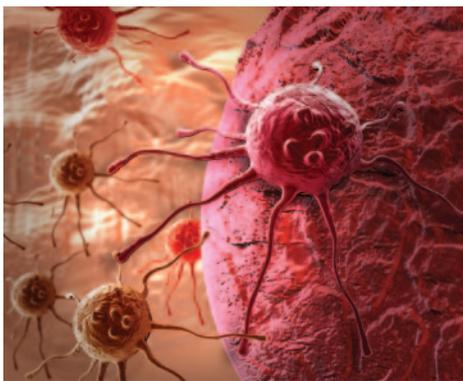


Advances in Cancer Treatment

One in three people in developed countries will suffer from cancer. And one in four will lose their lives to this dreaded disease.

What exactly is cancer?

The term “cancer” originated from the Greek term for “crab”. This description came from a physician-philosopher in ancient Greece- Hippocrates. When he first studied the nature of cancerous growths, the typical appearance of cancer as a mass with extension and invasion of the surrounding normal organ reminded him of the appearance of a crab with legs extending out of a body.



Cancer cells evolve from normal cells. The behavior of normal cells is regulated by the genetic code. They multiply, grow and die a natural death in a controlled fashion. However, the genetic code can be frequently damaged. Cells are usually able to self-repair the damage. Cells that fail to self-repair will usually undergo self-death. However, if a damaged cell fail to self-repair or undergo self-death, this abnormal cell may then multiply and grow in an uncontrolled fashion with abnormal characteristics enabling it to invade its surrounding and to spread through the blood circulation to other parts of the body leading to damage of vital organs and ultimately, death.

Many factors may contribute to the damage of the genetic code of cells and also to the loss of ability of self-repair. Some factors are inherited. Other factors involve the environment such as pollution and radiation. Life-style factors such as cigarette smoking and the use of alcohol also play a significant role.

The growth of cancer cells occurs in an exponential way. By the time a cancer can be detected, it is usually at least 1 centimeter in size. A one-centimeter tumor

carries within itself 1 billion cancer cells. It would have undergone the multiplication process 30 times. If the tumor were to undergo the cycle a further 10 times, there would be a trillion cancer cells in the body invariably causing death.

The symptoms of cancer depend on the site of the growth. Lung cancer, for instance, typically cause cough, chest pain and shortness of breath. Unfortunately, early cancer often produces no symptoms. By the time any discomfort is felt, the cancer is often advanced and the window of opportunity for a cure would have been lost.

The rapid rate of growth of cancer cells and the propensity to disseminate, makes early detection a corner stone of the successful fight against the disease. Screening mammogram, Pap smear and colonoscopy are tools that have been successfully employed for the early detection of breast, cervix and colon cancer respectively. With advances in technology, non-invasive means of cancer screening, such as virtual colonoscopy using advanced 64-slice tomography, is fast gaining popularity.

The treatment strategy for cancer has to be customized according to the tumor-type, the stage of the cancer as well as the characteristics of the patient.

Surgery remains an important cornerstone of cancer treatment. The total surgical removal of a tumor is often necessary to achieve a cure. Advances in surgical care aim to reduce the morbidity of surgery without compromising the cure rate. A technique for breast cancer surgery known as axillary sentinel lymph node biopsy is now a widely accepted alternative to the traditional procedure of removal of large number of axillary lymph nodes which may lead to a higher incidence of chronic swelling of the affected arm.

In the field of radiation, image guided radiotherapy intensity modulated radiotherapy promises to deliver the required treatment to the tumor in a far more accurate way thereby improving treatment effectiveness while at the same time, reducing treatment related side effects.

Chemotherapy advancement has made impressive strides. While more effective treatments are available, conventional chemotherapy nevertheless suffers the drawback of significant associated toxicity. The problem arises from the relatively non-specific mechanism of action of most chemotherapy leading to damage of not only cancer cells, but also of normal cells of the body. More potent combinations of chemotherapy therefore often carry with them more severe side effects. In the quest for better treatment, specific therapy that targets the cancer cells and boosts efficacy while minimizing the “collateral damage” to normal cells of the body, remains the holy grail of anti-cancer treatment strategy.

Over the last few years, targeted therapy has become a reality. Anti-cancer drugs now have characteristics of “smart bombs” with the ability to home in to destroy cancer cells while sparing the normal cells of the body. The era of “smart drug” have thus arrived.

In the field of early breast cancer treatment, the use of the antibody Herceptin® in patients with tumors displaying the target has led to a dramatic decrease in relapse rate not seen in several decades. In the treatment of non-Hodgkin lymphoma, the use of the antibody rituximab in patients with



tumors displaying the target has led to a dramatic decrease in relapse rate not seen in several decades. Further development in the field has yielded a newer generation of radioactive monoclonal antibodies such as Zevalin® with promising results in early clinical trials.

The treatment of lung cancer has also seen important breakthroughs in the recent years. The use of the antibody Avastin® has improved the survival in advanced lung cancer over the use of conventional chemotherapy alone. Apart from antibodies, a class of special molecules has been developed to block

specific targets on cancer cells responsible for cancer growth. Members of this class of drugs, Iressa® and Tarceva® have entered clinical use and have found applications in the treatment of advanced cancer of the lung. Their favorable side effect profile and ease of oral administration are especially attractive. These drugs have made available a treatment option for patients who are either unable to receive chemotherapy or who suffer from tumors that are not responsive to chemotherapy.

These improvements give us cause for optimism in our relentless pursuit of better cancer treatment.

The Cancer Centre (TCC) is a silver lining of care, comfort and confidence to the community. Cancer itself can often bring up unanswered questions that relate to life, family and an uncertain future. The condition however, does not have to leave your patient or his or her loved ones unsure. Regardless of the questions that cancer may pose, we will give your patient answers... simply Because We Understand and Care.

TCC emphasises on preventive measures, actively conducts screening and avails of innovative-targeted treatments for adult cancers using proven technologies to ensure optimal patient safety and comfort.

