

## **Edith Cavell Hospital Department of Urology**



### **The Treatment of Prostate cancer**

**This leaflet will be of interest in particular to those men who have been diagnosed as having Cancer of the Prostate.**

**If you would like to learn more about how prostate cancer is diagnosed please see the leaflet entitled “The Investigation of Prostate Cancer”**

#### **How is prostate cancer diagnosed?**

Prostate Cancer is usually diagnosed in one of two ways:

- Following a prostate biopsy, performed either because the prostate gland felt abnormal or the PSA test was abnormal (see “The investigation of Prostate Cancer”)
- Following microscopic examination of the prostate tissue removed at a prostatectomy (TURP)

#### **I have been told that I have prostate cancer – what happens now?**

##### **Further investigations**

An **MRI** scan is sometimes performed. This uses large magnets placed around the body to produce pictures of the pelvis, and the prostate in particular. MRI scanning appears to be of limited value in cancer which is thought to be localised to the prostate gland. MRI scanning can also be performed using much smaller magnets placed in a rectal probe (similar to the probe used for prostate biopsy) – Endorectal MRI – these scans can predict whether cancer has gone beyond the capsule in patients with clinically localised cancer, a PSA of 10-20ng/ml, and a Gleason score of less than seven<sup>1</sup>.

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<sup>1</sup> Reference: Is any imaging worthwhile in patients with clinically localised prostate cancer. C Dawson. In, *The Evidence for Urology* published by Tfm Publishing 2005

A **bone scan** is a special scan using nuclear medicine techniques. Prostate Cancer that has spread has a tendency to settle in some of the bones of the skeleton and a bone scan will usually detect this. Detecting the presence of such metastases (as they are known) may affect the treatment your doctor would like to give you. However, recent studies have suggested that unless your PSA level is more than 20 ng/ml it is unlikely that a bone scan will be helpful, and the scan can probably be safely omitted. An exception to this is if there are bony pains that might suggest the presence of metastases

### **Treatment of Prostate cancer that appears localised to the prostate gland**

The options for treating this kind of cancer are;

1. Conservative treatment, also known as “Active Surveillance”
2. Hormone therapy
3. Surgery, in the form of a “radical prostatectomy”
4. Radical radiotherapy
  - a. External Beam Radiotherapy
  - b. Brachytherapy

Exactly which treatment is given depends to a large extent on your age and general fitness, the exact stage of the tumour, the level of the PSA test, and your wishes after you have been counselled by the doctor.

## 1: Active Surveillance

This treatment is based on the fact that many men will die of other causes not related to the diagnosis of their prostate cancer. This form of treatment is obviously more appropriate in men older than 70 years whose life expectancy is generally less than 10 years from the time of diagnosis. This does **not** mean that men over 70 years old are automatically excluded from having surgical treatments.

Conservative therapy does **not** mean **no** treatment; rather it means that you will undergo regular check ups with the consultant with a rectal examination and a PSA check.

The table below, from data by Albertsen et al<sup>2</sup>, shows the risk of dying from prostate cancer, or other causes, after diagnosis of Prostate cancer, if no treatment is given.

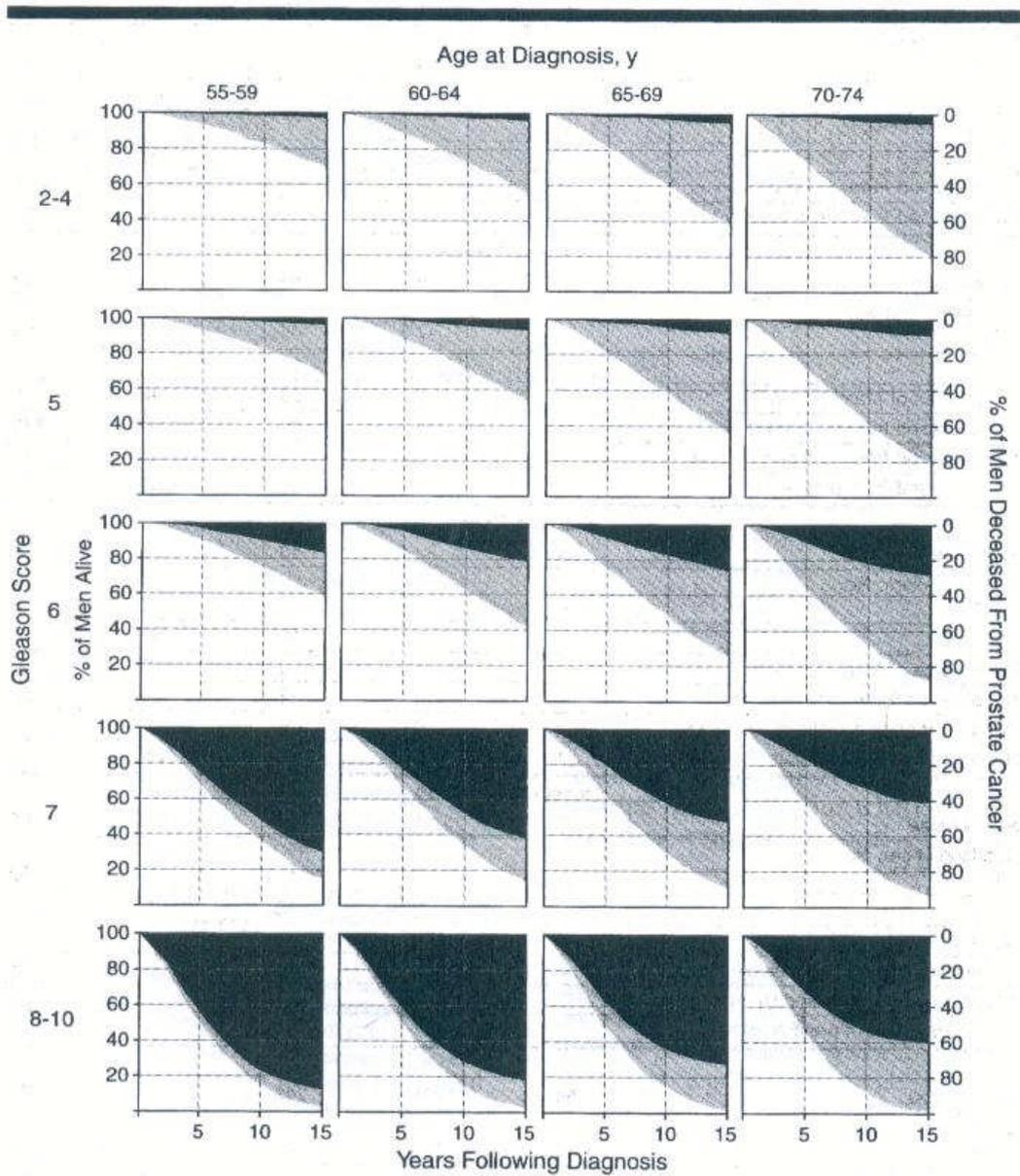
For example; using the graphs below - a man of 63 years old with a Gleason sum score of 6 would have a 41% chance of being alive at 15 years with no treatment: there is a 23% chance of dying from prostate cancer, and a 39% chance of dying from causes unrelated to the prostate cancer.

The Graphs give figures for 5,10, and 15 years from diagnosis.

The table of figures underneath gives % risks for each outcome at 15 years

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<sup>2</sup> Graph / figures taken from Albertsen et al; *JAMA* 1998; **280**:975-980



Survival (white lower band) and cumulative mortality from prostate cancer (dark gray upper band) and other causes (light gray middle band) up to 15 years after diagnosis stratified by age at diagnosis and Gleason score. Percentage of men alive can be read from the left-hand scale, and percentage of men who have died from prostate cancer or from other causes during this interval can be read from the right-hand scale.

Albertsen et al: *JAMA*. 1998 ; **280** :975-980

Table 3.—Estimated Percentages of Patients With Putatively Localized Cancer Managed Conservatively by Age and Gleason Score at Diagnosis With Each Outcome After 15 Years\*

Gleason Score	Age at Diagnosis, y											
	55-59			60-64			65-69			70-74		
	Alive, %	Deceased From Other Disease, %	Deceased From Prostate Cancer, %	Alive, %	Deceased From Other Disease, %	Deceased From Prostate Cancer, %	Alive, %	Deceased From Other Disease, %	Deceased From Prostate Cancer, %	Alive, %	Deceased From Other Disease, %	Deceased From Prostate Cancer, %
2-4	69	27	4	55	40	5	38	56	6	20	73	7
5	67	27	6	53	39	8	35	55	10	18	71	11
6	57	25	18	41	36	23	25	48	27	11	59	30
7	15	15	70	14	24	62	11	36	53	7	51	42
8-10	3	10	87	3	16	81	3	25	72	2	38	60

\*Data derived from regression-based competing risks model.

Albertsen et al: *JAMA*. 1998 ; **280** :975-980

## 2 : Hormone Therapy

This therapy is unlikely to be appropriate in the majority of men with a life expectancy of more than 10 years, This is because it probably puts off the day when definitive treatment should be started. In addition hormone therapy can give rise to a number of side effects (see below).

## 3: Radical Prostatectomy

Current regional guidelines propose that Radical Prostatectomy be restricted to men whose life expectancy is thought to be 10 years or more. This is because the benefits of such surgery probably only outweigh the risks for such men.

Radical Prostatectomy is a major operation to remove the whole of the prostate gland. The operation is performed through an abdominal wound. The length of stay is variable but most men will expect to stay on the ward for about 7-10 days after the operation.

### Complications of Radical Prostatectomy

- Impotence - following the operation there is a high risk of impotence (failure to get adequate erections). Recent studies suggest that over 56% of men will be completely impotent and a further 29% will have a reduced erection
- Incontinence - Over half of men will retain complete control of passing urine, but 23% of men will develop occasional loss of control and 3.5% will have complete loss of control
- Out of every 1000 men having the operation, 7 will die because of the treatment

#### **4: Radical Radiotherapy**

- a) “Traditional” Radiotherapy is known as external-beam radiotherapy (EBRT).
- b) Brachytherapy, a form of radiotherapy that involves the implantation of radioactive pellets into the prostate, is a further radiotherapy option.

#### **External Beam Radiotherapy**

This treatment is given by a machine which produces radiation in the form of a beam.

This beam is focussed onto the prostate from outside – hence “external beam”.

Out of every 1000 men having this treatment for prostate cancer up to 5 will die because of the treatment. Between 40% and 67% of men will have some degree of impotence and up to 3% will develop a degree of incontinence. The majority of patients will notice some bowel upset during radiotherapy treatment. This is because the x-ray beam passes through the prostate gland and can inflame the rectum behind the prostate. Symptoms commonly experience include bleeding from the rectum, passage of mucus, and frequent bowel motions. These symptoms settle in the majority of patients but can become chronic (i.e. long-term, and persisting) in about 5% of patients.

#### **Brachytherapy treatment for Prostate Cancer**

Brachytherapy is a form of radiotherapy. Brachytherapy can be used to treat a variety of different cancers, but we are only considering prostate cancer here.

Brachytherapy uses radiation from within. The radiotherapy is produced and contained within tiny “seeds” which are implanted into the prostate gland.

An ultrasound probe is used to guide the placement of the seeds via a needle

Approximately 100 radioactive seeds (the size of a grain of rice) are placed in the prostate gland under an anaesthetic (either spinal anaesthetic or general anaesthetic).

The seeds remain in the prostate permanently and the radiation dose decreases steadily over the next few months

## **What are the side effects of Brachytherapy?**

The following side effects may occur after brachytherapy and may be present to a certain extent for 6-12 months after treatment

- Lower urinary tract symptoms (common)
  - Bleeding in the urine
  - Burning in the scrotum or perineum
  - Frequent urination
  - Pain on passing urine
  - Urgent desire to pass urine
  - Reduced stream

You should avoid heavy activity for 48-72 hours after treatment but if no complications occur you can return to normal activity after this.

## **Complications of brachytherapy**

The complications of brachytherapy include the following;

- Difficulty passing urine (may require a catheter) – acute retention risk 10%
- 1-2% risk of prolonged catheterisation
- Urethral Stricture 4%
- Proctitis 4%
- dry ejaculation
- long term risks – 1% catheterisation, residual urinary and bowel symptoms, and impotence
- The risk of incontinence is approximately 1%, except in patients who have previously had TURP surgery. In this group of patients the risk rises to nearly 20%<sup>3</sup>

## **Is it safe for me to be with other people afterwards?**

Small children and pregnant women are more sensitive to radiation and should stay more than 6 feet away from you for two months after implantation with either Iodine<sup>125</sup> or Palladium<sup>103</sup>.

The seeds may come out in the urine or semen. A condom should be used during sexual intercourse for the first 2 weeks after implantation.

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<sup>3</sup> [www.prostatespecialist.co.uk](http://www.prostatespecialist.co.uk)

## **What else do I need to know about Brachytherapy?**

There are many different ways of giving brachytherapy and in some centres you may be offered an additional (smaller) dose of external beam radiotherapy.

This is given to try and ensure full coverage of the prostate gland

## **Further reading**

The following websites give good information about brachytherapy

- [www.prostatespecialist.co.uk](http://www.prostatespecialist.co.uk)
- <http://www.brachytherapy.com/prost-brachy.html>
- <http://www.prostate-cancer.org.uk>

## **Treatment of Prostate Cancer which has spread beyond the boundary of the prostate, but not widespread disease (Locally Advanced)**

Surgical treatment is inappropriate for this disease - the ultimate aim of surgery is to try and remove (and hopefully cure) the cancer.

Cancer which has spread outside the prostate cannot be cured, but may be effectively *controlled*. Possible treatments for this condition include radical radiotherapy (see above) or hormonal manipulations (see below) to control the prostate cancer

## **Treatment of Disease which has spread to involve other parts of the body (Metastatic disease)**

Both surgery and radiotherapy are inappropriate for this condition and most treatments use a variety of hormonal therapies to keep the prostate cancer under control

## **Hormonal Therapy - How does it work?**

Prostate Cancer relies on the presence of the male hormone, Testosterone, for growth. In actual fact Testosterone is converted to a more active form known as Di-hydro-testosterone (DHT).

Hormonal therapies all work by reducing the level of Testosterone in the body to very low limits.

## **Ways by which Testosterone can be reduced**

- Tablets – e.g cyproterone acetate, flutamide, bicalutamide
- Injections – LHRH agonists (e.g. leuprolide, goserelin)
- An operation to remove the inner part of the testicles

The advantages and disadvantages are compared below. After reading this you may find it useful to discuss the options further with your doctor when you next visit the clinic.

<u>Method</u>	<u>Advantages</u>	<u>Disadvantages</u>
Tablets	Non-invasive (IE no injections or operations required)	<ul style="list-style-type: none"> <li>• Tablets must be taken up to three times a day for life</li> <li>• Some side effects are common (e.g. tiredness, lethargy, diarrhoea)</li> </ul>
Injections	Only needs to be given once a month, or sometimes once every three months	<ul style="list-style-type: none"> <li>• Sometimes painful to receive the injection</li> <li>• Can develop hot flushes (can be treated)</li> </ul>
Operation	Once operation is performed it is likely that no other treatment will be required in the short term - i.e. no tablets or injections	<ul style="list-style-type: none"> <li>• Requires an admission to hospital for 1-2 days and a general anaesthetic</li> <li>• Possible psychological problems of reduced testicle size after operation</li> <li>• Hot flushes may develop (this is treatable)</li> </ul>

**The Consultant will carefully follow up your progress, whichever treatment is recommended to you**

### **Any questions?**

If you have any questions, jot them down here and ask the Consultant for answers.

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