StarSpecial
CANCER AWARENESS

Beating the odds with innovative treatments

LIKE many developing countries, Malaysia faces an alarming rise of cancer cases. According to the *Malaysia National Cancer Registry Report*, there were 115,238 new cases reported in 2012 to 2016, compared to 103,507 cases between 2007 and 2011.

Chemotherapy, radiotherapy and surgery have been the cornerstone for the treatment of cancer. It has achieved some measure of success but more needs to be done to improve the outcome of treatment. With technological advancement, scientists are finding new innovative ways to treat the disease and increase the survival rate of cancer patients.

New treatments are introduced

In the past, the treatment options recommended to cancer patients were standardised according to the site in which the cancer occurred, the characteristics of the patients (such as their age and health status) and whether the cancer had already spread to other parts of the body. Pathologists were also key in examining the characteristics of cancers under a microscope, looking for features that would help doctors decide on the type of treatment that was needed.

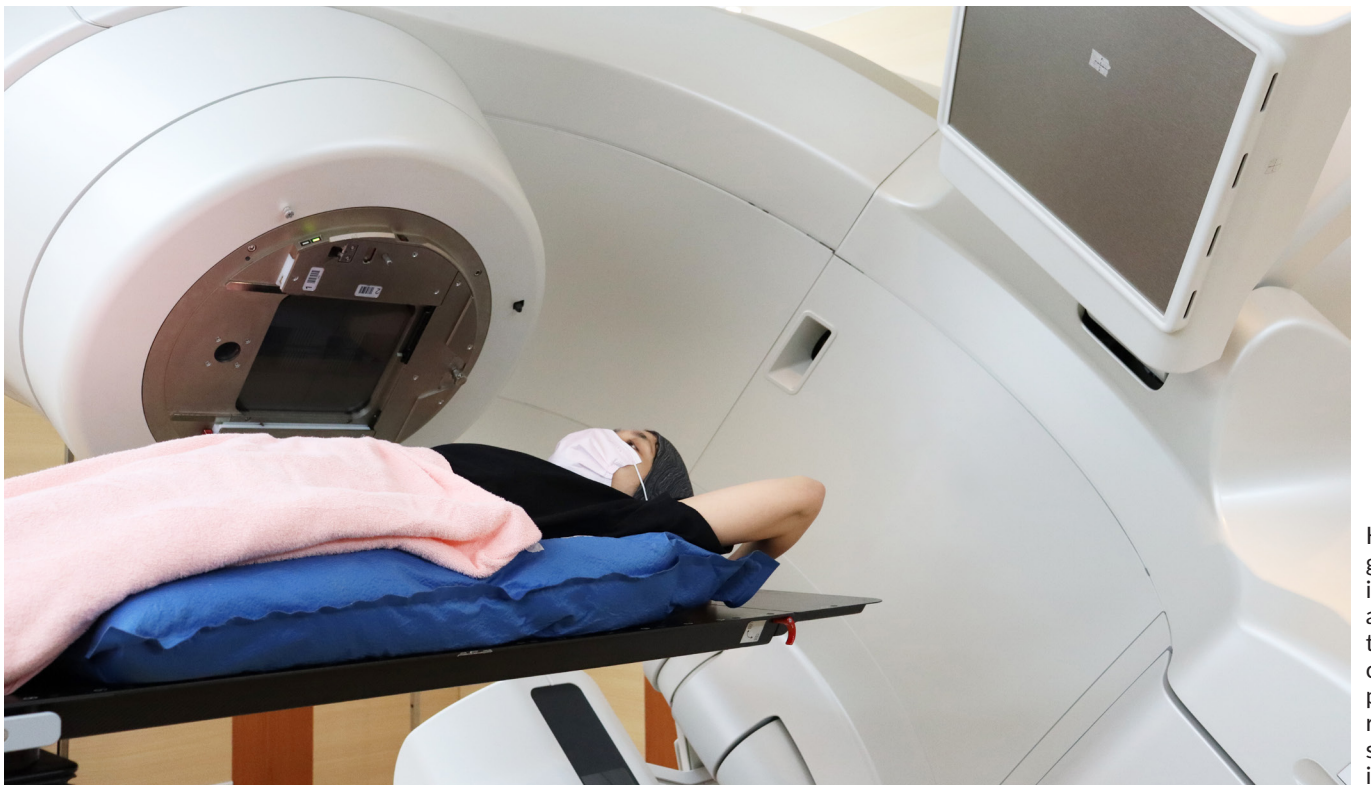
Experts now believe that this information alone is not enough to know which type of treatment will work best for each patient. Some cancers may look the same under a microscope, but at the molecular and genetic level, cancer in one patient may have differences from cancer in another patient and these differences may determine whether or not the patient responds to a particular treatment. Hence, additional diagnostic information about genetics and genomics are needed to enable treatments to be chosen to give each patient the best chance of survival, an approach called "Precision Medicine".

Consultant clinical oncologist at Subang Jaya Medical Centre (SJMC) Dr Matin Mellor Abdullah says, "Due to the advances in molecular pathology and diagnostics, experts are able to identify genetic alterations that play a crucial role in driving cancer in that particular patient. By knowing precisely the genetic alteration in each patient's cancer, we can give the treatment that specifically targets that genetic alteration, thereby increasing the patient's chance of response and survival."

"Take lung cancer for example. Some of the cancers express mutation in the EGFR gene. These patients are best treated with anti-EGFR treatment and this had been shown to be better than traditional chemotherapy," Dr Matin explains.

Another emerging way to kill cancers is not to attack cells which are growing rapidly because of genetic alterations, but to activate the immune system to kill cancer cells. "Immunotherapy", as this new arm of cancer treatment is called, can take many forms, from drugs to vaccines to even cell-based therapies. Dr Matin shares, "Cancer cells can find a way to evade the immune system and in some cancers, they activate a molecular pathway called immune checkpoints. For these cancers, a new class of therapy has been developed called "checkpoint inhibitors" – these restore the immune system to function normally and now recognise cancer cells as foreign bodies that need to be killed."

Dr Matin also notes that oncology treatments have evolved rapidly over the last 20 years. "We have seen great improvement in survival in a number of cancers which have previously been difficult to treat. Take for example, melanoma or even some subtypes of aggressive breast cancer – these have previously had a poor survival, but with the new targeted therapies and immunotherapies, we continue to make progress in improving survival for cancer patients."



Knowing the precise genetic alteration in a patient's cancer allows doctors to tailor treatment that can increase the patient's chance of response and survival. – Stock image

The value of next-generation sequencing (NGS)

While there has been much improvement in treatment options, more can be done to better understand the disease and how treatment can be carried out. Next-generation sequencing (NGS) is seen to play a big part in the fight against cancer.

According to Dr Matin, NGS is a technique where scientists and molecular pathologists can determine whether genetic alterations have occurred in cancer cells in a very expeditious way. Previously, doctors could only analyse one gene at a time, but with the high throughput methods like NGS, it is now possible to obtain the genetic status of multiple genes simultaneously. He explains, "When you conduct NGS, you get information on all the possible genetic mutations or the different types of genetic mutation in a single test. This is as opposed to sending a sample to a lab to test for only one particular mutation, in the past."

> "Due to the speed cancer can spread and its fatality rate, it has become all the more critical for doctors to have quick sequencing results before prescribing precision medicine."

He also adds that NGS is crucial for precision medicine because when doctors are able to identify the mutations that are present within cancer patients, they can tailor more effective treatments against the mutation that is driving the cancer.

Due to the speed cancer can spread and its fatality rate, it has become all the more critical for doctors to have quick sequencing results before prescribing precision medicine. Initiatives such as the NEXUS 2.0 Patient Access Programme, a collaboration between SJMC, AstraZeneca Malaysia and Pfizer Malaysia has managed to greatly reduce the time between diagnosis and treatment. Results for rapid genetic testing of tumours can now be obtained within three working days instead of two to three weeks.

The NEXUS 2.0 programme aims at supporting a multi-gene targeted next-generation sequencing panel called NGS Express-Lung Panel (50 genes) for patients with non-small cell lung cancer in Malaysia.

Seeking new knowledge

Cancer cells might look the same under a microscope, but they possess very different characteristics. That is why it is important to have a large genetic database in addition to developing NGS technologies.

However, the lack of Asian genetic representation in genetic and genomic database can be a problem. This comes as no surprise as a lot of medical research, be it cancer-related or otherwise, have been generated from Western countries. Given that the socio-economic profiles, lifestyles, and genetic background differ, sometimes greatly, between Asians and Westerners, there is the need to address the question as to whether to 'adopt' or 'adapt' current information before applying it in the Asian context.

For example, extensive research has been carried out on breast cancer but very little on its effect on Asian women. There is thus little to explain the rise in incidence and mortality rate in Asian countries.

Taking cue from this fact and to close the gap in Asian genomic research, a group of Malaysian scientists from SJMC, Cancer Research Malaysia and the University of Cambridge in the UK have built the largest genetic and genomic database of Asian breast cancers to-date.

The collaborative effort between the scientists of both countries from 2012 to 2020 led to the genome mapping of 1,000 breast cancer patients. As a result, Asian representation in genomic studies has now increased exponentially.

Lead researcher Prof Datin Paduka Dr Teo Soo Hwang says Asians had only made up 2% of breast cancer genomic research in 2015, but by the end of 2020, Malaysians accounted for nearly 20% of total breast genomic maps published globally, with Korea and China making up 13%.

Prof Teo also adds the genomic map helps doctors discover new things they never knew about Asian breast cancer cases. Among the new discoveries are that Asians were more likely to have a more aggressive form of breast cancer and that patients that express the HER2 receptor (human epidermal growth factor receptor 2) were more likely to have a mutation in the gene called TP53. There is currently no treatment that is targeted at these cancers so experts need to continue exploring the possibilities.

While all these advances may serve as good news for cancer patients, there is still so much to be done, be it in research or treatment. Cancer remains to be the second leading cause of death globally after ischaemic heart disease and is responsible for an estimated 9.6 million deaths in 2018, with 70% of cancer-related deaths occurring in low- and middle-income countries. Until the disease can be fully understood, the quest for new knowledge continues.

■ For more information, call 03-5639 1212.

More than just staying positive

HEARING the words "You have cancer" can be a shock to anyone, even the mentally resilient. When your future, plans and life suddenly get derailed by cancer, it brings forth a wave of emotional responses which can overwhelm people.

Cancer is not just a physical illness; it can have a psychological impact on the patient too. According to the United Kingdom's Mental Health Foundation, one in three people with cancer will experience mental health problems such as depression or anxiety disorders either before, during or after treatment.

The ongoing psychological and emotional challenges a patient faces can be more daunting than the physical treatments they have to endure. A patient's mental health can impact his physical health and mortality risk. Hence, physical and emotional support are needed to help the patient cope better.

Advising patients to have a "positive attitude" is simply not enough. Mental health conditions are believed to be underdiagnosed among cancer patients. Helping them overcome their mental health conditions requires due consideration. A proactive approach may be needed in detecting these conditions and help patients deal with them.

Family can be a strong and dependable anchor during tough times and both sides can gain strength from each other.

It begins with acceptance

Acceptance is the first step in overcoming the mental issues that come with cancer. Without acknowledging your situation, it is easy for your mind to wander, overthink issues, and as a result, cause fear and uncertainty to grow. Taking care of your mental health is equally important to treating the cancer.

You will also need to accept that there will be lifestyle changes to adopt because of cancer treatment. Adjusting your mental state is important because it helps you in your day-to-day life. It will be a new challenge to balance treatments with your daily activities, especially if you have frequent medical appointments.

Subsequently, obtain basic and useful information for your cancer diagnosis and treatment. You should prioritise educating yourself about your illness and what it takes to survive it.

Family members of cancer patients also have an increased risk for depression and anxiety. Like the patient, they need to adjust their emotional state and daily routine to better care for the patient.

Cancer patients need to maintain two-way communication with their loved ones. When you can express your emotions honestly, both sides can gain strength from one another. Family can become a strong and dependable anchor during tough times.

Let's talk about it

When it comes to mental health issues, therapy would be the common answer. Cognitive behavioural therapy (CBT) is a type of psychotherapy (talk therapy) that can be considered.

Therapists encourage patients to open up and talk about their thoughts and feelings. It helps patients view challenging situations more clearly and respond to them in a more effective way while gaining confidence and comfort. Patients learn more about their mental health condition and practise different techniques for relaxation, stress management and be more resilient and assertive.

CBT can be done one-on-one or in groups with family members or with people who have similar issues. For those living in areas with few local mental health resources, online resources make it easier to participate in CBT. This can be helpful if the people around you don't talk about mental health and you can't share how you feel emotionally. Support groups can also be helpful places where you can talk to other people with similar experiences that can provide tips that helped them and others.

In some cases, antidepressant medication may be required to help manage anxiety and sleep issues but it is always best to consult your doctor on your treatment needs.

Cancer affects people in different ways and just like physical treatment, treatment for mental health must also be tailored independently. Patients need to be aware of the challenges and emotional wear their cancer journey brings and having a positive attitude is important.

Cancer patients shouldn't be left to cope with emotional distress on their own. Communicating with your doctors and loved ones is key in overcoming mental health issues when living with cancer.

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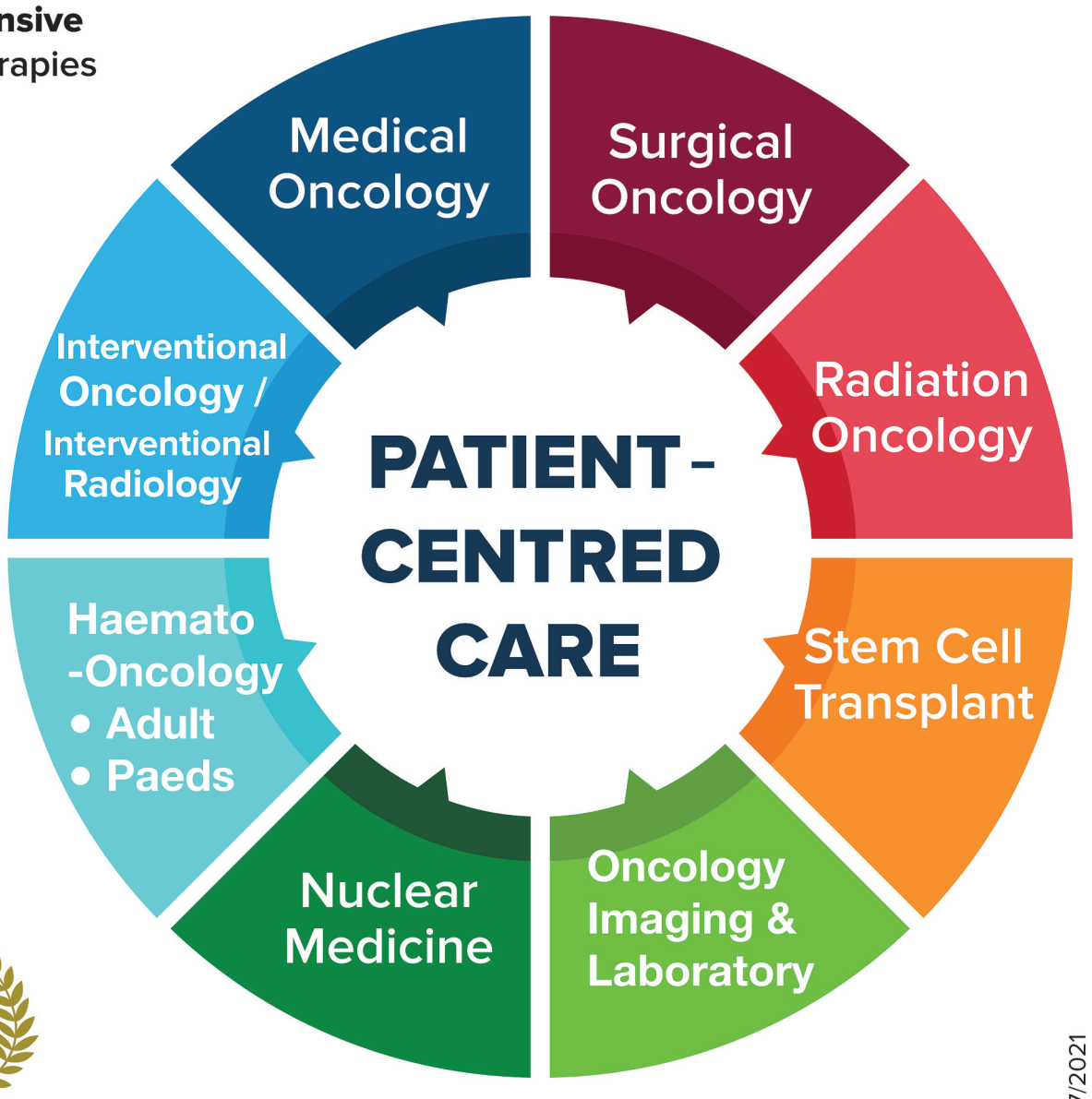

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What you need to know about malignant melanoma

SKIN cancers are generally classified as "non-melanoma" or "melanoma" skin malignancies. The most common ones are basal cell carcinoma (BCC) and squamous cell carcinoma (SCC), both of which are grouped into non-melanoma.

Though more commonly found among Caucasians, the fair-skinned, and the red-haired, all who easily burn from sun exposure, skin cancer is increasingly affecting the Malaysian population – which ranks 10th (against other cancers in Malaysia) in the latest Malaysian National Cancer Registry Report (2012-2016).

The incidence of non-melanoma (NM) skin cancers from the 2012-2016 numbers translates into 1,797 or 3.5% in males and 1,395 or 2.2% in females, versus 184 males and 163 females with malignant melanoma (MM). Though the number of patients with MM were low, over 70% of the cases had been presented late for treatment; where 52-58% cases presented at Stage 4 of the disease which is a grim prognosis. Despite the lower incidence of MM compared with BCC or SCC, malignant melanoma presents higher mortality in those afflicted by skin cancer due to its poor response to the conventional adjuvant therapy like chemotherapy and radiotherapy.

Non-melanoma skin cancers (BCC or SCC) are less aggressive and often are presented in their early stages – more than 50% in Stage 1 and 18-21% in Stage 2. In a 2019 research paper titled *Characteristics of skin cancers among adult patients in an urban Malaysian population* published in the *Australasian Journal of Dermatology*, the five-year study found NMSC (BCC or SCC) to be often presented in the eighth decade of life and more commonly among the Chinese, followed by the Malays and the Indians. In *Cutaneous malignant melanoma: clinical and histopathological review of cases in a Malaysian tertiary referral centre published in Malays J Pathol* in 2012, 32 cases of MM reported over 10 years, found 62% presented at Stage 3 or 4 and a median age of 62 years. The higher prevalence in the Chinese comes as no surprise given skin cancer's preferred affliction of the fairer skinned.

In women, malignant melanoma (MM) commonly occurs in the extremities, versus the trunk, head, or neck in men.

Risk factors

Besides skin fairness (the fairest is called Fitzspatrick type 1), other risk factors to developing MM include increasing age, a history of melanoma, a history of sunburn, and the presence of premalignant lesions such as atypical moles – which place about 7% of the general population in the risk group for developing malignant melanoma.

Prof Dr Arman Zaharil Mat Saad.

Those with atypical mole syndrome, i.e., having more than 100 moles, are 12 times more likely to develop MM. In most cases, the melanoma usually appears as a new lesion rather than rising from pre-existing moles.

Patients with giant hairy moles are at a higher risk of developing malignant melanoma; as high as 40% transformation rate has been reported. Sun or ultraviolet (UV) light exposure increases the likelihood of developing malignant melanoma. The risk is higher in cases with a history of extensive exposure/sunburn during childhood.

> "Sun or ultraviolet (UV) light exposure increases the likelihood of developing malignant melanoma."

MSU Medical Centre plastic and reconstructive surgeon Prof Dr Arman Zaharil Mat Saad says most MM cases treated in Malaysia involves the peripheral/limb areas, are found on the foot sole, and are presented as late as Stage 3 or 4. The finding was mirrored in the 2012 study, which cited 32 cases, with 16 affecting the lower limb and 12 on the soles.

What you should do

Suspicious of a lesion? See a doctor/specialist of skin cancers – who could be a plastic surgeon, a dermatologist, or an oncology surgeon – for consultation and possible biopsy to obtain a definitive diagnosis.

Once diagnosis is obtained, staging investigation should follow thorough clinical examination to check for enlarged satellite, in-transit, or regional lymph nodes. This is usually done via CT or PET scan, liver-function test, and genetic study of gene mutations (BRAF and cKIT).

Treatment

Treatment at an early stage may involve surgical resection alone, which may offer a cure for the disease. A sentinel lymph node biopsy may be offered to patients with clinically-negative lymph node to detect early cancer spread or micro-metastasis.

Those with palpable regional lymph nodes or lymph-nodes detected on the imager/scanner should have a lymph-node biopsy as well as a block dissection of the particular lymphatic basin.

As for adjuvant treatment, new development in systemic therapy using immunotherapy (monoclonal antibodies) and targeted therapy (BRAF /KIT inhibitors) may offer new hope for those with metastatic disease or in an advanced stage of melanoma (in which chemotherapeutic agents offer little assistance and radiotherapy may only benefit some patients – relieving symptoms in those with metastases to the brain/spine or bones.)

Five fast-moving cancers

CANCER is undoubtedly a growing problem in Malaysia. The estimated number of cancer-related deaths in 2020 is roughly 29,530, according to the World Health Organisation. As cancer can strike anyone at any moment, it is important for people to be vigilant and be aware of how cancer can affect our lives.

It is crucial to detect cancer as soon as possible, as early treatment can help control the spread of the disease and increase the rate of survival. It is also important to know the warning signs as some types of cancer can spread faster and are more dangerous than others.

1. Pancreatic cancer

The pancreas creates enzymes and hormones in our digestive system. The enzymes help break down sugar, fats and starch while the hormones regulate our blood sugar levels and appetite.

What makes pancreatic cancer particularly dangerous is that it is easy to miss. There are hardly any symptoms during the early stages of this cancer. Symptoms only become apparent once the cancer has spread from the initial site.

Abnormalities that come with pancreatic cancer include light-coloured stools, dark-coloured urine, unintended weight loss due to a loss in appetite, abdominal pain and jaundice. If you notice any of these symptoms, it is recommended to have it checked with a doctor.

Risk factors of pancreatic cancer are smoking, obesity, diabetes, pancreatitis, a family history of genetic syndromes and old age.

2. Brain cancer

Our brain controls our thoughts, memory, speech, physical movement and function of every organ in the body.

The symptoms of brain cancer include headache, nausea, vision disturbance, losing sense of balance, speech difficulties, behavioural changes, seizures (especially for someone who does not have a history of seizures), and hearing problems.

Brain cancer is particularly dangerous because some symptoms are relatively common. Some people may thus ignore or dismiss the symptoms, believing that these are normal signs of ageing or part of daily life. People then only learn about the cancer when the symptoms have exacerbated and impede on daily life. Unfortunately, at this stage, the cancer would have already spread to other body parts.

The currently known risk factors are exposure to radiation and family history of brain cancer. Thus, what we can do is only avoid unnecessary exposure to radiation, carcinogenic chemicals, and pesticides or insecticides.

3. Oesophageal cancer

The main function of the oesophagus is to transport food and fluids from the mouth to the stomach. People with oesophageal cancer may experience difficulty in swallowing, unintended weight loss, chest pain, worsening indigestion or heartburn, and coughing or hoarseness. If you have been diagnosed with Barrett's oesophagus beforehand, the risk of having oesophagus cancer is higher.

Oesophageal cancer is very aggressive despite having unnoticeable symptoms during its early stages, making it undetected. People who suffered from oesophageal cancer often mistook it as a simple heartburn or indigestion and tended to it with antacid, which temporarily cures the symptoms but masks the real disease.

Other risk factors are having gastroesophageal reflux disease (GERD), smoking, obesity, excessive alcohol consumption, bile reflux, oesophageal sphincter, habit of drinking very hot liquids, and lack of consumption of fruits and vegetables.

4. Liver cancer

The liver's function is to regulate chemical levels in the blood and excrete a product called bile, which helps to carry away waste products from the liver. It serves as a form of filtration for the body to absorb useful nutrients and metabolise drugs into forms that are easier to process.

The common warning signs for liver cancer are unintended weight loss due to a loss in appetite, upper abdominal pain, nausea, fatigue, abdominal swelling, light-coloured stools and jaundice. Symptoms also usually arise with complicated disease, causing it hard to notice until later stages. Additionally, in some rare cases of fibrolamellar carcinoma, liver cancer can be asymptomatic, which makes it harder to detect until later stages despite its fast growth.

Early detection of cancer is crucial as early treatment can help in controlling the spread of the disease and increase the patients' rate of survival.

The risk of developing liver cancer increases through chronic infection with HBV or HCV, cirrhosis (scar tissue to form in the liver), inheritance of liver diseases, diabetes, non-alcoholic fatty liver disease, exposure to aflatoxins, and excessive alcohol consumption.

5. Skin cancer (Melanoma)

Melanoma can develop anywhere on the body or even inside an existing mole. The signs come in the form of a large brownish spot with darker speckles, a mole that changes (colour, size, or that bleeds), a small lesion with an irregular border, and a painful lesion that itches or burns.

Melanoma is less common but more dangerous than the other forms of skin cancer (basal cell carcinoma and squamous cell carcinoma) because of its ability to spread to other organs more rapidly and becomes difficult to treat.

The risk factors for skin cancer include lack of melanin, sunburn, excessive sun exposure, high-altitude climates, moles, precancerous skin lesions, family history of skin cancer, weakened immune system, exposure to radiation, and exposure to certain substances.

To mitigate risk factors, we can avoid the sun during the middle of the day, wear sunscreen or protective clothing, avoid tanning beds, and checking our skin regularly with a doctor. Additionally, measuring the size of the mole using a ruler over time can help us notice whether the mole is cancerous or not.