INTRODUCTION OF PROSTATE CANCER

Prostate cancer begins when cells in the prostate gland start to grow uncontrollably. The prostate is a gland found only in males. It makes some of the fluid that is part of semen.

The prostate is below the bladder and in front of the rectum. The size of the prostate changes with age. In younger men, it is about the size of a walnut, but it can be much larger in older men.

Just behind the prostate are glands called seminal vesicles that make most of the fluid for semen. The urethra, which is the tube that carries urine and semen out of the body through the penis, goes through the center of the prostate.

TYPES OF PROSTATE CANCER

Almost all prostate cancers are adenocarcinomas. These cancers develop from the gland cells (the cells that make the prostate fluid that is added to the semen).

Other types of prostate cancer include:

- Sarcomas
- Small cell carcinomas
- Neuroendocrine tumors (other than small cell carcinomas)
- Transitional cell carcinomas

These other types of prostate cancer are rare. If you have prostate cancer it is almost certain to be an adenocarcinoma.

Some prostate cancers can grow and spread quickly, but most grow slowly. In fact, autopsy studies show that many older men (and even some younger men) who died of other causes also had prostate cancer that never affected them during their lives. In many cases neither they nor their doctors even knew they had it.

RISK FACTORS OF PROSTATE CANCER

Age

Age is the most significant risk factor for prostate cancer. Your risk increases as you get older. Prostate cancer is quite rare in men under 50. Between 2009 and 2011, around a third of all cases in the UK were diagnosed in men over 75. And only 1 out of every 100 (1%) of cases were diagnosed in men under 50. In old age, up to 8 out of 10 men (80%) have prostate cancer cells in the prostate but in some men they don’t cause any problems. No one can give you an exact figure of risk. In the UK, about 1 in 8 men will get prostate cancer at some point in their lives. Remember, this is a lifetime risk and involves men who get prostate cancer at any age, up to 85 or older. Your risk when you are younger is much lower than 1 in 8.

A family history of cancer

A family history means that you have someone in your family who has cancer. Generally speaking, if you have a father or brother diagnosed with prostate cancer you are 2 to 3 times more likely to get prostate cancer yourself, compared to the average man. The age that your relative is diagnosed with prostate cancer may also be a factor. If they were diagnosed before the age of 60, this increases your risk by slightly more than if they were diagnosed after the age of 60. If you have more than one first degree relative diagnosed with prostate cancer (at any age) your risk is about 4 times that of the general population.

Genes

Scientists are working on identifying other genes that may increase the risk of prostate cancer. In 2008, Cancer Research UK scientists identified 7 gene changes that increase the risk of prostate cancer. In the future, they may develop a test, to see if men are carrying any of these genes.

People with Lynch syndrome have inherited faulty genes that increase their risk of developing certain cancers. Researchers have found that men with Lynch syndrome may have a higher risk of prostate cancer than men in the general population.

Ethnicity

Prostate cancer is more common in black Caribbean and black African men than in white or Asian men. In the UK, black African and black Caribbean men have double the risk of developing prostate cancer compared to white men. Asian men have half the risk of white men.

A previous Cancer

Men who have had certain cancers in the past, may have a slightly increased risk of getting prostate cancer. Studies have shown an increase in risk for men who have had kidney cancer, bladder cancer, lung cancer, thyroid cancer and melanoma skin cancer.
Calcium in your Diet
We still don't fully understand how diet affects prostate cancer risk. Several factors have been studied. Some studies show that men who have diets high in calcium may have a higher risk of prostate cancer.

Height and Body Weight
Research has shown that taller men have a higher risk than shorter men of getting faster growing (high grade) prostate cancer, or prostate cancer that has spread.

Being overweight for your height (obese) may also affect your risk. Some studies have found that having a high body mass index (BMI) increases your risk of dying from prostate cancer or being diagnosed with high grade prostate cancer. But it lowers your risk of getting localized prostate cancer. Doctors think that these results may partly be because it is harder to diagnose and treat prostate cancer in obese men.

Hormones
Hormone levels may or may not play a part in the risk of developing prostate cancer. The prostate gland is a sex organ. It produces a liquid that is mixed with sperm to make semen. Testosterone is a sex hormone produced by the testicle and the prostate gland needs testosterone to work. It was thought in the past that having higher levels of testosterone in the blood may increase the risk of prostate cancer. But, in 2008 a analysis of 18 separate studies found no link between levels of sex hormones and prostate cancer risk.

Vasectomy
A large study reported in the USA in 2014. It showed a small increased risk of prostate cancer in men who have had a vasectomy. Vasectomy is a procedure for male sterilisation and permanent birth control. Two other large studies in 1993 also found a small increase in risk but other studies have not shown an increased risk. It seems likely that vasectomy does increase the risk of prostate cancer but the increase in risk is very small.

Cadmium
Cadmium is a natural metal in the environment. Small amounts can be found in our foods. There is limited evidence that a diet which contains a high amount of cadmium may increase your risk of getting prostate cancer.

Inflammation of the Prostate
Inflammation of the prostate is called prostatitis. A meta-analysis published in 2013 combined the information from 20 studies looking at prostate cancer risk and prostatitis. It found that men with prostatitis had a higher risk of prostate cancer. But the meta-analysis included low quality research studies. The results from another higher quality study did not find a link between prostatitis and prostate cancer. So we need more research before we know whether prostatitis increases your risk of prostate cancer.

SYMPTOMS OF PROSTATE CANCER
As men get older their prostate gland often enlarges. This is usually not due to cancer. It is a condition called benign prostatic hyperplasia (BPH). BPH does not usually develop into cancer but an enlarged prostate may sometimes contain areas of cancer cells.

Very early prostate cancer generally does not cause any symptoms at all. Many prostate cancers start in the outer part of the prostate gland, away from the urethra. If a tumour is not large enough to put much pressure on the tube that carries urine out of the body (the urethra), you may not notice any effects from it.

The symptoms of growths in the prostate are similar whether they are non cancerous (benign) or cancerous (malignant). The symptoms include:
- Having to rush to the toilet to pass urine
- Passing urine more often than usual, especially at night
- Difficulty passing urine, including straining to pass it or stopping and starting
- A sense of not being able to completely empty the bladder
- Very rarely you may get:
  - Pain when passing urine
  - Blood in the urine or semen

PROSTATE CANCER SCREENING
Screening is testing to find cancer in people before they have symptoms. For some types of cancer, screening can help find cancers at an early stage, when they are likely to be easier to treat.

Prostate cancer can often be found before symptoms arise by testing the amount of prostate-specific antigen (PSA) in a man’s blood. Another way to find prostate cancer is the digital rectal exam (DRE), in which the doctor puts a gloved, lubricated finger into the rectum to feel the prostate gland. These tests are described in more detail in Prostate Cancer Prevention and Early Detection.

If the results of either one of these tests are abnormal, further testing is often done to see if a man has cancer. If prostate cancer is found as a result of screening with the PSA test or DRE, it will probably be at an earlier, more treatable stage than if no screening were done.