Radiation therapy involves subjecting the cancer-bearing region to radiation. Ionizing radiation damages or destroys the cancer cells and prevents them from growing and multiplying. Normally, the treatment is divided over a period of one month, during which fixed doses of radiation are delivered each day (five days/week). Radiation affects both normal as well as abnormal tissues in the area where radiation is administered. The schedule for radiation is planned in a way that helps the recovery of the normal tissues while ensuring sustained tumor destruction.

Contact CPAA for detailed literature on Chemotherapy and Radiation in different languages.

**Treating non small cell lung cancer**

Patients with non-small cell lung cancer may be treated in several ways. The choice of treatment depends mainly on the extent of the disease. Surgery is the most common way to treat this type of lung cancer at the localized stage. Radiation therapy and chemotherapy may also be used to slow the progress of the disease and to manage symptoms.

**Treating small cell lung cancer**

Small cell lung cancer is more aggressive and spreads quickly. In many cases, cancer cells have already spread to other parts of the body when the disease is diagnosed. In order to reach cancer cells throughout the body, doctors almost always use chemotherapy. Treatment may also include radiation therapy aimed at the tumor in the lung or tumors in other parts of the body (such as in the brain). Some patients have radiation therapy to the brain even though no cancer is found there. This treatment, called prophylactic cranial irradiation (PCI), is given to prevent tumors from forming in the brain. Surgery is part of the treatment plan for a small number of patients with small cell lung cancer.

**The importance of follow-up care**

Follow-up care after treatment for lung cancer is very important. Regular checkups ensure that changes are quickly noticed, and if the cancer returns or a new cancer develops, it can be treated as soon as possible. Checkups may include physical exams, chest X-rays or lab tests.

**Cure rates of Lung Cancer**

Cure rates are dependent upon the stage at diagnosis, compliance of patients with treatment, and the tolerance to treatment. Stage I patients have nearly 70% cure rates, Stage II about 40-50% cure and Stage III about 15-30% cures. In advanced Stage IV patients, long term cure may not be possible, but the general condition of the patient can definitely be improved with treatment.
LUNG CANCER

Lung cancer is the most common cancer amongst men in India, with approx. 33,000 new cases every year. The lung, which is the most crucial part of the respiratory system helps us to breathe. Lungs are a pair of sponge-like organs in the chest cavity. The right lung is larger than the left lung and has 3 sections called lobes while the left has only 2 lobes. When we breathe in, the lungs take in oxygen and when we breathe out, we exhale carbon dioxide, which is a waste product of the body.

WHAT IS LUNG CANCER?

Cancer is an unwanted dangerous, purposeless and uncontrolled growth of any body tissue, with a capability of spreading to other areas. Cancer that begins in the lungs is called lung cancer. There are two basic types of lung cancer, which are further sub-divided as follows:

- Small cell lung cancer or oat cell cancer (less common)
- Non small cell lung cancer (more common)
  - Squamous cell (epidermoid cancer)
  - Adenocarcinoma
  - Large cell carcinoma

WHO IS AT RISK?

Researchers have discovered several causes for lung cancer, most related to the use of tobacco:

- Smoking - Cigarettes, Beedies, Cigars and Pipes all introduce harmful substances (carcinogens) into the lungs through inhaled tobacco smoke, which damage cells and can become cancerous. Tobacco cessation greatly reduces a person’s risk for developing lung cancer.
- Environmental Tobacco Smoke or passive smoking - increases the chance of developing lung cancer. Scientists have also identified third hand smoke in the form of carcinogens which permeate carpets or upholstery even after a smoker has left the room, which can also cause lung cancer.
- Asbestos - is the name of a group of minerals that occur naturally as fibers and are used in certain industries. Asbestos fibers tend to break easily into particles that can float in the air. When the particles are inhaled, they can lodge in the lungs, damaging cells and increasing the risk of lung cancer.
- Radon - is an invisible, odorless and tasteless radioactive gas that occurs naturally in soil and rocks. It can cause damage to the lungs and may cause lung cancer. People who work in mines may be exposed to radon.
- Pollution - Researchers have found a link between lung cancer and exposure to certain air pollutants, such as by-products of the combustion of diesel and other fossil fuels.
- Lung Disease - Certain lung diseases, such as tuberculosis (TB), increase a person’s chance of developing lung cancer. Lung cancer tends to develop in areas of the lung that are scarred from TB.
- Personal Medical and Family History - A person who has had lung cancer once is more likely to develop a second lung cancer compared to a person who has never had lung cancer. Brothers, sisters and children of those who have had lung cancer have a slightly higher risk of lung cancer. However, it is difficult to say how much of this excess risk is due to inherited factors and how much is due to environmental factors.
- Other Mineral Exposures - People with silicosis and berylliosis (lung diseases caused by breathing in certain minerals) also have an increased risk of lung cancer.

Researchers continue to study the cause of lung cancer and try to find ways to prevent it. We already know that the best way to prevent lung cancer is to quit or never start smoking. If you would like to take advantage of CPAA’s Tobacco Cessation programme or know someone who does, please contact CPAA for help.

WHAT ARE THE SYMPTOMS OF LUNG CANCER?

- Unexplained chronic cough
- Repeated attacks of lung infection
- Breathlessness, wheezing, hoarseness
- Sputum mixed with blood
- Constant chest pain
- Loss of appetite or weight loss
- Fatigue

Some of the symptoms mentioned above are quite common in everyday illnesses and do not necessarily indicate cancer. Nevertheless, it is wise to pay heed to these symptoms and seek advice from your doctor. Early detection gives the best choice of care.

How can lung cancer be diagnosed?

To help find the cause of symptoms, a doctor evaluates a person’s medical history, smoking history, exposure to environmental and occupational substances and family history of cancer. After clinical examination, X-ray of the chest or special computerized X-ray examination called Tomography (CT) is undertaken. To confirm a diagnosis of cancer, a biopsy must be performed in which cells or tissues from the suspected lesion are examined under a microscope by a pathologist. This can be done in a suspected case of cancer by extracting a piece using a Bronchoscope or a needle biopsy under CT scan guidance.

Bronchoscopy - The doctor puts a bronchoscope, a thin flexible tube with lighted glass fibers, into the mouth and down through the windpipe to look into the breathing passageways and collects cells or samples of tissue.

Staging the disease

If the diagnosis is cancer, the doctor wants to know about the stage (or extent) of the disease. Staging is done to find out whether the cancer has spread and if so, to which part of the body. Knowing the stage of the disease helps the doctor to plan treatment. Some tests used to determine whether the cancer has spread include:

- CAT (or CT) scan: computed tomography - A computer linked to an X-ray machine creates a series of detailed pictures of areas inside the body.
- MRI (magnetic resonance imaging): A powerful magnet linked to a computer makes detailed pictures of areas inside the body.
- Radionuclide scanning: Bone scan or PET Scan: Newer techniques of scanning can show whether cancer has spread to other organs, such as the liver, bones or brain. The patient swallows or receives an injection of a mildly radioactive substance. The scanner then measures and records the level of radioactivity in different organs to reveal abnormal areas.

What are the treatments options for lung cancer?

Treatment depends on a number of factors, including the type of lung cancer (non-small cell or small cell lung cancer), the stage of the disease, and the general health of the patient. Many different treatments and combinations of treatments are used to treat lung cancer. The three common modes of cancer treatment are surgery, radiation and chemotherapy.

Surgery is the most commonly used modes of cancer treatment in early stage disease, wherein the surgeon removes a localised tumour with some part of the adjacent normal tissue taking care to avoid any spillage of the disease. When the surgeon removes an entire lobe of the lung, the procedure is called a lobectomy. Pneumonectomy is the removal of an entire lung. The human lung has substantial reserve capacity and removal of a lobe or even one full lung does not severely incapacitate the person.

Chemotherapy is treatment of cancer by drugs, employing cytotoxic drugs which are capable of arresting fast cellular growth. Unfortunately, at times, chemotherapy also affects other fast growing and dividing normal cells in the body giving rise to some side effects like nausea, vomiting, loss of hair and fever. Most of these side effects are temporary, lasting for only a few days and can be controlled with modern medications. The treatment is given in a cyclic form once in 3 or 4 weeks, to allow for adequate recovery of normal tissues and to ensure that cancer cells are killed at the same time.