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THE BRIEF REVIEW ON TYPES OF CANCER

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Abstract— Gathering vast data sets of cancer genomes requires more efficient and autonomous procedures to classify cancer types and to discover a few essential genes to distinguish different cancers. Because protein expression is more stable than gene expression, we chose reverse phase protein array (RPPA) data, a powerful and robust antibody-based high-throughput approach for targeted proteomics, to perform our research. In this study, we proposed a computational framework to classify the patient samples into ten major cancer types based on the RPPA data using the SMO (Sequential minimal optimization) method. A careful feature selection procedure was employed to select 23 important proteins from the total of 187 proteins by mRMR (minimum Redundancy Maximum Relevance Feature Selection) and IFS (Incremental Feature Selection) on the training set. By using the 23 proteins, we successfully classified the ten cancer types with an MCC (Matthews Correlation Coefficient) of 0.904 on the training set, evaluated by 10-fold cross-validation, and an MCC of 0.936 on an independent test set. Further analysis of these 23 proteins was performed. Most of these proteins can present the hallmarks of cancer; Chk2, for example, plays an important role in the proliferation of cancer cells. Our analysis of these 23 proteins lends credence to the importance of these genes as indicators of cancer classification. We also believe our methods and findings may shed light on the discoveries of specific biomarkers of different types of cancers.

INTRODUCTION

Cancer is a disease in which some of the body's cells grow uncontrollably and spread toother parts of the body.
Cancer can start almost anywhere in the human body, which is made up of trillions of cells. Normally, human cells grow and multiply (through a process called cell division) to form new cells as the body needs them. When cells grow old or become damaged, they die, and new cells take their place.[1]

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Sometimes this orderly process breaks down, and abnormal or damaged cells grow and multiply when they shouldn't. These cells may form tumors, which are lumps of tissue. Tumors can be cancerous or not cancerous (benign).

Cancerous tumors spread into, or invade, nearby tissues and can travel to distant places inthe body to form new tumors (a process called metastasis). Cancerous tumors may also be called malignant tumors. Many cancers form solid tumors, but cancers of the blood, such asleukemia's, generally do not.[2]

Benign tumors do not spread into, or invade, nearby tissues. When removed, benign tumors usually don't grow back, whereas cancerous tumors sometimes do. Benign tumors can sometimes be quite large, however. Some can cause serious symptoms or be life threatening, such as benign tumors in the brain.

The genetic changes that contribute to cancer tend to affect three main types of genes—proto-oncogenes, tumor suppressor genes, and DNA repair genes. These changes are sometimes called "drivers" of cancer.[5]

There are more than **200 types** of cancer and we can classify cancers according to wherethey start in the body

Literature Review

The primary PubMed search produced 900 citations, of which 263 met the inclusion criteria.The first published study that met our inclusion criteria was published in 1984. The secondary PubMed search for the key words "cancer survivorship" in the title or abstract resulted in 391 articles, 72 of which met the inclusion criteria and were not duplicated by the initial search. The Medline search resulted in 719 articles. Of these,[3] 170 articles met the inclusion criteria and were not duplicated by the initial searches. An additional 169 studies were identified in reference lists from articles that were identified in the searches conducted. The final result of the literature review was 674 articles.

The number of survivorship studies overall has increased since 1984, with an observable increase around 1996, the year the Office of Cancer Survivorship (OCS) was created. Of the 674 studies that met the inclusion criteria, 618 or

91.7% were quantitative. As depicted the use of descriptive and case control studies has been relatively unchanged over time, while theuse of qualitative studies has fluctuated. Since 1996, randomized controlled trials and cross sectional designs were used with increasing frequency, especially in the last decade.

Fifty six articles (8.3%) employed qualitative research designs. Forty six or 82.1% of the qualitative studies addressed quality of life issues, and 31 articles or 55.4% of the qualitativestudies focused on breast cancer survivors.

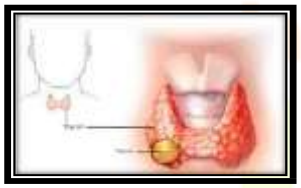
Quality of life studies have become the focus of survivorship research, increasing from 12studies in 1996 to peaks of 47 in 2007 and 47 in 2009.

Intermittent increases in late effects research occurred in 2000, 2006 and 2008, though never to more than approximately a third of the total studies per year.

Interventional research increased from five in 1996 to 22 in 2009 and observational research increased from nine in 1996 to 38 in 2009. Overall, there were 259 (38.4%) interventional and 415 (61.6%) observational studies since 1984. Studies focusing on breast cancer have byfar been the focus of the overwhelming number of both intervention and observational studies(144 and 148, respectively). While each type of research has increased with a comparable pace, there have been five to ten more observational studies per year than interventional studies.

TYPES OF CANCE

Thyroid Cancers



Symptoms :

Most thyroid cancers don't cause any signs or symptoms early in the disease. As thyroidcancer grows, it may cause:

A lump (nodule) that can be felt through the skin on your neck

Changes to your voice, including increasing hoarseness

Difficulty swallowing

Swollen lymph nodes in your neck

Pain in your neck and throat

Causes

Thyroid cancer happens when cells in the thyroid develop changes in their DNA. A cell's DNA contains the instructions that tell the cell what to do. The changes, which doctors call mutations, tell the cells to grow and multiply rapidly. The cells go on living when healthy cells would naturally die. The accumulating cells form a mass called a tumor.[5]

The tumor can grow to invade nearby tissue and can spread (metastasize) to the lymph nodes in the neck. Sometimes the cancer cells can spread beyond the neck to the lungs, bonesand other parts of the body.

For most thyroid cancers, it's not clear what causes the DNA changes that cause the cancer

Prevention

Doctors aren't sure what causes the gene changes that lead to most thyroid cancers, so there'sno way to prevent thyroid cancer in people who have an average risk of the disease.

Prevention for people with a high risk

Adults and children with an inherited gene that increases the risk of medullary thyroid cancermay consider thyroid surgery to prevent cancer (prophylactic thyroidectomy). Discuss your options with a genetic counselor who can explain your risk of thyroid cancer and your treatment options.

Prevention for people near nuclear power plants

A medication that blocks the effects of radiation on the thyroid is sometimes provided to people living near nuclear power plants in the United States. The medication (potassium iodide) could be used in the unlikely event of a nuclear reactor accident. If you live within 10 miles of a nuclear power plant and are concerned about safety precautions, contact your state or local emergency management department for more information.[6]

Treatment

Treatment for thyroid cancer depends on the type of thyroid cancer you have and how far ithas spread. The main treatments are:

A thyroidectomy – surgery to remove part or all of the thyroid

Radioactive iodine treatment – you swallow a radioactive substance that travels through lyour blood and kills the cancer cells External radiotherapy – a machine is used to direct beams of radiation at the cancer cells to kill them Chemotherapy and targeted therapies – medicines used to kill cancer cells

Surgery

Surgery is the first treatment for most types of thyroid cancer. It may involve removing:

Part of the thyroid

The whole thyroid

Nearby lymph glands

The operation is done under a general anesthetic (where you're asleep). Most people are wellenough to leave hospital after a few days.

You'll need to rest at home for a few weeks after surgery, and avoid any activities that couldput a strain on your neck, such as heavy lifting. You'll have a small scar on your neck, but this should become less noticeable over time.

It's a good idea to talk to your surgeon about the exact operation they recommend and findout what it involves.

Radioactive iodine treatment

A course of radioactive iodine treatment is often recommended after surgery.

This will help destroy any remaining cancer cells and reduce the risk of the cancer comingback.

Preparing for treatment

To make the treatment more effective, you'll be advised to cut down on iodine in your dietfor 1 to 2 weeks before the treatment.

It's recommended that you:

Avoid all seafood

Limit the amount of dairy products you eat

Do not take cough medicines – these can contain iodine

Eat plenty of fresh meat, fresh fruit and vegetables, pasta and rice

Tell your care team if you think you could be pregnant, as the treatment is not safe during pregnancy.

Women should avoid getting pregnant for at least 6 months after treatment, and men shouldavoid

fathering a child for at least 4 months. If you're breastfeeding, it's recommended that youstop for anumber of weeks before treatment starts. Your doctor will be able to give you more advice.

Risk factors

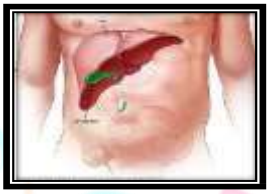
Factors that may increase the risk of thyroid cancer include:

Female sex. Thyroid cancer occurs more often in women than in men. Experts think it maybe related to the hormone estrogen. People who are assigned female sex at birth generally have higher levels of estrogen in their bodies.

Exposure to high levels of radiation. Radiation therapy treatments to the head and neck increase the risk of thyroid cancer.

Certain inherited genetic syndromes. Genetic syndromes that increase the risk of thyroid cancer include familial medullary thyroid cancer, multiple endocrine neoplasia, Cowden syndrome and familial adenomatous polyposis. Types of thyroid cancer that sometimes run in families include medullary thyroid cancer and papillary thyroid cancer. [7] Prevention for peoplewith a high risk Adults and children with an inherited gene that increases the risk of medullary thyroid cancer may consider thyroid surgery to prevent cancer (prophylactic thyroidectomy). Discuss your options with a genetic counselor who can explain your risk of thyroid cancer and your treatment options.

Liver Cancer :



Symptoms

Most people don't have signs and symptoms in the early stages of primary liver cancer. Whensigns and symptoms

Do appear, they may include:

Losing weight without trying

Loss of appetite

Upper abdominal pain

Nausea and vomiting

General weakness and fatigue

Abdominal swelling

Yellow discoloration of your skin and the whites of your eyes (jaundice) • White, chalkystools

Causes

Liver cancer happens when liver cells develop changes (mutations) in their DNA. A cell's DNA is the material that provides instructions for every chemical process in your body. DNAmutations cause changes in these instructions. One result is that cells may begin to grow out of control and eventually form a tumor — a mass of cancerous cells.[8]

Sometimes the cause of liver cancer is known, such as with chronic hepatitis infections. But sometimes liver cancer happens in people with no underlying diseases and it's not clear whatcauses it.

Prevention

Reduce your risk of cirrhosis

Cirrhosis is scarring of the liver, and it increases the risk of liver cancer. You can reduce yourrisk of cirrhosis if you:

Drink alcohol in moderation, if at all. If you choose to drink alcohol, limit the amount you drink. For women, this means no more than one drink a day. For men, this means no more than two drinks a day.

Maintain a healthy weight. If your current weight is healthy, work to maintain it by choosing a healthy diet and exercising most days of the week. If you need to lose weight, reduce the number of calories you eat each day and increase the amount of exercise you do. Aim to lose weight slowly — 1 or 2 pounds (0.5 to 1 kilograms) each week.

Ask your doctor about liver cancer screening

For the general population, screening for liver cancer hasn't been proved to reduce the risk ofdying of liver cancer, and it isn't generally recommended. People with conditions that increase the risk of liver cancer might consider screening, such as people who have:

Hepatitis B infection

Hepatitis C infection

Liver cirrhosis

Discuss the pros and cons of screening with your doctor. Together you can decide whether screening is right for you based on your risk. Screening typically involves a blood test and anabdominal ultrasound exam every six months.

Treatment

Treatments for primary liver cancer depend on the extent (stage) of the disease as well asyour age, overall health and personal preferences.

Surgery

Operations used to treat liver cancer include:

Surgery to remove the tumor. In certain situations, your doctor may recommend an operation to remove the liver cancer and a small portion of healthy liver tissue that surrounds it if your tumor is small and your liver function is good.

Whether this is an option for you also depends on the location of your cancer within the liver,how well your liver functions and your overall health.

Liver transplant surgery. During liver transplant surgery, your diseased liver is removedand replaced with a healthy liver from a donor. Liver transplant surgery is only an option for a small percentage of people with early-stage liver cancer.

Localized treatments

Localized treatments for liver cancer are those that are administered directly to the cancer cells or the area surrounding the cancer cells. Localized treatment options for liver cancerinclude:

Heating cancer cells. Radiofrequency ablation uses electric current to heat and destroy cancer cells. Using an imaging test as a guide, such as ultrasound, the doctor inserts one or more thin needles into small incisions in your abdomen. When the needles reach the tumor, they're heated with an electric current, destroying the cancer cells. Other procedures to heatthe cancer cells might use microwaves or lasers.

Freezing cancer cells. Cryoablation uses extreme cold to destroy cancer cells. During the procedure, your doctor places an instrument (cryoprobe) containing liquid nitrogen directly onto liver tumors. Ultrasound images are used to guide the cryoprobe and monitor the freezing of the cells.

Injecting alcohol into the tumor. During alcohol injection, pure alcohol is injected directly into tumors, either through the skin or during an operation. Alcohol causes the tumor cells todie.

Injecting chemotherapy drugs into the liver. Chemoembolization is a type of chemotherapy treatment that supplies strong anti-cancer drugs directly to the liver.

Placing beads filled with radiation in the liver. Tiny spheres that contain radiation may beplaced directly in the liver where they can deliver radiation directly to the tumor.

Targeted drug therapy

Targeted drug treatments focus on specific abnormalities present within cancer cells. Byblocking these abnormalities, targeted drug treatments can cause cancer cells to die.

Many targeted drugs are available for treating advanced liver cancer.

Some targeted therapies only work in people whose cancer cells have certain genetic mutations. Your cancer cells may be tested in a laboratory to see if these drugs might helpyou.

Immunotherapy

Immunotherapy uses your immune system to fight cancer. Your body's disease-fighting immune system may not attack your cancer because the cancer cells produce proteins that blind the immune system cells. Immunotherapy works by interfering with that process.

Immunotherapy treatments are generally reserved for people with advanced liver cancer.

Chemotherapy

Chemotherapy uses drugs to kill rapidly growing cells, including cancer cells. Chemotherapy can be administered through a vein in your arm, in pill form or both.

Chemotherapy is sometimes used to treat advanced liver cancer.

Supportive (palliative) care

Palliative care is specialized medical care that focuses on providing relief from pain and other symptoms of a serious illness. Palliative care specialists work with you, your family and your other doctors to provide an extra layer of support that complements your ongoing care.

Palliative care can be used while undergoing other aggressive treatments, such as surgery, chemotherapy or radiation therapy.

Risk factors

Factors that increase the risk of primary liver cancer include:

Chronic infection with HBV or HCV. Chronic infection with the hepatitis B virus (HBV) or hepatitis C virus (HCV) increases your risk of liver cancer.

Cirrhosis. This progressive and irreversible condition causes scar tissue to form in your liver and increases your chances of developing liver cancer.

Certain inherited liver diseases. Liver diseases that can increase the risk of liver cancer include hemochromatosis and Wilson's disease.[9]

Diabetes. People with this blood sugar disorder have a greater risk of liver cancer than those who don't have diabetes.

Nonalcoholic fatty liver disease. An accumulation of fat in the liver increases the risk of liver cancer.

Exposure to aflatoxins. Aflatoxins are poisons produced by molds that grow on crops that are stored poorly. Crops, such as grains and nuts, can become contaminated with aflatoxins, which can end up in foods made of these products.

Excessive alcohol consumption. Consuming more than a moderate amount of alcohol daily over many years can lead to irreversible liver damage and increase your risk of liver cancer.

BLADDER CANCER

Symptoms

Blood in your urine is the most common symptom of bladder cancer.

The medical name for blood in your urine is haematuria and it's usually painless. You may notice streaks of blood in your urine or the blood may turn your urine brown. The blood isn't always noticeable and it may come and go.

Less common symptoms of bladder cancer include:

A need to urinate on a more frequent basis

Sudden urges to urinate

A burning sensation when passing urine

If bladder cancer reaches an advanced stage and has spread, symptoms can include:

Pelvic pain

Bone pain

Unintentional weight loss

Swelling of the legs

Causes

Bladder cancer often starts from the cells lining the bladder. These cells are called transitional cells.

Papillary tumors look like warts and are attached to a stalk.

Carcinoma in situ tumors are flat. They are much less common. But they are more invasive and have a worse outcome.

The exact cause of bladder cancer is not known. But several things that may make you more likely to develop it include:

Cigarette smoking – Smoking greatly increases the risk of developing bladder cancer. Up to half of all bladder cancers may be caused by cigarette smoke.

Personal or family history of bladder cancer – Having someone in the family with bladder cancer increases your risk of developing it.

Chemical exposure at work – Bladder cancer can be caused by coming into contact with cancer-causing chemicals at work. These chemicals are called carcinogens. Dye workers, rubber workers, aluminum workers, leather workers, truck drivers, and pesticide applicators are at the highest risk.

Chemotherapy – The chemotherapy drug cyclophosphamide may increase the risk for bladder cancer.

Prevention

Don't smoke

Smoking is thought to cause about half of all bladder cancers.

Drink plenty of liquids

There's evidence that drinking a lot of fluids – mainly water – might lower a person's risk of bladder cancer.

Eat lots of fruits and vegetables

Some studies have suggested that a diet high in fruits and vegetables might help protect against bladder cancer, but other studies have not found this. Still, eating a healthy diet has been shown to have many benefits, including lowering the risk of some other types of cancer.[10]

Treatment

Treatment options for bladder cancer depend on a number of factors, including the type of cancer, grade of the cancer and stage of the cancer, which are taken into consideration along with your overall health

Surgery, to remove the cancer cells

Chemotherapy in the bladder (intravascular chemotherapy), to treat cancers that are confinedto the

lining of the bladder but have a high risk of recurrence or progression to a higher stage

Chemotherapy for the whole body (systemic chemotherapy), to increase the chance for a cure in a person having surgery to remove the bladder, or as a primary treatment when surgery isn't an option

Radiation therapy, to destroy cancer cells, often as a primary treatment when surgery isn't an option or isn't desired

Immunotherapy, to trigger the body's immune system to fight cancer cells, either in thebladder or throughout the body Targeted therapy, to treat advanced cancer when other treatments haven't helped

Risk factors

Factors that may increase bladder cancer risk include:

Smoking. Smoking cigarettes, cigars or pipes may increase the risk of bladder cancer by causing harmful chemicals to accumulate in the urine. When you smoke, your body processes the chemicals in the smoke and excretes some of them in your urine. These harmful chemicals may damage the lining of your bladder, which can increase your risk of cancer.

Increasing age. Bladder cancer risk increases as you age. Though it can occur at any age, most people diagnosed with bladder cancer are older than 55.

Being male. Men are more likely to develop bladder cancer than women are.

BREAST CANCER

symptoms

Signs and symptoms of breast cancer may include:

A breast lump or thickening that feels different from the surrounding tissue

Change in the size, shape or appearance of a breast

Changes to the skin over the breast, such as dimpling

A newly inverted nipple

Peeling, scaling, crusting or flaking of the pigmented area of skin surrounding the nipple (areola) or breast.[11]

Redness or pitting of the skin over your breast, like the skin of an orange

Causes

Doctors know that breast cancer occurs when some breast cells begin to grow abnormally. These cells divide more rapidly than healthy cells do and continue to accumulate, forming a lump or mass. Cells may spread (metastasize) through your breast to your lymph nodes or toother parts of your body.

Breast cancer most often begins with cells in the milk-producing ducts (invasive ductal carcinoma). Breast cancer may also begin in the glandular tissue called lobules (invasive lobular carcinoma) or in other cells or tissue within the breast.

Inherited breast cancer

Doctors estimate that about 5 to 10 percent of breast cancers are linked to gene mutationspassed through generations of a family.

A number of inherited mutated genes that can increase the likelihood of breast cancer have been identified. The most well-known are breast cancer gene 1 (BRCA1) and breast cancergene 2 (BRCA2), both of which significantly increase the risk of both breast and ovarian cancer.

Prevention

Breast cancer risk reduction for women with an average risk

Making changes in your daily life may help reduce your risk of breast cancer. Try to:

Ask your doctor about breast cancer screening. Discuss with your doctor when to begin breast cancer screening exams and tests, such as clinical breast exams and mammograms. Talk to your doctor about the benefits and risks of screening. Together, you can decide what breast cancer screening strategies are right for you.

Become familiar with your breasts through breast self-exam for breast awareness.

Women may choose to become familiar with their breasts by occasionally inspecting their

breasts during a breast self-exam for breast awareness. If there is a new change, lumps orother unusual signs in your breasts, talk to your doctor promptly.

Breast awareness can't prevent breast cancer, but it may help you to better understand thenormal changes that your breasts undergo and identify any unusual signs and symptoms.

Drink alcohol in moderation, if at all. Limit the amount of alcohol you drink to no more than one drink a day, if you choose to drink.

Exercise most days of the week. Aim for at least 30 minutes of exercise on most days of the week. If you haven't been active lately, ask your doctor whether it's OK and start slowly.

Breast cancer is treated in several ways. It depends on the kind of breast cancer and how far it has spread. People with breast cancer often get more than one kind of treatment.

Treatment

Surgery. An operation where doctors cut out cancer tissue.

Chemotherapy. Using special medicines to shrink or kill the cancer cells. The drugs can be pills you take or medicines given in your veins, or sometimes both.

Hormonal therapy. Blocks cancer cells from getting the hormones they need to grow.

Biological therapy. Works with your body's immune system to help it fight cancer cells or to control side effects from other cancer treatments.

Radiation therapy. Using high-energy rays (similar to X-rays) to kill the cancer cells.

Risk factors

A breast cancer risk factor is anything that makes it more likely you'll get breast cancer. But having one or even several breast cancer risk factors doesn't necessarily mean you'll develop breast cancer. Many women who develop breast cancer have no known risk factors other than simply being women.

Factors that are associated with an increased risk of breast cancer include:

Being female. Women are much more likely than men are to develop breast cancer.

Increasing age. Your risk of breast cancer increases as you age.

A personal history of breast conditions. If you've had a breast biopsy that found lobular carcinoma in situ (LCIS) or atypical hyperplasia of the breast, you have an increased risk ofbreast cancer.

A personal history of breast cancer. If you've had breast cancer in one breast, you have anincreased risk of developing cancer in the other breast.

KIDNEY CANCER

Symptoms

Kidney cancer usually doesn't have signs or symptoms in its early stages. In time, signs and symptoms may develop, including:

Blood in your urine, which may appear pink, red or cola colored

Pain in your back or side that doesn't go away

Loss of appetite

Unexplained weight loss

Tiredness

Fever

Causes

It's not clear what causes most kidney cancers.

Doctors know that kidney cancer begins when some kidney cells develop changes (mutations) in their DNA. A cell's DNA contains the instructions that tell a cell what to do. The changes tell the cells to grow and divide rapidly. The accumulating abnormal cells form a tumor that can extend beyond the kidney. Some cells can break off and spread (metastasize)to distant parts of the body.[12]

Prevention

Taking steps to improve your health may help reduce your risk of kidney cancer. To reduceyour risk, try to:

Quit smoking. If you smoke, quit. Many options for quitting exist, including support programs, medications and nicotine replacement products. Tell your doctor you want to quit, and

discuss your options together.

Maintain a healthy weight. Work to maintain a healthy weight. If you're overweight or obese, reduce the number of calories you consume each day and try to be physically active most days of the week. Ask your doctor about other healthy strategies to help you lose weight.

Maintain a healthy weight. Work to maintain a healthy weight. If you're overweight or obese, reduce the number of calories you consume each day and try to be physically active most days of the week. Ask your doctor about other healthy strategies to help you lose weight.

Control high blood pressure. Ask your doctor to check your blood pressure at your next appointment. If your blood pressure is high, you can discuss options for lowering your numbers.

Lifestyle measures such as exercise, weight loss and diet changes can help. Some people mayneed to add medications to lower their blood pressure. Discuss your options with your doctor.

Treatment

Kidney cancer treatment usually begins with surgery to remove the cancer. For cancers confined to the kidney, this may be the only treatment needed. If the cancer has spread beyond the kidney, additional treatments may be recommended.

Surgery For most kidney cancers, surgery is the initial treatment. The goal of surgery is to remove the cancer while preserving normal kidney function, when possible. Operations usedto treat kidney cancer include.[11]

Removing the affected kidney (nephrectomy). A complete (radical) nephrectomy involvesremoving the entire kidney, a border of healthy tissue and occasionally additional nearby tissues such as the lymph nodes, adrenal gland or other structures.[13]

Removing the tumor from the kidney (partial nephrectomy). Also called kidney-sparing or nephron-sparing surgery, the surgeon removes the cancer and a small margin of healthy tissue that surrounds it rather than the entire kidney. It can be done as an open procedure, or laparoscopically or with robotic assistance.

Nonsurgical treatments:- Small kidney cancers are sometimes destroyed using nonsurgical treatments, such as heat and cold. These procedures may be an option in certain situations, such as in people with other health problems that make surgery risky.

Options may include:

Treatment to freeze cancer cells (Cryoablation). During cryoablation, a special hollow needle is inserted through your skin and into the kidney tumor using ultrasound or other image guidance. Cold gas in the needle is used to freeze the cancer cells.

Risk factors

Factors that can increase the risk of kidney cancer include:

Older age. Your risk of kidney cancer increases as you age.

Smoking. Smokers have a greater risk of kidney cancer than nonsmokers do. The riskdecreases after you quit.

Obesity. People who are obese have a higher risk of kidney cancer than people who are considered to have a healthy weight.

High blood pressure (hypertension). High blood pressure increases your risk of kidneycancer.

Treatment for kidney failure. People who receive long-term dialysis to treat chronic kidney failure have a greater risk of developing kidney cancer.

PANCREATIC CANCER

symptoms

Signs and symptoms of pancreatic cancer often don't occur until thedisease is advanced. They may include:

Abdominal pain that radiates to your back

Loss of appetite or unintended weight loss

Yellowing of your skin and the whites of your eyes (jaundice)

Light-colored stools

Dark-colored urine

Itchy skin

New diagnosis of diabetes or existing diabetes that's becoming more difficult to control

Blood clots

Fatigue

Causes

It's not clear what causes pancreatic cancer. Doctors have identified some factors that may increase the risk of this type of cancer, including smoking and having certain inherited genemutations.

Understanding your pancreas

Your pancreas is about 6 inches (15 centimeters) long and looks something like a pear lying on its side. It releases

(secretes) hormones, including insulin, to help your body process sugarin the foods you eat. And it produces digestive juices to help your body digest food and absorb nutrients.[11]

How pancreatic cancer forms

Pancreatic cancer occurs when cells in your pancreas develop changes (mutations) in their DNA. A cell's DNA contains the instructions that tell a cell what to do. These mutations tell the cells to grow uncontrollably and to continue living after normal cells would die. These accumulating cells can form a tumor. When left untreated, the pancreatic cancer cells can spread to nearby organs and blood vessels and to distant parts of the body.

Prevention

You may reduce your risk of pancreatic cancer if you:

Stop smoking. If you smoke, try to stop. Talk to your doctor about strategies to help you stop, including support groups, medications and nicotine replacement therapy. If you don't smoke, don't start.

Maintain a healthy weight. If you are at a healthy weight, work to maintain it. If you needto lose weight, aim for a slow, steady weight loss — 1 to 2 pounds (0.5 to 1 kilogram) a week. Combine daily exercise with a diet rich in vegetables, fruit and whole grains with smaller portions to help you lose weight.

Choose a healthy diet. A diet full of colorful fruits and vegetables and whole grains may help reduce your risk of cancer.

Treatment

Surgery for tumors in the pancreatic head. If your cancer is located in the head of the pancreas, you may consider an operation called a Whipple procedure (pancreaticoduodenectomy).

The Whipple procedure is a technically difficult operation to remove the head of the pancreas, the first part of the small intestine (duodenum), the gallbladder, part of the bile duct and nearby lymph nodes.[5] In some situations, part of the stomach and colon may be removedas well. Your surgeon reconnects the remaining parts of your pancreas, stomach and intestines to allow you to digest food.

Surgery for tumors in the pancreatic body and tail. Surgery to remove the left side (bodyand tail) of the pancreas is called distal pancreatectomy. Your surgeon may also need to remove your spleen.

Surgery to remove the entire pancreas. In some people, the entire pancreas may need to be removed. This is called total pancreatectomy. You can live relatively normally without a pancreas but do need lifelong insulin and enzyme replacement.

Risk factors

Factors that may increase your risk of pancreatic cancer include:

Smoking

Diabetes

Chronic inflammation of the pancreas (pancreatitis)

Family history of genetic syndromes that can increase cancer risk, including a BRCA2 gene mutation, Lynch syndrome and familial atypical mole-malignant melanoma (FAMMM) syndrome

Family history of pancreatic cancer

Obesity

Older age, as most people are diagnosed after age 65

CONCLUSION

A plan for the diagnosis and treatment of cancer is a key component of any overall cancercontrol plan. Its main goal is to cure cancer patients or prolong their life considerably, ensuring a good quality of life.

In order for a diagnosis and treatment programmed to be effective, it must never be developed in isolation. It needs to be linked to an early detection programme so that cases are detected at an early stage, when treatment is more effective and there is a greater chance of cure. It also needs to be integrated with a palliative care programme, so that patients with advanced cancers, who can no longer benefit from treatment, will get adequate relief from their physical, psychosocial and spiritual suffering.[9] Furthermore, programmes should includea awareness-raising component, to educate patients, family and community members about the cancer risk factors and the need for taking preventive measures to avoid developing cancer.

Where resources are limited, diagnosis and treatment services should initially target all patients presenting with curable cancers, such as breast, cervical and oral cancers that can be detected early. They could also include childhood acute lymphatic leukemia, which has a high potential for cure although it cannot be detected early. Above all, services need to be provided in an equitable and sustainable manner. As and when more resources become available, the programme can be extended to include other curable cancers as well as cancers for which treatment can prolong survival considerably.

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