

Imaging and radiation treatment options in a patient-centric private cancer hospital

An accurate diagnosis is the first step in the cancer treatment process. Docrates Cancer Center is the only comprehensive cancer hospital in the Nordics using the very latest methods in both diagnosis and treatment of cancer.

All modern cancer imaging modalities exist at Docrates: we utilize ultrasound examinations (US), CT (computed tomography), MRI (magnetic resonance imaging), PET-CT (positron emission tomography) and SPECT-CT (single photon emission tomography) imaging. All our imaging equipment feature wide bores, allowing not only optimal scanning results, but also extra space for fixation devices and patient comfort during the scan.

Docrates uses the full range of state-of-the-art techniques including stereotactic radiotherapy, IMRT, IGRT, VMAT RapidArc, HDR internal brachytherapy and respiratory gated radiotherapy. We are also at the forefront of advanced radionuclide therapy methods. MRI for example, reveals a prostate cancer far earlier and more accurately than a commonly used CT-scan. In MRI we use both breast- and endorectal coils to optimize image quality. Combining a CT-scan with radioactive isotope tracers revealing metabolic activity of cancer cells or bone metastases can reveal incipient metastasis and even possible localised recurrence significantly earlier than a CT and bone scan. Docrates has several radioactive tracers in use, all of them having their own specific use. There are clear advantages of having a cyclotron to produce the tracers and a GMP-level lab in the building.

Docrates is a pioneer and true expert in radiation therapy: we were the first clinic in Finland to start using the Rapid Arc -technique for the external radiation and we also were the first ones to start using HDR (High Dose Rate) – brachytherapy for prostate cancer. RapidArc utilizes the best properties of intensity-modulated and dynamic arc radiotherapy, and produces the best dose distribution. It can also be considered one of the most normal tissue saving radiotherapy technique. In the case of local recurrence, HDR brachytherapy is available for our prostate cancer patients. A CBCT (Cone Beam-CT) is possible during each treatment fraction, revealing anatomic structures of soft tissues.

The final touch to the state-of-the-art radiation treatment plan comes with the details: our oncologists benefit from



multiple co-registered imaging to plan target volume delineation. Our hospital physicists work intensively to fine tune the treatment plan. One could say that Docrates has special knowledge on using the RapidArc on complicated cases. Treatment targeting is essential for the success of the treatment: radiation for the tumor is maximized and the surrounding healthy tissues are protected. We also utilize several different techniques for the treatment targeting: X-ray images are taken before every radiation treatment. The latter helps us to take into consideration for instance the daily changes on bowel or bladder. One targeting technique at use with prostate cancer is gold anchors, which are thin threads that can be implanted without trauma, thus dose planning imaging can be taken immediately.

It's not only the equipment that matters, but one must also have the top clinical expertise to use the machines: for instance cancer specific radiological expertise to analyze the scanned images properly is crucial. All clinical staff of Docrates has several years of experience in working with cancer, which results in state-of-the-art knowledge and care for our patients.