

TAKE GOOD CARE OF YOURSELF AND LOVED ONES

# CAN- CER



This brochure has  
been created as  
an answer to your  
questions.

At the Oncology Department, we aim to provide the best medical services to our patients with our experienced team and multidisciplinary approach. As a medical center committed to "Patient Oriented Centered Care", we aim, in the first place, to make the patients and their relatives feel at home and not to lower their life quality of life. At the Oncology Department where we serve patients with such an understanding, we are ready to meet the needs of our patients also at sub-branches such as Medical Oncology, Radiation Oncology, Gynecologic Oncology, Hematological Oncology, Oncologic Screening Imaging and Surgical Oncology. We follow technological and scientific developments closely and offer the state-of-the-art treatment options to our patients such as Cyberknife, da Vinci, Truebeam, PET-CT. We know the importance of early diagnosis and effective treatment in cancer. For this purpose, we offer our patients the CTC technique which enables early diagnosis and effective treatment in cancer.

## Cancer Types

- Breast Cancer
- Testicular Cancer
- Intestinal and Rectal Cancer
- Lung cancer
- Cervical Cancer
- Uterus Internal Cancer
- Urinary Tract Cancer
- Bladder Cancer
- Oral Cancer
- Throat Cancer
- Prostate cancer
- Skin cancer



### **CyberKnife M6**

Treatment technique, in which a very sensitive administration of high dose radiation into the stereotactically specified area is taking place while preserving other normal organs from acute and long-term toxic effects from radiation by causing a sudden drop in dosage outside targeted margins, is called stereotactic radiosurgery. Today, Cyberknife device is one of the most prominent devices to apply this technique.

Tumours in any region of the body can be easily treated with Cyberknife M6. Cyberknife M6 treatment is profoundly used in malignant or benign diseases localized in the brain, in tumours localized in the spine, head and neck, lung, pancreas, liver, adrenal and prostate glands. It is a rare device dedicated to stereotactic radiosurgery today with its presence ensuring patient comfort and easy applications compared to conventional systems.

**Sensitive Robotic Structure** Cyberknife M6 uses a considerably sensitive robotic tech to treat tumours. It produces radiation for different sizes of areas in line with the shape of tumour with a linear accelerator placed on the robot. Robot can act in six different axes. For this reason, perfect dose distributions can be achieved by delivering radiation from many various angles with the help of the robotic arm in tumours localized particularly close to critical organs.

**Image-Guided Therapy** Identifying the lesion and its location before and during treatment is of paramount importance in radiosurgery. Radiosurgical interventions conducted without completely specifying the localization of a lesion may lead to extremely hazardous outcomes. In Cyberknife M6 system, image is monitored with the assistance of a computer and radiation

is delivered to the intended regions of the patient with a high degree of sensitivity. During treatment, even the smallest of patient activities that may lower the accuracy and sensitivity of the on-going sessions are detected by the system and corrected. Therefore, particularly in cranial applications, patient can be easily treated with simple plastic mask set-ups as rigid frame systems are not necessary.

### **Respiratory Follow-Up**

One of the most crucial aspects of Cyberknife M6 system is its follow-up of respiration. Tumours localized particularly in thorax and abdomen (e.g. lung, liver, pancreas, adrenal glands etc.) act according to respiration. Radiating mobile lesions is rather difficult. For this reason, special techniques are necessary to monitor the movements during treatment. In treatments conducted by conventional devices, rigid fixation devices are used and treatment areas with large margins are formed so as to include changes of location due to movements. In some other applications, patient is requested to keep his breath in order to immobilize the tumour; however, in that case, patient's comfort is disturbed.

None of those are necessary in Cyberknife M6 treatment device. With the help of a special apparatus placed on the thoracic region of the patient and an infrared camera, outer chest movement of the patient can be monitored, and it can be correlated with internal tumoural movements. Therefore, robot can trace the tumour during treatment or in other words, robot copies the respiration on the patient and can inhale and exhale with the patient.





## PET/CT

PET/CT is based on combining PET which provides images of cell metabolism and CT that provides anatomic details in the same instrument. Therefore, the metabolic function of cells and anatomy can be visualized comprehensively by a single device in a single session. Doctors can have detailed and conclusive information about the anatomic and metabolic condition of the patient with the help of 3-D images. PET/CT enables fast and proper diagnosis of cancer and cardiac diseases in particular.

Thanks to PET-CT which is used to monitor response to therapy during cancer treatment, it is possible to determine structural and functional characteristics of the tumor and to identify the treatment site accurately. In the meantime, it enables to spare the healthy tissue surrounding the tumor as much as possible. Compared with other planning methods, it reduces side effects of radiotherapy significantly, while enabling delivery of radiation to the tumor at high doses.

In addition, PET/CT is valuable in the diagnosis of brain diseases, notably dementia and epilepsy, and facilitates early diagnosis of Alzheimer's disease.

## What are the benefits of PET-CT?

Diagnosis of cancers with unknown causes

Proper staging and tumor localization

Increased accuracy in treatment follow-up

Early diagnosis of cancer relapse

In addition to providing great advantages compared with other diagnostic tools, PET/CT eliminates the need for diagnostic tests that involve too much

radiation. Images obtained with this recent technology have critical importance in the diagnosis of cancer, and constitute an important part of the decision process at the Tumor Council.

## 'da Vinci' Revolution in Surgery

The da Vinci robot was originally developed by NASA to operate on astronauts in space. Taking surgery beyond the limits of the natural range of motion of the human hand, da Vinci's arms are capable of 180° of articulation and 540° of rotation, also entirely eliminating natural hand tremor.

da Vinci robot allows the surgeon to operate through small incisions, which produces less blood loss and minimizes the size of the incision. Moreover, the da Vinci System enables a shorter hospital stay and a quicker recovery.



## Truebeam

A new step in radiotherapy Truebeam STx, which incorporates advanced radiotherapy techniques used in cancer treatment, such as IMRT, IGRT, Gated RT, RapidArc, SRS and SBRT; offers fast, correct and precise radiation delivery to small tumors.

Truebeam STx can be used for treatment of all tumors that require radiotherapy. The device is particularly preferred for treatment of small tumors of the head and the body, and tumors which pose a specific risk of adjacency to specific organs. As radiation delivery is focused on the target, healthy tissues are minimally affected. Fast radiation delivery system shortens duration of radiotherapy, and high image quality allows better positioning and precise radiation delivery.

Truebeam STx can conveniently be used in radiotherapy treatment for tumors in organs that require monitoring of respiration, such as the lungs, liver and breasts. As the device allows radiation delivery while monitoring respiration, it enables direct delivery of a high dose of radiation to the area where the tumor is located.



## CTC

CTC method which has been approved by the US Federal Drug Administration (FDA) for certain types of cancer and is currently applied in a few countries (like Germany, Italy and US) depends on a simple blood test. Cancerous cells and number of cancerous cells, even the type of cancer can be identified with blood samples examined under a special device. Moreover, all these can be determined at a very early phase of cancer.

### Who are eligible for the CTC method and how is the method applied?

Any patient who has no problem with giving blood is eligible for the method. A tube of blood collected from the patient is examined with a special instrument. The patient can be full or hungry before blood collection. Even the patient does not have to come to take blood. However, for a healthy result, the blood collected within the day should be processed within 30 hours at room temperature.

Certain types of cancer (lung, breast, prostate, colorectal tumors) can be detected at an early stage thanks to the new CTC method. Fortunately, these types of cancer have markers that other cells do not, and using these markers, they can be distinguished from other cells in the blood. At subsequent stages, the organ involved can be found.

Your doctor will  
give you detailed  
information about  
your treatment.

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