

PROSTATE CANCER: ADVANTAGES OF ROBOTIZED ULTRASOUND TREATMENT

Prof. Guy Vallancien, head of the urology department at Institut Mutualiste Montsouris, Paris, describes the benefits of the latest ultrasound treatment currently administered by a computer driven robotized system.

Paris Match. What is the frequency of prostate cancer?

Prof. Guy Vallancien. This is now the most common form of cancer: 62,000 new cases are detected every year in France (versus 50,000 new cases of breast cancer)! It is increasingly detected in men under the age of 60.

Would you briefly describe the different stages in this disease?

Prof. G.V. Globally, there are three stages. 1. The localized stage, where the cancer is confined in the gland. 2. The locally advanced stage where the tumour spreads outside the prostate capsule. 3. The metastatic stage where the cancer spreads throughout the body.

Depending on the stage, what treatments are currently administered?

Prof. G.V. There are several treatments for localized cancer: surgical resection of the prostate; treatment of the prostate by brachytherapy with the implant of radioactive seeds in the prostate; external radiotherapy and, finally, focused ultrasound therapy. Other treatments are being tested, although experience is still insufficient. When cancer spreads beyond the prostate, radiotherapy is the standard treatment, although surgery, in certain cases, may still be effective. Anti-hormone therapy is often associated.

In the case of cancer that metastasizes, treatment consists of hormone therapy, administered by intramuscular sub-cutaneous injection or even oral administration. Chemotherapy with taxols is beginning to show some promise as well.

All of these treatments, without exception, tend to induce side effects, such as impotence or urinary incontinence although the frequency now seems to be decreasing.

Would you please describe the principle of classic minimally-invasive ultrasound therapy?

Prof. G.V. This treatment was developed in Lyon, France, in Prof. Dubemard's department, by Dr Albert Gelet (in collaboration with the Inserm U556 team). The principle of the treatment protocol (requiring one and a half to two hours and carried out under local or general anaesthetic) is to use high frequency ultrasound to heat to destroy the cancerous tissue. The classic procedure consists of two stages: during the first stage, the surgeon inserts a probe into the patient's rectum in order to determine, by means of ultrasound examination, the boundaries of the prostate and the volume to treat. Then, another probe, comprising of a very high intensity ultrasound generator that focuses the heat (80 to 100°C) on a 20 millimeter high and 2 millimeter wide area, provides the treatment. With this classic procedure, the urologist's moves are constantly guided on a screen using a system of imaging coupled with the ultrasound generator. A urinary catheter is then inserted for 24 to 48 hours, to avoid the retention of urine. The patient can leave the hospital once the probe is removed. This painless technique allows the patient to recover very quickly.

What does the new ultrasound robotic treatment consist of?

Prof. G.V. First of all, the same probe is used for the ultrasound detection of the zone to treat and the high intensity ultrasound beams that target and destroy the cancer cells. With this new procedure, the volume of the prostate appears in three dimensions on the ultrasound screen. The computer piloted device then proceeds with the destruction of the cancerous tissue with millimeter precision, preserving the areas surrounding the prostate. The device used, the Ablatherm, moves automatically: after defining the prostate volume to treat, the urologist has completed his portion of the treatment. This very reliable new procedure does not depend on the dexterity of the surgeon.

What are the benefits of this technological advancement?

Prof. G.V. A key advantage is the display, in real time, of the treatment. Another advancement is that the urologist performing the intervention may, due to the extreme precision and shortness of the ultrasound ablations, provide a "tailored-made" treatment (adapt the therapy according to the location of the cancerous cells).

What are the results obtained with this robotised treatment?

Prof. G.V. According to a study published in "European Urology", a success rate of almost 80% is reported for 5 years. The side effects linked to incontinence are low, and the problem of impotency largely depends on the past sexual condition of the patient. The treatment may be repeated if there is a recurrence, which is not the case with radiotherapy or brachytherapy.

What are the main indications for this latest robotized approach?

Prof. G.V. It is indicated for the treatment of middle sized or smaller prostate glands under 50 cubic centimetres (although with temporary hormone therapy, it is often possible to reduce the volume of larger prostates). In general, this treatment is reserved for patients over the age of 70 since it is less aggressive than surgery and brachytherapy. This technique is also prescribed in cases of a failure of radiotherapy.

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