East Lancashire Prostate Cancer Support Group Newsletter

Next Meeting Thursday 1st August 2019

Online tool helps men choose best prostate cancer treatment

Wednesday 13 March 2019

"Prostate cancer patients could be spared needless surgery thanks to NHS risk calculator," reports the Sun.

UK researchers have developed a tool to estimate a man's chances of surviving 15 years after a prostate cancer diagnosis, based on age, cancer type and other health problems.

The tool can show the potential effects of treatments such as surgery or radiotherapy, compared with "wait and see" approaches.

The tool is specifically for use in men with prostate cancer that's localised and not spread outside of the prostate gland.

Localised prostate cancer can grow very slowly, causing no problems, but sometimes can grow quickly and needs more intensive treat-ment.

It's hard to predict what will happen to an individual. Sometimes the best choice between radical treatments like surgery, or having regular checks to see whether the cancer is growing, is unclear.

Prostate cancer treatments can have serious side effects, such as incontinence and erection problems, so it may be preferable to avoid treatment

that's not essential.

This new tool, called Predict Prostate, is available on the NHS. It was developed using data from a large group of UK men and tested using other groups of men with prostate cancer.

When patient details and treatments were put into the tool, it was found to be an accurate tool for distinguishing between men who would be expected to die from prostate cancer or not.

As such the tool should help men make better-informed decisions, along with their doctors.

But it's new and needs to be tested more widely, so it can only give a guide, not a precise prediction of what will happen.

Where did the story come from?

The researchers who developed the tool were from the University of Cambridge, the National Cancer Registration and Analysis Service in the UK, and from the Singapore General Hospital in Singapore.

The study was funded by the Urology Foundation Research Scholarship and the Evelyn Trust.

It was published in the peer-reviewed journal PLOS Medicine on an open access basis, so it's free to read online.

The Mail Online gives a good overview of the choices men with prostate cancer face, how the new online tool was developed and what it can do.

The Sun's article suggests the tool can measure the risk of side effects, which is incorrect.

What kind of research was this?

The study used cohorts of men to develop and test a predictive model of prostate cancer survival.

The model was developed and tested using data from men diagnosed with the disease in the UK.

It was then validated against a separate cohort of men diagnosed with the condition in Singapore over a similar time period.

The tool may provide guidance about men's chances of living 15 years or more following diagnosis, but it's a new tool that will be developed further and is not completely accurate.

What did the research involve?

Researchers used the UK National Cancer Registration and Analysis Service database to obtain information from 10,089 men diagnosed with prostate cancer that had not spread (non-metastatic cancer).

It was done in the east of England between 2000 and 2010.

They recorded measures including:

Age

Other medical problems

Ethnicity

Prostate specific antigen (PSA) test result score

Tumor grade and stage

The first treatment the men had for prostate cancer

The researchers then looked to see how many men were still alive 10 and 15 years later, and whether they'd died of prostate cancer or another cause.

The cohort of men were split randomly 70:30. In the main group of 7,062 men, they used this information to construct a statistical model that could detect which of these factors affected men's survival and how they worked in combination.

This allowed them to separate out the effects of surgery and radiotherapy treatment so they could see whether they made a difference to men in individual situations.

They then tested the model in the remaining 3,027 men. The researchers used it to predict how long they lived, then compared this to what actually happened.

Finally, the model was tested on a separate group of 2,546 men diagnosed with prostate cancer in Singapore to see if it could work for a completely different group with a different ethnic background.

The researchers also compared it against existing risk modelling tools for prostate cancer.

What were the basic results?

Of the 10,089 UK men diagnosed with cancer in the study:

1,202 died of prostate cancer within 15 years (11.9%)

2,627 died of other causes (26%)

the average age of men at diagnosis was 70

The researchers said that, when they compared numbers predicted to survive 15 years with numbers who actually survived that long, their estimates were very close to what actually happened.

Both prostate cancer deaths and deaths from all causes were within 1% of the numbers predicted by the model.

Researchers said the model provided an 84% accurate prediction of whether or not a man from the study would die from prostate cancer, based on the baseline information and the type of treatment chosen.

This was true for men from Singapore, as well as in the UK group.

The model performed better than other existing models.

The model produces graphs showing chances of surviving 10 or 15 years for men in different situations, with and without surgery or radiotherapy treatment.

The 2 types of treatment have similar effectiveness, so are combined in the model under the name "radical treatment".

Examples show that a man aged 52 with a PSA of 6.2, tumour stage 2 and tumour grade 2, would be 8.4% more likely to survive for 15 years with radical treatment.

A man aged 72 with the same cancer characteristics but additional illnesses would only be 3.8% more likely to survive 15 years with radical treatment because of the increased chance of dying from other causes.

How did the researchers interpret the results?

The researchers said they'd shown their new model "predicted survival outcomes with a high degree of accuracy" and it was likely to be most useful "among men deciding between conservative management and radical treatment" for prostate cancer.

They added: "The model has the potential to enable well-informed and standardised decision-making and reduce both over- and under-treatment."

Conclusion

The decision about how to treat prostate cancer that has not spread is a difficult one.

Men and doctors have to weigh up the risks of side effects against the possible benefits from treatment, and consider additional health factors of the individual.

Because so much depends on individual circumstances, it's a very hard calculation to make.

This model shows promise as a way to help men see their individual chances of survival, taking account of their general health and their cancer, and then seeing what difference treatment might make.

That might help in making decisions about whether treatment and potential side effects are worthwhile.

For men where the benefits of radical treatment are expected to be minimal, a wait-and-see approach might be appropriate, while for men who see a predicted bigger benefit from radical treatment, the chance of side effects may be worthwhile.

This study has some limitations, however.

The UK men in the study were mostly either white（77.4%）or of unknown ethnicity（21.2%）, so we do not know whether the results apply to men from a black ethnic background.

The model does not account for people who changed their primary treatment after a year（for example, from watchful waiting to surgery）.

The Singapore comparison group was relatively small and we need to see the model tested on bigger groups from other ethnic backgrounds.

Doctors and other health professionals who care for patients with prostate cancer are still likely to be in the best position to help men choose the most appropriate treatment.

Men could still be uncertain on the best approach if a tool indicates treatment could improve their survival chances by 8%, for example.

But the tool may provide useful information for both health professionals and patients to use alongside and inform their decision-making.

This is good news in terms of providing better information for the 40,000 men diagnosed with prostate cancer every year in the UK.

Full Article Available on the link below.

https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1002758

Predict Prostate Tool on link below

https://prostate.predict.nhs.uk/

Gene test picks out prostate cancers patients who could benefit from 'search-and-destroy' medicine

Testing for genetic weaknesses in repairing DNA could pick out men who may benefit from a new type of targeted nuclear medicine, a new study reports.

An emerging class of drugs are made up of a radioactive particle that can kill cells attached to a 'homing device' to seek out cancers by detecting the presence of a target molecule on their surface.

These new 'search-and-destroy' treatments are starting to show promise even in men with prostate cancer for whom targeted treatments and chemotherapies have stopped working – but not all patients respond.

Varied response to search-and-destroy treatment

In the new study, scientists at The Institute of Cancer Research, London, found that testing men for faults in DNA repair genes in their tumours could identify those most likely to respond to the new type of treatment.

The study is _published in the journal European Urology_ , and was funded by the Movember Foundation, Prostate Cancer UK, Cancer Research UK and the Prostate Cancer Foundation.

The researchers analysed tumour samples from men with advanced prostate cancer who had been treated at The Royal Marsden NHS Foundation Trust, in order to try to understand why the response to search-and-destroy treatment varied.

They found that the target for these new treatments – a protein molecule called prostate-specific membrane antigen, or PSMA – was present at higher levels on the surface of cancer cells in some patients than others. PSMA levels even varied substantially between different cancer sites in the same patient.

First-stage screen to select patients

But crucially, the amount of PSMA on the surface of cancer cells was more than four times higher in tumours where there were also faults in DNA repair genes.

That means that testing for genetic faults in DNA repair genes could be used as a first-stage screen to select patients for PSMA-targeted treatment – followed by having tumours scanned using PSMA imaging technology.

The researchers believe that PSMA plays a key role in keeping the genome in cells stable – and could be produced by tumours as a survival mechanism where they are defective in repairing their DNA. This could explain the link between DNA repair faults and high levels of PSMA.

These findings also suggest that combination therapy with other drugs that increase genetic instability could make prostate tumours more likely to respond to PSMA-targeting treatments.

Next, the researchers aim to assess whether testing for DNA repair faults can effectively target search-and-destroy treatment as part of clinical trials, and to explore combination strategies to see if the response to these treatments could be heightened.

Understanding the biology of response

Precise targeting of cancer cells and use of drug combinations are among a range of strategies being pursued at The Institute of Cancer Research (ICR) through its new Centre for Cancer Drug Discovery.
The ICR – a charity and research institute – is raising the final £15 million of a £75 million investment in the Centre for Cancer Drug Discovery, to create new 'anti-evolution' treatments that can overcome drug resistance.

Proton therapy for prostate cancer: does the evidence support the hype?

THE CONVERSATION

High energy proton beam therapy, an advanced form of radiotherapy, made its debut in the UK in 2018. Both the NHS and private clinics began offering this treatment in the same year, but they treated very different patient groups. While the NHS used the therapy to treat childhood cancer, private clinics began treating men with prostate cancer.

The situation is similar in other countries. Prostate cancer patients are the most common referral for proton beam therapy in the US and internationally make up the majority treated at many proton centres.

But who sees the greatest benefit from proton beam therapy? And do these benefits justify the substantial cost of treatment (often tens of thousands of pounds)? While there is strong evidence for the benefits of proton therapy in children, it is much less clear in prostate and other adult cancers.

This apparent disconnect between evidence and practice underpins fundamental disagreements about the standard of evidence needed for new treatments and the role of patient choice in healthcare.

Why protons?

Proton therapy is an alternative form of radiotherapy, which is conventionally delivered using X-rays. Both approaches aim beams of radiation at the tumour, killing cancerous cells when they interact with and damage the patient's DNA. But radiation can also damage healthy tissues and organs that surround the tumour, which can cause side effects.

Modern X-ray radiotherapy minimises these side effects using clever delivery methods. The tumour is treated from many different directions, meaning it can be given a greater dose of radiation while reducing the dose to healthy tissues, and hence the damage. But X-ray radiotherapy still delivers a significant radiation dose to healthy tissues that lie in front of and behind the tumour.

Unlike photons (used in X-ray radiotherapy) which travel right through the body, protons only travel a certain distance through the body before stopping. By carefully tuning this range, it is possible for proton therapy to deliver almost no dose beyond the tumour. This greatly reduces the total dose to healthy tissues.

It is argued that this advantage makes proton therapy a better approach than conventional radiotherapy. And this is true for some cancers. For example, reducing the total dose re-

ceived by children significantly reduces risks of delays in their development and additional cancers later in life. Protons can also make it easier to deliver precise treatments to tumours close to sensitive organs, such as the spinal cord or optic nerve.

Protons in prostate cancer

In prostate cancer (and many other adult cancers) the benefits are less clear. A big advantage of protons is the reduction in the total dose delivered to the patient. However, the main side effects associated with this are much less significant in adults: delays in development are not a factor, and the risk of additional cancers are much lower as they typically take decades to develop.

Instead, the main side effects are seen in organs close to the prostate that also receive a high dose, such as the bladder and rectum. A high dose must be delivered to a region that includes the prostate and some additional healthy tissues, to make sure the disease is treated fully. The extra margin allows for the variation that occurs during treatment, such as differences in the way the patient lies down, to make sure the cancer gets a full dose each day. As these patient variations are independent of the radiation type, protons and X-rays typically deliver similar high doses to these healthy tissues.

Despite this, proton therapy has been widely adopted because it is argued the physical benefits are clear, even if small, and will become apparent with time as more people reach the five and ten-year survival mark. But the results of studies investigating the effects of proton therapy on prostate cancer are mixed. While protons have been shown to an effective treatment for prostate cancer, no consistent advantage has been seen for either long-term survival or quality of life.

One challenge in measuring the benefit of proton therapy for prostate cancer is that conventional radiotherapy is already highly effective. In early stage prostate cancer (stages one to three), nine out of ten men treated with X-rays are expected to remain cancer free after five years. They also have relatively low rates of long-term side effects compared with many other cancers. As a result, there is a limited scope for proton therapy to improve outcomes, precisely because the outcomes are already so good. As technology develops this will further reduce side effects and improve rates of remission in conventional radiotherapy, and mean it is increasingly hard to show a benefit from proton beam therapy.

As a result, the NHS and the American Society for Radiation Oncology (ASTRO) do not recommend proton therapy for prostate cancer except as part of a clinical trial. Several of these large international trials are underway, but it will be about a decade before we have conclusive results. Even then, it is expected that protons will represent, at best, an evolution rather than a revolution in prostate cancer radiotherapy.

This has not prevented a demand for prostate proton therapy driving a dramatic expansion in the number of proton therapy centres internationally. In part this is because prostate cancer is one of the most common types of cancer. Treatment for common cancers may actually serve to support the availability of proton therapy for other, rarer cancers. But, it is crucial the benefits for every individual are properly considered.

It is difficult for dry position statements from organisations like the NHS and ASTRO to compete with the dramatic promises proton therapy clinics make. But a balanced discussion of the benefits and costs of all types of radiotherapy is essential to ensure patients have all the evidence to hand before they part with their cash.

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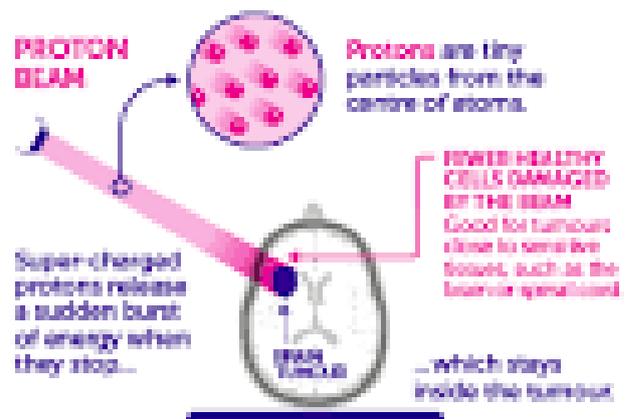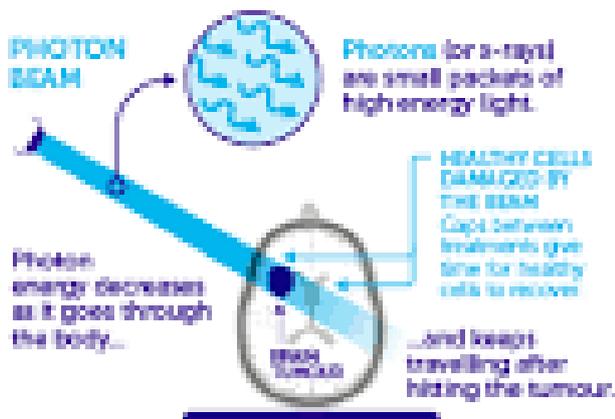
We are a group of local people who know about prostate cancer. We are a friendly organisation dedicated to offering support to men who have had or who are experiencing the effects of this potentially life threatening disease.

The East Lanc's Prostate Cancer Support Group offers a place for free exchange of information and help for local men and their supporters (family and friends) who may be affected by this increasingly common form of male cancer.

At each meeting we strive to be a happy, supportive and upbeat group of people; encouraging open discussion on what can be a very difficult and perhaps for some an embarrassing subject. We have lively, informative, interactive, sharing and above all supportive meetings.

PHOTON AND PROTON RADIOTHERAPY WHAT'S THE DIFFERENCE?

Radiotherapy targets tumours with a beam of energy which damages DNA and kills cancer cells.

PHOTON BEAM — Photons (or x-rays) are small packets of high energy light.

Photon energy decreases as it goes through the body...

HEALTHY CELLS DAMAGED BY THE BEAM — Gaps between treatments give time for healthy cells to recover

...and keeps travelling after hitting the tumour.

PROTON BEAM — Protons are tiny particles from the centre of atoms.

Super-charged protons release a sudden burst of energy when they stop...

FEWER HEALTHY CELLS DAMAGED BY THE BEAM — Good for tumours close to sensitive tissues, such as the brain or spinal cord

...which stays inside the tumour

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