

## **Our patients may be at risk**

Prostate cancer is the fastest rising cancer among Singapore men, showing a 5.6% annual increase. Its incidence has increased dramatically since the early 1980s, from 7.6 per 100,000 to 14.4 per 100,000 in the 1990s and 18.4 per 100,000 in the new millennium. In fact, it has gone from being the sixth to the fourth commonest cancer among men here.

### **Age, race and heredity**

There are several causes and risk factors associated with the development of prostate cancer, chief among them being age. It usually strikes men aged above 50, with incidence rates going up from 5.6 per 100,000 at age 55 to 182.3 per 100,000 at age 70 to 356.4 per 100,000 at age 80. Genetic mutations are thought to be linked to the development of prostate cancer. Ethnicity also plays a role, with African-American men being at the highest risk of developing prostate cancer. In fact, they are 65% more likely to develop prostate cancer than Caucasian-American men and tend to get more severe forms of the cancer. Asian men living in Asia have the lowest incidence; however, their risk appears to be on the rise with rising socioeconomic status. While there is obviously a genetic link, diet is suspected to be a major factor in accounting for these racial differences. One quarter of all prostate cancer sufferers have a history of the disease within their family although only 9% of prostate cancers are purely hereditary. Nonetheless, the risk of prostate cancer doubles among men who have a close relative with the disease. With two close relatives, a man's risk increases fivefold, and with three or more close relatives, the risk becomes alarmingly high – close to 100%.

### **Diet, obesity and nutrition**

Diet and weight also play a role in the development of prostate cancer. A high intake of animal fat, especially if it is charred, is associated with higher rates of prostate cancer. While the link is unclear, research shows that men with the highest levels of the omega-3 fatty acid alpha-linolenic acid (ALA) in their bloodstreams are three times as likely to develop prostate cancer as those with low ALA levels. ALA is found in animal and dairy products, particularly red meat. On the other hand, the consumption of two other omega-3 fatty acids found mostly in fatty fish – docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) – is associated with a lowered risk of developing advanced prostate cancer. In fact, it has been suggested that eating the equivalent of 3 servings of fish per week can reduce the risk of developing advanced prostate cancer by half. These benefits do not extend to men on fish oil supplements. Charring that occurs when meat is barbecued is also implicated in prostate cancer. A heterocyclic amine called PhIP, known to be a human carcinogen, is found in high concentrations in grilled beef, pork, chicken, lamb and fish. The more charred the meat, the greater its content of PhIP. Vegetables such as broccoli or Brussels sprouts appear to reduce PhIP in the body. In one study, an examination of the urine of volunteers who had consumed barbecued red meat followed by broccoli showed an increase in the amount of PhIP excreted, indicating that the

vegetables may help to clear PhIP. Our male patients who are obese and gain a lot of weight early in life have a higher risk of getting prostate cancer and have poorer outcomes compared to those who are not obese or those who gain weight later in life. Nutrition may play an important role in the prevention of prostate cancer. Fruits and vegetables, especially cooked tomatoes, contain key sources of cancer-fighting agents, such as lycopene, antioxidants and fibre. Getting enough vitamin D may help our patients avoid prostate cancer. Found in milk and fish, vitamin D can also be created when the skin is exposed to sunlight. Studies have shown that people living in regions that get less sunlight have higher rates of prostate cancer. Also, people with dark skin absorb less sunlight and are known to have lower levels of vitamin D. This may help to explain some of the racial differences in the incidence of prostate cancer.

Prostate cancer cell growth requires the presence of testosterone. Hence, one of the most common treatments for prostate cancer is the complete suppression of testosterone production. It is known that men who are castrated before puberty rarely develop prostate cancer. However, it is unknown whether testosterone actually causes prostate cancer or just facilitates its growth.

### **Symptoms and screening**

Early-stage prostate cancer usually has no symptoms. It is often discovered in patients who present with urinary difficulties and are subsequently screened for prostate cancer. In some cases, if the prostate is enlarged, symptoms such as weak urine flow, waking up at night to void frequently, difficulty in starting or holding one's urine, blood in the urine or semen may occur. Other symptoms include pain in the spine, pelvis, ribs or large bones. Loss of appetite, weight or anaemia and generalised feelings of malaise and fatigue are also non-specific symptoms of advanced prostate cancer. Keep an eye out for these signs. Prostate cancer is usually diagnosed or excluded with a blood test for total prostate specific antigen (TPSA) and a digital rectal examination of the prostate (DRE). A PSA level of < 4 ng/ml is considered normal for those aged above 50, while a PSA level of <2.5 ng/ml is normal for those aged between 40 and 50. The DRE is used to detect any nodules or irregularities in the consistency of the prostate. Most urological associations recommend an annual PSA and DRE from age 40 onwards for those with a family history of prostate cancer, and from age 50 for those without. As prostate cancer tends to progress slowly, it is not necessary to screen for prostate cancer if you are above age 80 or if your life expectancy is less than 10 years.

### **Localised disease**

During the process of diagnosing prostate cancer, a variety of tests is done to determine whether the cancer is contained within the prostate or if it has spread to other parts of our patient's body. If it's caught early, a complete cure is possible. Treatment includes surgery to remove the prostate completely, either via open surgery or keyhole surgery. The other alternative is radiotherapy. However, long-term complications of erectile dysfunction and urinary incontinence occur with both types of treatment.

### **Metastatic disease**

When prostate cancer has spread beyond the prostate, our patient has advanced or metastatic cancer. Treatment usually involves hormone suppression in the form of oral medication, injections every three months or surgical removal of the testes. It is important to note that although the tumour may appear to have shrunk or even disappeared in x-rays and bone scans, a small number of prostate cancer cells may remain, leading to a possible recurrence at a later stage. However, hormone therapy does offer good disease control for at least 2 years.

### **Hormone-refractory prostate cancer**

When advanced prostate cancer escapes hormonal control, hormonal manipulation can be applied. If unsuccessful, chemotherapy can be used. However, this is purely a way to alleviate symptoms and control disease progression rather than a cure. No treatment is necessary if our patient is asymptomatic. Localised radiotherapy in lower doses can be used to treat localised bone pain. As with all diseases, treatment should be tailored to our patients' needs. It may be reassuring to know that 86% of all prostate cancers are diagnosed in the local and regional stages and that the 5-year relative survival rate for men whose prostate cancer is diagnosed at this early stage is nearly 100%. Also, according to recent data, the relative 10-year survival rate is 86%, and the 15-year survival rate is 56%. At present, it is virtually impossible to know how rapidly a particular patient's prostate cancer will grow – because at the time of diagnosis, it is unknown how long the cancer cells have been developing. If the cancer is contained within the prostate, it may take years for a tumour to double in size. In fact, the cancer might stay within the confines of the prostate indefinitely and never cause problems. Alternatively, the cancer may grow rapidly and spread to other parts of the body. The grade of the tumour, according to a 10-point Gleason rating, does have a significant impact on cancer survival. The lower the score, the less aggressive the tumour, and the higher the chances of survival.

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