

Prevention And Treatment Childhood Cancer

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ABSTRACT: Childhood cancer is not a single disease, but includes a variety of malignancies in which abnormal cells divide in an uncontrolled manner. Childhood cancers vary by type of histology, site of disease origin, race, sex, and age. The axiom that children are not little adults' has long been applied to the management of paediatric patients, and it certainly applies to cancer patients. Most paediatric cancers differ quite significantly from adult cancers in several important ways including: ¹ incidence ²

underlying etiopathogenesis ⁽³⁾ response rates outcomes and biology. Unlike adult cancers, childhood cancer remains a rare event, affecting approximately 15 per 100,000 children annually. The most common paediatric solid tumors include brain tumors (25%), lymphomas (10%), neuroblastoma (8%), Wilms tumor (6%), and bone tumors (5%) ⁽⁴⁾

We assessed referral patterns of children with hematological malignancies (HM) in North India. **Materials and Methods:** The parents/guardians were interviewed at presentation, in the period between October 2001 and November 2002. Patient delay (symptom-contact), health system delay (contact-diagnosis), total delay (symptom-diagnosis), and number of contacts were compared between high- and standard-risk disease group. **Results:** Of the 79 children (55 boys; 69.6%) with HM, 47 (59.5%) had Acute Lymphoblastic Leukemia (ALL). Forty-four children had high-risk disease. The patient, system and total delay were a median of 2 days (with Interquartile range IQR of 1-6), 37 days (IQR 13-55), and 38 days (IQR 15-60) respectively. Majority of patients (64/79; 81%) went to private sector (non governmental health care providers) for health care. Number of contacts, which was the most significant, correlate with system delay. **Conclusions:** Sensitizing the private sector practitioners about cancer in symptomatic children (pallor, bleeding, fever) may be effective. ⁽⁶⁾

The literature concerning the psychosocial aspects of childhood cancer is reviewed. The emphasis of the literature is on the impact of the disease on the child and family and depicts the life-situation when faced with childhood cancer and responses to the disease. The literature strongly indicates that families experience serious difficulties and are at a population at risk of developing psychosocial problems. The approach of studying the child with cancer and family is discussed and suggestions are made for future research. ⁽⁷⁾

INTRODUCTION:

Cancer is not one disease; it is a group of more than 100 different and distinctive diseases. The types of cancer that occur in children and adolescents are different from those that occur in adults. ⁽¹⁾

'Childhood' refers to those children aged 0 to 14, inclusively. Childhood cancers are generally very different to those seen in adults. In childhood cancer, cells have a common disease process—cells grow out of control, develop abnormal sizes and shapes, ignore their typical boundaries inside the body, destroy their neighbour cells, and ultimately can spread to either of organ and tissue. ⁽²⁾

Leading forms of childhood cancer (ages 0-19) leukemia (26%), brain cancer and central nervous system (CNS) (18%), and lymphoma (14%). Some cancers that develop in children are rarely seen in adults, especially those cancers that come from embryonic cells and from developing tissue and organs. Embryonic cancer includes neuroblastoma (sensory nerve system), Wilms tumor or nephroblastoma (growing kidney), medulloblastomas (brain), rhabdomyosarcoma (muscle), and retinoblastoma (eye retina). Some childhood cancers, most common in adolescents, are very similar to those in adults ⁽³⁾

Treatment of childhood cancer in specialized centres is coordinated by a team of experts who know proper medications for the cancer.



Fig. 1 Cancer Patient

History & Discovery:

Much progress has been made in the treatment of childhood cancer in recent decades, and many of these cancers are still curable. However, the progression in some cancers has been greater than in others.

Five-year survival rates when discussing cancer survival statistics, doctors often use a number called the 5-year survival rate. Remember that 5-year survival rates are based on patients who have been diagnosed and treated at least 5 years ago. Advances in treatment often result in a better view of recently diagnosed patients. Of course, many children live much longer than 5 years, and many are cured. The 5-year survival rates for the most recent time period (2004-2010) for the more.

More than 13,000 children are expected to be diagnosed with cancer in the United States by 2019, with more than 80% of them living longer. Some of these advances in

cancer care and survival rates may be due to advances in medical technology and training; however, many are the direct result of child and adolescent participation in clinical trials and adjuvant research.¹²

In fact, according to Unger and colleagues, it is estimated that more than 50 percent of children with cancer under the age of 15 agree to participate in clinical trials; a proportion 10 times greater than found for adults with cancer, perhaps in part due to initiatives set forth by the Children's Oncology Group (COG).⁽⁴⁾

By incorporating developmentally appropriate, context-specific, and child-centre adjustments, researchers can help children and adolescents with cancer effectively and meaningfully describe their illness experiences while also developing a positive outlook on future research participation.

Survival rates are based on previous outcomes of large numbers of children who had the disease, but they are at best rough estimates and can't predict what will happen in any child's case.

Pathophysiology of Childhood Cancer:

In cancer, altered cells are produced by abnormal cell growth due to damage to the normal gene that controls them. So, the odd match is in these

The genes that control the 4 cells are as follows:

Activation of growth-promoting oncogenes that cause cell mutations (a mutant type of proto-oncogene common in cancer is called oncogene). Many

Of these cancer-associated genes, oncogenes, are first identified in viruses, hence the name v-onc. The genetic products of oncogenes are called Oncoproteins. Oncogenes are considered as potent as they emerge despite the presence of regular proto-oncogenes.

Literature Review:

Neil L and Clarke S, et.al, 28 Sep 2013 Studied this article offers an analysis of literature on paternal and maternal development and resilience via the experience of having a child diagnosed, treated, and maybe die. From most cancers the methods and analysis of discovering from lookup performed in this vicinity are assessed, as are the data's relevance and implications for practice. The evaluation required an in-depth search of applicable fitness care databases nine excellent search terms. Findings were then culled and analysed based on inclusion and exclusion standards and two papers had been deemed appropriate

For resolution four contrasting topics emerged from every article it was generally recounted that mothers and fathers enduring such an experience cited that adjustments occurred in their lives the mothers failed a need to become more challenging for their child and family, and the father identified a need to focus quickly on what wanted to be finished to deal with their child's illness. However, analytically the differences in every paper are vast⁽⁵⁾

Studied the improvement of curative remedy for most paediatric malignancies has produced a paucity of population of childhood most cancer survivors who are at elevated risk for a range of fitness problems resulting from their most cancers or its remedy due to the fact of the reality that many moment-related sequelae may now not come to be clinically apparent until the survivor attains maturity. Or begins to age, the capacity of most important care providers to anticipate late outcomes of realiment imperative for supplying well-timed interventions that prevent or correct these sequelae and their negative outcomes on satisfactory of life. Altered bone metabolism all through treatment for childhood most cancers may additionally intervene with attainment of top bone mass, doubtlessly predisposing to untimely onset of and extra severe problems associated to osteopenia and osteoporosis.

Bone mineral deficits have been stated after remedy for a range of paediatric malignancies and signify morbidity that.

Can be reduced or avoided through lifestyle modifications and interest to different frequent cancer-related sequelae such as hypogonadism, the children oncology group long-term follow-up hints for survivors of childhood, adolescent and young grownup cancers supply risk-based surveillance suggestions that are based on expert opinion and overview scientific literature for attainable late results of paediatric cancer therapy such as osteopenia.

J.E.W.M. Van Dongen-Melman et.al, August 1997 studied the literature regarding the psychosocial aspects of childhood most cancers. The emphasis of the literature is on the impact on the disorder on the toddler and family and depicts the life-situation when faced with childhood cancer and responses to the diseases, the literature strongly suggests that households trip serious difficulties and are a population at threat of developing psychosocial problems. The strategy of studying the baby with most cancers and family is discussed and hints are made for future research⁽⁷⁾



Fig. 2 Cancer Patient

Types Of Childhood Cancer

The most common types of cancer in children are different from those seen in adults. The most common cancers in children are:

- Acute lymphocytic leukemias (ALL): 89%
- Acute myelogenous leukemias (AML): 64%
- Brain and other organs of the central nervous system: 72%

- Wilms tumors: 90%
- Hodgkin lymphomas: 97%
- Non-Hodgkin lymphomas: 88%
- Rhabdomyosarcoma: 68%
- Neuroblastomas: 79%
- Retinoblastomas: 97%
- Orthopedic cancer: 3%
- Osteosarcoma: 71%
- Ewing sarcoma: 75%
- Germ Cell tumors: 10%

SYMPTOMS:

When childhood cancer is detected by a variety of technologies, relieving various Symptoms plays an important role in cancer care and treatment. This can be called Palliative care or supportive care.

It usually starts after a diagnosis and continues during full treatment.

Continued, Sudden unexplained weight loss

Headaches frequently, often with early morning vomiting

Increased swelling or persistent pain in the bones, joints, back, or legs

Lump or mass, especially in the abdomen, neck, chest, pelvis, or armpits

Development of excessive bruising, bleeding, or rash

Constant, frequent, or persistent infections

A whitish colour behind the pupil

Nausea that persists or vomiting without nausea

Constant tiredness or loss of energy and noticeable paleness

Eye or vision changes that occur suddenly and persist

Recurring or persistent fevers of unknown origin or illness that doesn't go away

CAUSES OF CHILDHOOD CANCER:

A risk factor is anything that affects the chance of getting a disease like cancer. Different cancers have different risk factors

Lifestyle-related risk factors play a major role in types of cancer in adults. Examples include being overweight, eating an unhealthy diet, getting enough Exercise, and habits like smoking and drinking alcohol. But the lifestyle often Takes years to contribute to the risk of cancer, and it is not thought to play a major Role in childhood cancer. ⁽⁹⁾

A few environmental factors, such as radiation sure, have been linked with some Types of childhood cancers. Some studies have suggested that exposure to parents (such as

smoking) may increase a

child's risk of developing cancer, but further Research is needed to evaluate these potential links. To date, most childhood Cancers have not been shown to have external causes.

In recent years, scientists se made great progress in understanding how certain Changes in our DNA can cause cells become cancerous.

DNA is the chemical in each of our cells that makes up our genes – the Instruction for nearly everything our cells do. We usually look like our parents Because they the source of our DNA. It also contributes to the risks of developing Certain diseases, including certain types of cancer

Some genes (DNA components) control when our cells grow, divide into new Cells, and die. The genes that help to grow, differentiate, or survive are called Oncogenes. Others that's low down cell division or cells to die at the right time are Called tumor suppressor genes.

Cancer can be caused by mutations in the DNA of oncogenes or by Suppressing genes that suppress the tumor. These changes are present in every Cell of the child's body, and can often be tested for in the DNA of blood cells or Other body cells.

Some of these DNA mutations are only linked to an increased risk of cancer, While others can cause diseases that include other health or developmental Problems. But many childhood cancers are not the result of hereditary changes.

Most cancers in children, like those in adults, are thought to develop as a result of mutations in genes that lead to uncontrolled cell growth and eventually cancer.

In adults, these gene mutations reflect the cumulative effects of aging and long-term exposure to cancer-causing substances.

An unusual lump or swelling

Unexplained changes in skin color, such as paleness

Lack of energy

Easy bruising

Ongoing pain in one area

Limping

Unexplained fever or illness

DIAGNOSIS OF CHILDHOOD CANCER

Blood tests:

A blood test measures the number of different types of cells in a person's blood. The first test performed for leukemia is a blood test. Blood samples are usually taken from a vein in the arm, but in infants and young children, they may be taken from other veins (such as the feet or head) or the toe.

Blood counts and blood smears are the most common tests performed on these samples. A total blood count (CBC) is performed to determine the number of blood cells in each blood type. For a blood smear, a small sample of blood is spread on a glass slide and viewed under a microscope.

Some very high or very low cell levels may indicate the presence of certain types of childhood cancers.

Bone marrow aspiration and biopsy:

Bone marrow samples are obtained from bone marrow aspiration and biopsy – these 2 tests are usually performed simultaneously to examine the bone marrow, which is spongy, fatty tissue found inside large bones. Samples are usually taken behind the pelvic bones (hip), but in some cases they may be taken in front of the pelvic bones, the thoracic bone (sternum [rarely in children]), or in other bones.

For bone marrow aspiration, the skin above the hip bone is cleansed and numbed with a local anesthetic. In many cases, the child is given other painkillers or sleep apnea during surgery. A small, empty needle is inserted into the bone and a syringe is used to absorb a small amount of fluid from the bone marrow. Bone marrow biopsy is usually performed just after wish.

A small piece of bone and bone marrow is removed with a larger needle twisted as it is thrown down to the bone. Once the biopsy is complete, pressure will be applied to the area to help prevent any bleeding. These bone marrow tests are used to diagnose leukemia and may be repeated later to show if leukemia responds to treatment.

Lumbar puncture (spinal tap):

Lumbar puncture or spinal tap is a procedure in which a needle is used to take a sample of spinal fluid (CSF) to look for cancer cells or tumor symptoms.

Abscess markers are substances found in excessive amounts in the blood, urine, or body tissues of people with certain types of cancer.

Cerebral Spinal Fluid (CSF) is a fluid that circulates around the brain and spinal cord. Children are usually given an anesthetic on the lower back before the procedure or other medications to calm or relax the baby (feeding).

Other blood tests:

Children with leukemia will be tested for certain chemicals in the blood to see how well their immune systems are functioning. These tests are not used to diagnose leukemia, but in children who are already diagnosed, it may help to detect damage to the liver, kidneys, or other organs caused by the spread of blood cells or certain chemotherapy.

measuring blood levels of essential minerals, and making sure the blood is clotting properly. Children can also be tested for diseases in the blood. It is important to diagnose and treat diseases quickly in children with leukemia because their weakened immune system can allow the disease to spread quickly

Imaging Test

Imaging is the use of x-rays, sound waves, magnetic fields, or radiation particles to produce images inside the body. Leukemia rarely develops abscesses, so imaging studies are not helpful for some types of cancer. But if leukemia is suspected or diagnosed, your child's doctor

may prescribe one of these tests to get a better view of the disease or to look at other problems, such as infections.

Magnetic resonance imaging (MRI):

The use of MRI and radio waves to show changes in soft tissues without the use of x-rays to produce detailed body images. MRI can also be used to measure tumor size. A special dye used called a medium is applied before scanning to create a clearer image. This dye can be injected into a patient's veins or given as a pill or liquid to be swallowed.

Ultrasound

Ultrasound uses sound waves to create an image of internal organs. Patients often awake During The Ultrasound.

Chest X-ray

A chest x-ray can help identify an enlarged thymus or lymph nodes in the chest. If the result is abnormal, a computed tomography (CT) chest scan can be performed to get a detailed view of the chest x-rays can also help diagnose pneumonia if your baby may have lung disease.

Fig .3 x-ray

Computed tomography (CT) scan:

Computed tomography (CT) is the use of x-rays to produce a distinct cross section image of a body part. The computer then assembles the images into a detailed, three-dimensional image that shows any abnormalities or flaws. A CT scan can also be used to measure tumor size. In some cases, a special dye called contrast medium is applied before scanning to give better details to the image. This dye can be injected into a patient's veins or given as a pill or liquid to be swallowed. If possible, it is best to have these tests done in a special paediatric centre where paediatricians can be monitored. These centres are aware of the potential dangers of radiation exposure from CT scans. A CT scan is a type of x-ray scan that produces detailed, distinct images of the body. Unlike normal x-rays, CT scans can show details on soft tissues such as internal organs. The computer then assembles the images into detailed images of the body part being studied. Prior to the scan, your child may be asked to take a comparative remedy and / or receive an intravenous (IV) injection dosage that helps to better identify abnormal areas in the body. The child may need an IV line where the contrast dye is injected. (11) IV injection of bright dye can cause a feeling of warmth or warmth on the face or elsewhere. Some people experience allergies and experience constipation or, rarely, have serious reactions such as shortness of breath and low blood pressure. Be sure to tell the doctor if your child has an allergy or has ever had a reaction to any of the x-rays. CT scans take longer than regular x-rays. The CT scanner is described as a large donut, with a small table in the middle of an open area. During testing, the table slides in and out of the scanner. Some people feel a little trapped

during the scan

aspiration and biopsy-2 Tests usually performed simultaneously

Positron emission tomography

A PET scan is usually combined with a CT scan (see above), called a PET-CT scan. However, you may hear your doctor refer to this procedure as a PET scan. A PET scan is a procedure to take pictures of organs and tissues within the body. A small amount of radiation sugar is injected into the patient's body. This sugar substance is absorbed by cells that use a lot of energy. Because cancer tends to use energy more actively, it absorbs more radioactive substance. However, the radioactivity in an object is so low that it can be harmful to patients. The scanner then detects the object to produce images inside the body

Radio isotope studies or scans

In these processes, a substance with a small amount of radioactive substance (called a tracer) is injected into the body and followed by a special camera or x-ray to see where that is going. These studies can find abnormalities in the liver, brain, bones, kidneys, and other organs



Fig 4 CT Scan

PREVENTION OF CHILDHOOD CANCER:

In Child Cancer, there are no risk factors associated with lifestyle (such as smoking). Very few environmental factors, such as radiation exposure, have been linked to the risk of childhood cancer. Even then, in many cases radiation exposure can be avoided, as a child needs radiation therapy to treat another cancer.

Blood tests:

The first test performed for leukemia is a blood test.

Blood samples are usually taken from the veins in the arm, but in infants and young children, they may be taken from other arteries (such as the feet or the head) or "fingertips."

Blood counts and blood smears are the most common tests performed on these samples.

Bone marrow aspiration and biopsy:

Bone marrow samples are obtained from bone marrow

Samples are usually taken behind the pelvic (hip) bones, but in some cases they may be taken in front of the pelvic bones, the chest (sternum [rarely in children]), or other bone

Lumbar puncture (spinal tap):

This test is used to look for leukemia cells in cerebrospinal fluid (CSF), which is the fluid that cleanses the brain and spinal cord.

In this test, the doctor first touches the area below the spine over the spine. The doctor usually also gives the child sleeping pills during the procedure.

Screening for childhood cancers:

Screening to diagnose a disease such as cancer in people without symptoms.

Pediatric cancer is rare, and there are no commonly recommended screening tests for cancer in children who are not at high risk.

Some children are more likely to get a certain type of cancer because of certain genetic mutations in a parent. These children may need careful medical examinations, including specialized tests to detect early signs of cancer. Possible signs and symptoms of cancer in children [12]

Maintain a healthy weight

Although weight is one of the most important risk factors for cancer, recent surveys by the American Institute for Cancer Research and the American Society for Clinical Oncology found that around half of people are unaware of the link (3, 9). Very good evidence, though, suggests that maintaining a healthy weight and adopting other healthy lifestyle habits could prevent nearly half of deaths due to cancer (10).

Carrying extra weight, particularly being obese (defined as BMI greater than or equal to 30) has been strongly linked to an increased risk of cancers of the breast (after menopause), colon, kidney, pancreas, esophagus (adenocarcinoma), ovaries, and prostate. And there is growing evidence that obesity also increases the risk of leukemia, lymphoma, multiple myeloma, and cancers of the liver and gallbladder.

The way weight increases cancer risk varies from cancer to cancer. For example, estrogen produced by fat cells likely increases risk of postmenopausal breast cancer; blood sugar and insulin problems linked to being overweight likely increase risk of colon and pancreatic cancer; and weight-related irritations caused by gallstones and acid reflux likely increase the risk of cancers of the gallbladder and esophagus, respectively.

The now well-known and disturbing trends in the prevalence of overweight and obesity in the United States predict a growing burden of not only weight-related

cancers but also heart disease, stroke, and diabetes. Over the last two decades, rates of obesity have significantly increased across the nation.

In 2000, no state had a rate of obesity of 30 percent or higher ⁽¹¹⁾. Today, 12 states do. And close to 70 percent of the US population is either overweight (BMI 25 – 29.9) or obese (BMI greater than or equal to 30)(12). Such trends, while most pronounced in the United States, are being expressed worldwide as well, pointing to a huge future global burden from weight-related diseases



Fig 5 Cancer patient

TREATMENT OF CHILDHOOD CANCER:

Treatment for child cancer is based primarily on the type and stage (level) of the cancer. Treatment options may include surgery, radiation therapy, chemotherapy, and / or other Treatments. In most cases, more than one of these treatments is used. There are Exceptions, but pediatric cancer usually responds well to chemotherapy because it is Usually a fast- growing cancer (Many forms of chemotherapy affect rapidly growing Cells).

Children's bodies are also often better able to recover from higher doses of Chemotherapy than Adults' bodies. Taking intensive care gives doctors a better chance Of successfully treating cancer, but it can also lead to shortterm and long-term side Effects. Unlike chemotherapy, radiation can often cause more serious side effects in Children (especially very young children) than adults, so its use sometimes requires Moderation Doctors do their best to balance the need for strong treatment and the desire To limit side effects as much as possible.

The types of systemic treatments used for childhood cancer include:

Chemotherapy
Immunotherapy
Radiotherapy
Chemotherapy:

Chemotherapy is the use of drugs to destroy cancer cells, usually by keeping the cancer Cells from growing, dividing, and making more cells(13). The most commonly used Chemotherapeutics are classified according to the procedure into the following five Categories:

Alkylating agents such as nitrogen mustard or platinum-based agents form DNA Inter- or intrastrand cross-links or transmit alkyl groups of guanine DNA Residues that lead to abnormal formation on DNA bases and prevents cord Fragmentation during DNA synthesis.

Antimetabolites such as 5-fluorouracil disrupt important biosynthetic pathways, disrupt DNA and RNA binding, or induce DNA strand formation by inhibiting enzymes such

as ribonucleotide reductase and DNA polymerase or promoting the installation of an analogue foundation for a false structure of DNA.¹⁴

Mitotic spindle inhibitors such as taxane or alkaloids alter the function or formation of spindle microtubules and prevent chromosome separation and nuclear dissociation resulting in mitotic binding and eventual cell death.

Other chemotherapeutic agents include enzymes, proteasome inhibitors, tyrosine kinase inhibitors, and antibiotics.

Immunotherapy:

Immunotherapy, also called biologic therapy, is designed to improve the body's natural Defence against cancer. It uses organic or laboratory materials to improve, identify, or Restore immune function. Examples of immunotherapy include cancer vaccines, monoclonal antibodies, and Interferon.

Radiation Therapy:

Radiation therapy is the use of high-energy x-rays or other particles such as photons to Destroy cancer cells. A doctor who specializes in providing radiation therapy to treat Cancer is called a radiation oncologist.

Because healthy organs and tissues in th radiation system are at risk of injury and secondary cancer, especially in young children, doctors often try to avoid or reduce the use of radiation therapy in this age group if possible.

The most common type of radiation therapy is called external-beam radiation, which is radiation emitted from a machine outside the body. When radiation therapy is given using herbs, it is called internal radiation therapy or brachytherapy. New radiation methods are also being developed(15)

Physical, emotional, and social effects of cancer

Cancer and its treatment cause physical symptoms and side effects, as well as emotional, social, and financial effects. Managing all of these effects is called palliative care or supportive care. It is an important part of your child's care that is included along with treatments intended to slow, stop, or eliminate the cancer.

Palliative care focuses on improving how your child feels during treatment by managing symptoms and supporting patients and their families with other, non-medical needs. Any person, regardless of age or type and stage of cancer, may receive this type of care. It often works best when it is started right after a cancer diagnosis. People who receive palliative care during treatment for the cancer often have less severe side effects, better quality of life, and report that they are more satisfied with treatment.

Palliative treatments vary widely and often include medication, nutritional changes, relaxation techniques, emotional and spiritual support, and other therapies. Your child may also receive palliative treatments similar to those meant to get rid of the cancer, such as chemotherapy, surgery, or radiation therapy.

Bone marrow transplantation/stem cell transplantation:

Bone marrow transplantation is a medical procedure in which the cancerous bone marrow is replaced by specialized cells. These cells, called stem cells hematopoietic, grow into healthy bone marrow.

Hematopoietic stem cells form blood cells found in both blood and bone marrow. This process is also called stem cell transplant, blood stem cell transplant, or hematopoietic stem cell transplant.(17) There are 2 types of hematopoietic stem cell implants depending on the source of the changing stem cells:

Allogeneic (ALLO)**Autologous(AUTO)**

ALLO uses stem cells donated to another person, while AUTO uses patient stem cells. In both cases, the goal is to destroy all cancer cells in the bone marrow, blood, and other parts of the body by using high doses of chemotherapy and / or radiation therapy and allowing blood cell replacement to form healthy bone marrow.

External Beam Radiation Therapy (EBRT):

The clinical use of ionizing radiation (IR) in EBRT is used to treat approximately 60 percent of all cancer patients. Only a small percentage of patients are treated with brachytherapy or radioisotopes in very specific tumor companies.

The genotoxic effect of IR is used to kill harmful cells or to activate their proliferation in order to eliminate clonogenic expansion. However, EBRT is definitely associated with normal patient tissue exposure with high field-based and secondary out-of-field doses that vary greatly depending on tumor organization, EBRT method used, radiation quality, and tumor volume.(16)

Surgery

Surgery is the removal of the tumor, either cancerous or noncancerous, and a small amount of some surrounding healthy tissue during an operation. Many children with a tumor will need surgery at some point as a part of their treatment. Surgical oncologists, pediatric surgeons, and neurosurgeons are doctors who specialize in treating a tumor using surgery.

The goal of surgery is to remove the entire tumor and the margin (tissue around the tumor) and to leave a negative margin, which means no visible tumor left behind in the body's tissue. For most childhood tumors, there is still a significant risk of microscopic tumor cells being left after surgery. Doctors are then likely to recommend chemotherapy, radiation therapy, or other treatments.

Side effects of surgery may depend on the location of the tumor, the age of your child, the type of tumor, and whether the tumor has metastasized, meaning it has

spread to other parts of the body. Before surgery, talk with your child's health care team about the possible side effects from the specific surgery your child may experience and how those side effects can be managed or relieved. Learn more about the basics of cancer surgery.

RISK FACTORS FOR CHILDHOOD CANCER:

Because cancer is not a single disease, it has no underlying cause. Many of the causes or risk factors may affect a person's risk of developing cancer. Risk factors vary in the type of each cancer. It is important to remember that 1 in 3 people will develop cancer in their own time. Some harmful substances can be controlled and some may not. Genetics play a major role in many cancers, such as breast and colon cancer.

This means that a family health history can be dangerous for some types of cancer. The personal decisions we make in our lifestyle can increase our risk of cancer. These choices are called lifestyle factors, and include smoking, heavy drinking, and eating foods high in calories, high in fat, and low in fibre.

Other risk factors are related to sexual contact and exposure to the sun.

Life style factor: Tobacco:

Thirty percent of all cancers are attributed to smoking or chewing tobacco. Cigarette

Smoking is also associated with cancers of the mouth, pharynx, larynx, oesophagus, pancreas, kidney, and bladder.(24) Diet:

Researchers found that different types of food you eat affect your risk of developing cancer. Approximately 30% of cancers are related to diet. Infectious agents Some viruses have the ability to transform cells into cancer. Examples include (a) human papilloma virus (HPV) and cervical cancer (b) Epstein-Barr virus and lymphoma.

Occupational Exposure:

Occupational exposure includes high-risk occupations such as uranium miners, asbestos factory workers, certain chemical plant workers, and workers in nuclear power plants. Reproductive factors:

The reproductive factors category refers mostly to women's risk factors. For example, the risk of breast cancer goes up if a woman does not have children.

Sedentary Lifestyle:

Not moving around much during the day may increase the risk of cancer. The body's own defences work better when you exercise and maintain an ideal weight. Moderate exercise such as walking or climbing a flight of stairs can help.

Alcohol/Drugs:

Alcohol contributes to the risk of developing cancer. People who drink too much or abusedrugs may not eat well or take care of themselves, which will increase their overall risk of cancer.

CONCLUSION:

It serves as a tool to address important issues such as the risk of secondary malignancies, endocrine and reproductive effects, cardiopulmonary complications, and psychological effects between this unique and evergrowing figure. Further advances in differentiation are now achieved through laboratory techniques using molecular biology, immunology, and cytogenetic, which are important in etiologic studies, diagnosis, treatment, and prognosis. It may be important in the future for cancer registrars to record the results of appropriate laboratory tests for further subtype analysis. The results of this Final Report should be carefully interpreted and integrated with existing biological and epidemiologic information. Due to the small number of research studies, the analysis is sensitive to random numerical variables, which can lead to inaccuracies in estimates (shown by wide confidence intervals). Based on a combination of experimental criteria for determining risk factor and cancer.

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