

Questions and Answers about HIFU by Dr Hashim Uddin Ahmed

What is HIFU?

High Intensity Focused Ultrasound uses a machine that projects sound waves. These sound waves are concentrated in one small area, about the size of a grain of rice, to cause heating of the tissue. The temperature reached is about 80-90°C, which is enough to kill tissue.

What does the procedure involve?

HIFU is usually carried out as daycase procedure. You have nothing to eat or drink from midnight and then are given an enema to clear the lower part of your bowel. The procedure is carried out under general anaesthesia and take about 2-3 hours.

The surgeon plans the treatment first to ensure that the procedure will treat the prostate effectively. Before the procedure, a plastic tube (catheter) is inserted into the bladder through the skin (suprapubic catheter). The HIFU probe is inserted in to the back passage about 20 centimetres. The treatment does not involve any cuts or needles and there is minimal if any bleeding.

Provided you have an escort to go home with, you will be discharged on the same day. You will be taught all about your catheter and how to look after it. Mild pain killers and a course of antibiotics will be given. Your catheter will be removed after 7-14 days. Once the catheter has been removed you will be encouraged to drink and asked to try and pass urine. If you are unable to pass urine, a new catheter will be placed and you will be invited back a week later to have it removed.

How long has HIFU been around?

HIFU has been used to treat prostate cancer for between 5-10 years. In the UK, it has been used for 2 ½ years and was started in London by Mark Emberton at University College London. To date, there have been over 500 treatments carried out in the UK.

Is it effective for treating prostate cancer?

It must be remembered that we do not yet know for sure whether all men with prostate cancer should be treated. Traditional treatments like surgery and radiotherapy carry significant rates of side effects such as incontinence, impotence and back passage trouble (diarrhoea, pain, bleeding). That is why newer treatments are attempting to reduce the burden on men.

The longest follow-up after HIFU for prostate cancer is 3-5 years. These series are reported from Japan and Germany and show that when men are biopsied after HIFU between 87-95% of them have no cancer.

What are the complications of HIFU in treating the prostate?

Most patients report temporary urinary symptoms (frequency, urgency, difficulty in urination) during the first two months after treatment. Some other complications are listed (risk in brackets):

- Urinary tract infection (5 in 100)

- Urethral stricture (narrowing in the urine passage) (1 in 10)
- Epididymitis (infection of the tubes surrounding the testicles) (3 in 100)
- Urinary retention requiring surgery (2 in 100)
- Impotence (1 in 4)
- Urinary Incontinence (temporary) (0-2 in 100)

What criteria do you use for selecting men for HIFU?

HIFU is usually used in the setting of localised prostate cancer that has not previously been treated (so-called primary treatment). The criteria we use are prostate cancer with stage T3a NO MO or less and Gleason 7 or less. We have treated men with higher Gleason scores at UCL if the man does not wish to have any other therapy. There is no PSA cut-off provided that the staging shows the disease has not spread outside the gland.

Sometimes, the prostate can be too big for HIFU. In the majority of these, we can successfully shrink the gland using hormone tablets for 3 months.

HIFU is now being used for treating men who have recurrent prostate cancer after radiotherapy provided it has not spread outside the prostate. The early results show that the overall success rate is about 50%. It is lower in men who have high risk disease. The side effects of treatment tend to be higher as well.

Where can I get treatment?

There are a number of centres using HIFU. These include Basingstoke, Birmingham, Bristol, Chelmsford, Derby, Guys Hospital, Hull, Oxford, Royal Marsden, Stepping Hill, Tetbury and University College London.

Where can I get further information?

You should firstly speak to your GP and Consultant Urologist and/or Consultant Radiotherapy Oncologist. They will usually make a referral to one of the centres named above.

Hashim qualified from Oxford University where he gained the Osler Prize in Medicine. He is currently a research fellow and specialist registrar with an academic interest in uro-oncology. He is particularly focused on investigating the role of focal therapy using HIFU in prostate cancer and improving the diagnosis of prostate cancer using imaging modalities.