITAL ORGANS	1.10	PLASMA CELL TUMORS	.37
ESOPHAGUS	.74	SALIVARY GLANDS	.37
HODGKIN'S	.74	TONGUE	.37
LARYNX	.74	TOTAL	272
LIVER	.74		

Registrar's Report

OLBH began its cancer registry in 1991 to collect data from every patient diagnosed or treated for cancer at the hospital. The data plays an important role in the ongoing evaluation of cancer care. The cancer registry is a computerized data collection and analysis center that contributes to patient treatment, planning, staging, and continuity of care through data retrieval, annual analysis, and long term follow-up.

The OLBH cancer registry is a member of Kentucky Cancer Registry (KCR) and the American College of Surgeons (ACOS). Information is submitted annually to KCR for the Kentucky Cancer Incidence Report. The registry also participates in the "Call for Data" by the National Cancer Data Base, which is designed to provide an annual review of patient care, a comparative summary of hospital cancer statistics and data edit report.

All information collected for the registry is kept strictly confidential. General data, however, is available for presentation, publications, reports, etc. For more information regarding the OLBH cancer registry, call **Barb Fitzpatrick, CTR**, at (606) 833-3252.

Concerned

that years of
smoking or exposure
to occupational
hazards may be
affecting your lungs?

Find out!



Most insurances do not
cover the screening.

To schedule the \$75
screening or for
more detailed
information, call
(606) 833-3999.



LUNG CANCER SCREENINGS \$75

Lung cancer is the leading cause of cancer death in the United States. As with most cancers, the key to survival is early diagnosis. **Our Lady of Bellefonte Hospital** now offers a lung cancer screening program that can prove to be lifesaving.

Screening Criteria - Must be 50 years of age or older and meet one of the criteria below:

- An existing pulmonary symptom (COPD, emphysema, worsening cough, shortness of breath, pulmonary fibrosis, etc.)
- Current smoker or prior history of at least one pack per day
- Second-hand smoke exposure for 10 years or more
- Occupational exposure to such as chemicals, gases, dust, etc.
- Cancer history or immediate family history of lung cancer



OUR LADY OF BELLEFONTE HOSPITAL
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