

Irreversible electroporation

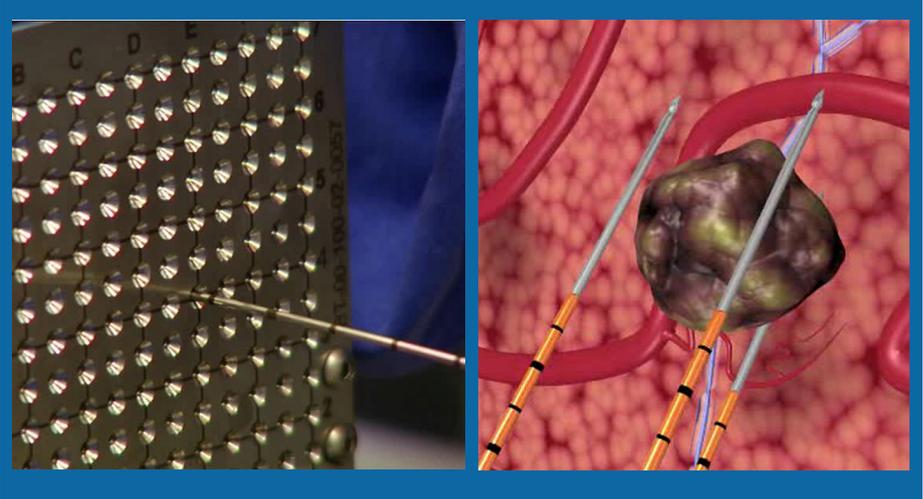
Using electrical pulses to beat prostate cancer

The irreversible electroporation procedure (IRE) uses short electrical impulses to effectively destroy cancer cells. After treatment, the patient will feel nothing more than a fleeting muscle ache. For the very first time in Germany, urologists at the Heidelberg Clinic for Prostate Therapy are using the irreversible electroporation procedure (IRE) with the so-called NanoKnife for treating prostate cancer. This focal therapy represents yet another milestone in a cutting-edge and gentle treatment strategy.

Prostate cancer is the most common form of cancer amongst men, accounting for around 25% of cases and is responsible for around 10 percent of all deaths caused by cancer. The most common method of treatment is still radical prostatectomy, which is the medical term used for the complete removal of the prostate. Impotence and incontinence are frequent side effects of this type of surgical procedure. The Heidelberg Clinic for Prostate Therapy takes a different approach and has for years been successfully using innovative methods. It has been using the high intensity focused ultrasound procedure (HIFU) for over ten years. Recently, Dr. Thomas Dill and Dr. Martin Löhrr became the first urologists in Germany to also use the irreversible electroporation procedure (IRE) in the battle against prostate cancer.

The IRE procedure uses electrical impulses of differing strengths and which last for only a few microseconds. These open the pores of the cells and this causes the cells to die. "This is also where the term "NanoKnife" originates from - a kind of electronic scalpel that opens the cell membrane", explains Dr. Thomas Dill. What is special about this method of treatment is that healthy cells regenerate themselves, whilst the cancer cells are completely destroyed.

Something that sounds like a miracle can actually be scientifically explained. As the electrical impulses used are extremely short and the electrical fields are extremely small, practically no heat is generated. This means that the cell matrix of the healthy tissue in the area of



The electrodes are inserted via a template into the prostate (left). Here they create short impulses which destroy the tumour cells (right).

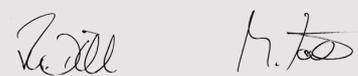
treatment remains preserved. Following the IRE procedure, the cells are able to quickly regenerate themselves and the healthy tissue grows again without any problem." Blood vessels and other fluid ducts are preserved to the greatest possible extent and the dead cancer cells are replaced by healthy cells as part of the body's natural growth process," explains Dr. Martin Löhrr. However, the successful use of this procedure in prostate cancer treatment requires maximum precision and many years of experience in dealing with gentle therapy methods - a vital factor for patients who are looking for the right method of treatment and

the right clinic. Since its establishment, the Heidelberg Clinic for Prostate Therapy has been regarded as the pioneer of gentle, minimally invasive and focal procedures in Germany. With our keen sense of the essential developments, the fact that we're on the right track with gentle treatment and diagnostic concepts is also demonstrated once again by the IRE treatment", says Dr. Thomas Dill and he explains how this gentle prostate cancer treatment works: once the position and size of the tumour have been determined using a combination of ultrasound and magnetic resonance

imaging (MRI), the electrodes are inserted with a high level of precision into the prostate via a template - a piece of equipment which has been specially designed for the clinic - whilst the patient is under anaesthetic. "The patient is not aware of this procedure being carried out, as he is given a gentle general anaesthetic", explains Dr. Löhrr. And afterwards, patients feel nothing more than a fleeting ache in their leg muscles. What's more, they can leave the clinic very soon after treatment - often after spending just

A word from the team

The Heidelberg Clinic for Prostate Therapy has always supported the use of gentle and individual forms of therapy. And we continue to consistently pursue this approach. We use procedures, along with diagnostic and therapeutic concepts which will achieve the greatest possible success with comparatively few side effects. Current research results validate our work and show that we have been and continue to be on the right track! We are therefore delighted to present the latest news from the clinic in this 7th edition of Prostate News. We hope you'll enjoy reading it!



Dr. Thomas Dill & Dr. Martin Löhrr

Tissue removal - but only in a highly targeted manner!

Dr. Thomas Dill explains to the editorial team of PROSTATE NEWS when and why a biopsy makes sense and why a radical removal of the prostate is dismissed - at least when it is regarded as the standard initial approach.

Prostate cancer is the most common type of cancer amongst men. What are the challenges of dealing with this cancer?

Indeed, prostate cancer is the most common type of cancer amongst men. The challenge that a urologist faces is to differentiate between the dangerous types and the less dangerous types of cancer. Only in this way is a doctor able to develop an individual and targeted treatment in dialogue with the patient.

How do you determine how dangerous the prostate cancer is?

The danger presented by a prostate cancer is assessed using a variety of parameters. These include the extent to which the organ has been affected by the disease, the PSA value and the degree of differentiation of the prostate cancer. Questions must also be answered - for example: How fast is it growing? Is it forming metastases? These are all factors that are extremely important when it comes to planning treatment.

How can a diagnosis be successfully made?

In my opinion, big mistakes are made in most clinics when it comes to making a diagnosis because biopsies are undertaken in an unfocused or random manner. An operation is then carried out without knowing the extent of the disease. At the Clinic for Prostate

Therapy, we start by collecting numerous pieces of information on the prostate of the patient and evaluate these in a reliable manner. Because only in this way can we ensure that the diagnosis also leads to the right treatment. Only when the suspicion of cancer has been confirmed by laboratory results and imaging procedures, will a biopsy be recommended - and, even in this case, it will only be carried out in a highly targeted manner!

Which procedures do you use in order to carry out a biopsy in a targeted manner?

We base our decision on laboratory results and information from imaging procedures. This includes images obtained through magnetic resonance imaging (MRI) and also ultrasound images. Precise information on the position and extent of the tumour can be determined from this. In this way, we are able to remove suspicious tissue in a highly targeted manner. The information obtained also plays a decisive role in the planning of the treatment.

What sort of information do you obtain from this type of biopsy?

Examination of the tissue removed provides reliable results on how aggressive the carcinoma is and which parts of the prostate are affected.

And what type of treatment is offered after this diagnosis?

I'm not able to give a general answer here, as it varies from patient to patient. However, what I can say is: it has been shown that only very few benefit from a radical prostatectomy.

Is this regarded as established knowledge in medicine?

Unfortunately not. Although there are reliable studies which have found that only a small proportion of patients benefit from a radical prostatectomy, most urologists stick to this. We take a different approach. With IRE or HIFU therapy we can eradicate tumours or at least prevent them from continuing to grow. Focal, gentle treatments are ideal here and in comparison to a radical prostatectomy have only minimal side effects. And above all: we can repeat the treatment at any time.



Information from imaging procedures provides important information for making a gentle diagnosis of prostate cancer.

Sport sponsoring

The "Tennis Marin" tennis club in Heidelberg is delighted to have a new sponsor. The Heidelberg Clinic for Prostate Therapy is meeting the costs for the design and production of a new windbreak screen. Sport sponsoring is a subject which is close to the heart of those running the clinic. "Many years of experience with patients of all ages have shown how important sport is as an effective prophylaxis," explain managing directors Dr. Thomas Dill and Dr. Martin Löhner, who are both sports enthusiasts. This is also the reason for increasing sponsors of the Rhein-Neckar running group and its running seminars.

Dr. Martini returns

Several months ago Dr. med. Regine Martini returned to the team at the clinic. She studied Human Medicine at the J. W. Goethe-University in Frankfurt, where she graduated in 1989. She did her specialist training to become a urologist at the Universitätsklinikum Gießen and at the Städtisches Klinikum Fulda, the teaching hospital for the University of Marburg. Dr. Martini has also gained an additional qualification in "Naturopathic Treatments" ("Naturheilverfahren"). From 1997 she worked in her own practice in Frankfurt and from 2003 was already working in the Clinic for Prostate Therapy.



TV team in the clinic

As we headed into the New Year, a team from German TV channel "Rhein-Neckar-Fernsehen (RNF)" visited the clinic and made a film on the IRE procedure. Director Josi Schuster and camera man Carsten Weigert talked with doctors and patients. This short film was shown several times in January and February of this year and is also available to watch free of charge on the clinic's website ("Media Centre") and also on the YouTube channel.



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