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Assess Knowledge of nurses regarding leukemia

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Abstract:

Leukemia is cancer of the body's blood-forming tissues, including the bone marrow and the lymphatic system. The aim of the study was to establish the level of knowledge of nurses in regard to leukemia and its effect on patient care. Cross-sectional design was used, and data were collected using a structured questionnaire.

The study setting involved nurses working in various healthcare facilities in a given area, who were willing to participate in the study, amounting to 50 nurses. The questionnaire included different sections on demographic information and knowledge-based assessment of the studied subjects in relation to leukemia, its definition, symptoms, causes, types, diagnosis, prevention, and treatment. Data analysis revealed the differences in knowledge between the respondents, while different types of gaps in the various facets of leukemia awareness were noted. Demographics-wise, trends have been identified in the distribution of subjects in various age categories and gender, which can help in identifying the design of target educational interventions. The research shows that there is a need for continuous education and training for nurses to keep them at the same level of information as changes are made in the care of leukemia. Knowledge of nurses regarding leukemia would enhance the outcome of patient care, help the health care team communicate effectively, and satisfy the patient. The results stress the need for specific training programs, workshops, and seminars; use of technology in learning; interdisciplinary collaboration; and assessment of knowledge retention to enhance competencies in the care for leukemia and promote better patient outcomes.

Keywords: Leukemia, Nurse, Knowledge, Questioner, patient care

Chapter One

Introduction

cancer is when abnormal cells divide in an uncontrolled way and start when gene changes make one cell or a Phew cell begin to grow and multiple too much this may cause a growth Calles a femur. Cancer starts when cell in the body change (mutate) and grow out of control. Your body is made up of tiny building blocks called cells. normal cells grow when your body needs them they die when your body doesn't need them any more in most types of cancers, the abnormal cells grow to form a lump or mass called a tumor (Manisha,2012).

Leukemia is a different from most other cancers. leukemia is a cancer of the blood. this cancer start in bone marrow the bone marrow is the s thick, spongy lsdwid inside Your bones its where new blood cells are made. Leukemia takes over the bone marrow and the abnormal cells spells out in to the blood. leukemia Starts in early (or immature) forms of blood cells. most leukemia's make abnormal white blood cell which when healthy help to fight infections when you have leukemia Your body makes to many "bad blood cells that don't work like they should instead of forming tumors leukemia cells travel in the blood and go all over the body this means they can reach almost any organ leukemia can cause Problems and be found in many different ways, defending on which organs are affected. what they all tend to have in common is abnormal blood cells counts with increased immature blood cells in circulation (Atallah et al.,2007)

Nurses are one of the important pillars of health care system. Their knowledge about leukemia is essential to improve the quality of care in the hospitals, especially for those area which provide care for the patient with leukemia. There is not enough knowledge about the knowledge of nurses regarding leukemia in our area, so we decide to perform this study, in order to assess knowledge of our nurses regarding leukemia(Cortes et al., 2012).

Objectives

1. Assess demographic data of the participants.
2. Assess knowledge of nurses about leukemia.

Chapter Two

Literature review

Definition of leukemia

Leukemia is cancer of the body's blood-forming tissues, including the bone marrow and the lymphatic system. Many types of leukemia exist. Some forms of leukemia are more common in children. Other forms of leukemia occur mostly in adults

Symptoms and symptoms of Leukemia

Leukemia is a type of cancer that affects the blood and bone marrow, and it is crucial for nurses to have a deep understanding of its symptoms and diagnosis. Symptoms of leukemia may vary depending on the type and stage of the disease, but common signs include fatigue, recurrent infections, bone pain, and easy bruising or bleeding. Diagnosis involves several tests such as blood tests, bone marrow biopsy, and imaging scans Nurses need to be aware of these symptoms and diagnostic procedures in order to provide appropriate care and support to leukemia patients. By having a comprehensive knowledge of leukemia symptoms and diagnosis, nurses can play a crucial role in early detection and prompt intervention, ultimately improving patient (Gilliland et al.,2004).

causes of leukemia

Leukemia develops when the DNA in blood cells called leukocytes mutate or change, disabling their ability to control growth and division. In some cases, these mutated cells escape the immune system and grow out of control, crowding out healthy cells in the bloodstream.

While patients may never know how they developed leukemia, since its exact cause is often not known, certain risk factors are linked to the disease, including exposure to radiation (Cortes et al .,2011)

Risk factors that may cause leukemia

Gender: Men are more likely than women to develop leukemia.

Age: The risk of most leukemia's increases with age. The median age of a patient diagnosed with acute myeloid leukemia (AML), chronic lymphocytic

leukemia (CLL) or chronic myeloid leukemia (CML) is 65 years and older. However, most cases of acute lymphocytic leukemia (ALL) occur in people under 20 years old. The median age of an ALL patient at diagnosis is 15.

Blood disorders: Certain blood disorders, including chronic myeloproliferative disorders such as polycythemia Vera, idiopathic myelofibrosis and essential thrombocythemia increase the chances of developing AML.

Family history: Many wonder, Is leukemia hereditary? Most leukemias have no familial link. However, if the patient is a first-degree relative of a CLL patient, or if he or she has an identical twin who has or had AML or ALL, the patient may be at an increased risk for developing the disease(Cortes et al.,2006).

Congenital syndromes: Some congenital syndromes including Down syndrome, Fanconi anemia, Bloom syndrome, ataxia-telangiectasia and Blackfan-Diamond syndrome seem to raise the risk of AML.

Smoking: Although smoking may not be a direct cause of leukemia, smoking cigarettes does increase the risk of developing AML.

Radiation: Exposure to high-energy radiation (e.g., atomic bomb explosions) and intense exposure to low-energy radiation from electromagnetic fields (e.g., power lines) may increase the risk for developing leukemia.

Chemicals: Long-term exposure to certain pesticides or industrial chemicals like benzene is considered a risk for leukemia.

Electromagnetic fields: Prolonged exposure, such as living near power lines, may increase a person's risk for developing ALL.

Previous cancer therapy: Certain types of chemotherapy and radiation therapy for other cancers are considered leukemia risk factors(Druker et al.,2015).

Types of Leukemia

There are several different kinds of leukemia The type of leukemia you have will determine the outlook and the types of treatment that will be most effective. So an accurate diagnosis is the first step to fighting the disease.

How Is Leukemia Classified?

Leukemia is classified in two ways. First, the disease can be either chronic (slow-growing) or acute (more aggressive).

Second, leukemia is classified based on the types of leukemia cells present. This is determined by where the disease started. Lymphocytic leukemia start in lymphoid cells, and myelogenous leukemia start in myeloid cells(Druker et al.,20060.

What Are the Types of Leukemia?

Leukemia classifications are used to break the disease down into four main types.

Acute Lymphocytic Leukemia (ALL)

1-Acute lymphocytic leukemia

is the most common kind of leukemia. It usually occurs in young children but can also occur in adults. It's sometimes called acute lymphoblastic leukemia.

ALL starts in the lymphoid cells of the bone marrow. It often spreads quickly to the blood in other parts of the body, such as:

Central nervous system (brain and spinal cord) Liver Lymph nodes Spleen Testicles in male patients

Acute Myelogenous Leukemia (AML)

2-Acute myelogenous leukemia

is the most common kind of aggressive leukemia in adults. It can also affect children. This type of leukemia starts in the myeloid cells of the bone marrow and can spread quickly into the blood. From there, AML can spread to:

Central nervous system (brain and spinal cord) Liver Lymph nodes Spleen Testicles in male patients (Giles et al.,2007).

AML is also sometimes called:

Acute granulocytic leukemia Acute myelocytic leukemia Acute myelogenous leukemia Acute myeloid leukemia Acute non-lymphocytic leukemia

Chronic Lymphocytic Leukemia (CLL)

3-Chronic lymphocytic leukemia

is the most common type of slow-growing leukemia. It usually affects older adults.

CLL starts in the lymphoid (white blood) cells of the bone marrow and progresses slowly. A person with CLL may feel fine for several years before experiencing symptoms or seeking treatment. But it can eventually enter the blood and spread to other parts of the body(Rose and Kuehl,2017)

Chronic Myelogenous Leukemia (CML)

4-Chronic myelogenous leukemia

usually affects adults. It's sometimes called chronic myeloid leukemia.

This type of leukemia starts in the myeloid cells of the bone marrow. It grows slowly, so symptoms may not start for months or years. CML can eventually spread to the blood and other parts of the body.

Chronic Myelomonocytic Leukemia (CMML)

Chronic myelomonocytic leukemia starts in the myeloid cells of the bone marrow. People with CMML usually have:

Enlarged spleen Shortage of some types of blood cells Too many monocytes (a type of white blood cell)

CMML usually affects older adults. It can eventually spread to the blood, and it can lead to AML.

Myeloproliferative Neoplasms (MPNs)

Myeloproliferative neoplasms are a group of blood disorders. In MPNs, the bone marrow produces too many white blood cells, red blood cells or platelets(Brenner and Pinkel,1999).

The type of MPN determines symptoms, treatment options and outlook. There are six types, characterized by which blood cells are abnormal:

Chronic eosinophilic leukemia: too many eosinophils, a type of white blood cell that fight allergens

Chronic myelogenous leukemia: too many white blood cells

Chronic neutrophilic leukemia: too many neutrophils, a type of white blood cell that fights infection

Essential thrombocythemia: too many platelets

Polycythemia vera: too many red blood cells

Primary myelofibrosis, or chronic idiopathic myelofibrosis: abnormal blood cells build up in the bone marrow

Types of Leukemia: The Penn Medicine Advantage

If you have leukemia, it's essential to know the specific type.

Major type

Acute Lymphocytic Leukemia (ALL)

Acute lymphocytic leukemia is the most common kind of leukemia. It usually occurs in young children but can also occur in adults. It's sometimes called acute lymphoblastic leukemia. ALL starts in the lymphoid cells of the bone marrow.

Diagnosis of leukemia

- **Physical exam.** Your doctor will look for physical signs of leukemia, such as pale skin from anemia, swelling of your lymph nodes, and enlargement of your liver and spleen.
- **Blood tests.** By looking at a sample of your blood, your doctor can determine if you have abnormal levels of red or white blood cells or platelets — which may suggest leukemia. A blood test may also show the presence of leukemia cells, though not all types of leukemia cause the leukemia cells to circulate in the blood. Sometimes the leukemia cells stay in the bone marrow (Wolk et al.,2010).
- **Bone marrow test.** Your doctor may recommend a procedure to remove a sample of bone marrow from your hipbone. The bone marrow is removed using a long, thin needle. The sample is sent to a laboratory to look for leukemia cells. Specialized tests of your leukemia cells may reveal certain characteristics that are used to determine your treatment options.

The most common leukemia biomarkers are CD (cluster of differentiation) markers, an extremely diverse series of membrane proteins predominantly expressed on the leukocyte surface (Tebbi, 2021).

Stage 1 – A patient has high levels of white blood cells and enlarged lymph nodes.
Stage 2 – A patient has high levels of white blood cells and is anemic. He or she may also have enlarged lymph nodes.
Stage 3 – A patient has high levels of white blood cells and is anemic.

Prevention

Is leukemia preventable?

- 1 Don't smoke. Current smokers should seek help to quit. ...
- 2 Keep a healthy body weight. ...
- 3 Avoid or lower exposure to chemicals that may raise the risk for leukemia, such as benzene and formaldehyde.
- 4 Lower any exposure to pesticides.
- 5 Stay physically active and follow a healthy diet.

Treatment of leukemia

Your healthcare team will create a treatment plan just for you. The plan is based on your health and specific information about the cancer. What you want is also important when planning treatment. When deciding which treatments to offer for leukemia, your healthcare team will consider:(Aversa,1998).

- the type of leukemia
- your age
- chromosomal (genetic) abnormalities
- your overall health
- any medical problems you have

The following treatments may be offered for leukemia:

Chemotherapy is the main treatment for many types of leukemia.

Radiation therapy is most often used to target areas of the body where leukemia cells have built up. It is also used to prepare the bone marrow for a stem cell transplant.

Supportive therapy is given to manage problems (complications) from some types of leukemia and their treatments

Surgery may be used in rare cases to remove the spleen

Close , spleen

The organ on the upper-left side of the abdomen near the stomach that makes lymphocytes (a type of white blood cell that fights germs, foreign substances or cancer cells), stores blood cells, filters the blood and destroys old blood

A stem cell transplant is used for some people with certain types of leukemia.

Targeted therapy is offered for some types of leukemia(Taniguchi,,2014).

Watchful waiting is a treatment option for some people with chronic leukemia.

Clinical trials look at new ways to prevent, find and treat cancer. Talk to your doctor about clinical trials open to people with leukemia in Canada. Find out more about clinical trials.

To make the decisions that are right for you, ask your healthcare team questions abo.

Nursing care

Importance of Nurses' Knowledge in Leukemia Care

The complexity of cancer care has been extremely increased in the last decades. In previous years, patients with cancer only have treatment with radiation, chemotherapies, and surgery before their therapy can commence. Practitioners only could rely on these three main treatments to heal them. However, after many researches, there are many other cancer-managing drugs and protocols that are available for various types of cancer that are becoming much more complex and those drugs are continuously increasing. Leukemia treatment does not make the exception, and its therapies become more complex, and have more possibilities which can increase rates of survival for patients, but it also increases side effects from the drugs and their complications and extent. Many researches are indicated that the increasing of survivorship is a model from a multi or interdisciplinary team that are collaborating to support those patients and their families that are affected by blood cancer. The Crucial Role of Nurses' Knowledge in Leukemia Care Planning (Ravandi and Estroy,2006).

First, the nurse assesses the patient's understanding and interest in learning about his or her disease. As already indicated, some patients cope better by knowing more about their illness, including its signs and symptoms, and having a say in planning and decision-making for their care. Some of the information that the nurse should assess are the patient's coping strategies, present knowledge about the disease and management options, ability to understand information conveyed to him or her, ability to make decisions, and need for additional information. The nurse also assesses his or her own understanding, knowledge and feelings towards leukemia and educational methods. Assessing one's knowledge about the disease helps the nurse in identifying topics requiring updating, new topics to learn and connections between different aspects of disease management. It is also pertinent that the nurse who is planning care for a leukemia patient demonstrates complete understanding of the condition. A nurse who believes he or she has an understanding of a patient's condition but doesn't may develop irrational fears or anxieties, make incorrect and unsafe assumptions, provide vague explanations about the disease and its treatments, and develop inappropriate attitudes, which then impact the quality of care that he or she would deliver (Goodman, 2003). Assessing one's attitude about the disease helps the nurse to identify areas for improvement. The nurse's attitude towards leukemia must demonstrate purposeful positivity, resilience and commitment. Impassible, insignificant attitudes, fear, irrational beliefs and discriminatory attitudes compromise with the quality of care, and are reflected in poor quality practices and ineffective interdisciplinary collaboration. Equally important is the realization that to provide thorough and precise information to the patient, the nurse has to acknowledge any gaps in his or her knowledge and plans learning activities to enhance knowledge and understanding (Chu et al.,2011).

Chapter Three

Methodology

Materials and Methods

3.1 Study Design:

This study employed a descriptive cross-sectional design to assess the knowledge of nurses regarding leukemia. The research aimed to evaluate demographic data of the participants and their understanding of leukemia-related concepts.

3.2 Participants:

The study participants were nurses working in healthcare facilities within the specified area. Convenience sampling was utilized to recruit participants, and a total of [50] nurses voluntarily participated in the study.

3.3 Data Collection:

Data were collected using a structured questionnaire designed specifically for this study. The questionnaire consisted of two sections:

Demographic Information: Participants were required to provide information such as age, gender, years of nursing experience, and current area of specialization.

Assessment of Knowledge: This section comprised multiple-choice questions related to leukemia, covering topics such as definition, symptoms, causes, types, diagnosis, prevention, and treatment.

3.4 Instrument Development:

The questionnaire was developed based on a comprehensive review of existing literature on leukemia, including textbooks, academic journals, and reputable online sources. The questions were designed to assess the fundamental knowledge that nurses should possess regarding leukemia, considering its definition, etiology, clinical manifestations, diagnostic procedures, treatment modalities, and preventive measures.

3.5 Data Analysis:

Data analysis was conducted using statistical software [SPSS IBM/2020]. Descriptive statistics such as frequencies, percentages, were used to summarize

demographic data and participants' responses to knowledge assessment questions. Inferential statistics, such as chi-square tests or t-tests, were employed to examine associations between demographic variables and knowledge scores.

3.6 Ethical Considerations:

Ethical approval was obtained from the relevant institutional review board [insert name/acronym]. Participants were provided with informed consent forms explaining the purpose of the study, voluntary participation, confidentiality of responses, and their right to withdraw at any time without consequence.

3.7 Limitations:

- The study's findings may not be generalizable to all nurses, as the sample was drawn from a specific geographical area.
- Self-reporting bias may have influenced participants' responses to the questionnaire.
- The cross-sectional design limited the ability to establish causality between variables.
- The questionnaire may not have captured all aspects of leukemia knowledge comprehensively.

The materials and methods employed in this study aimed to comprehensively assess nurses' knowledge regarding leukemia. By utilizing a structured questionnaire and appropriate statistical analyses, the research aimed to provide valuable insights into the level of understanding among nurses in the specified area. The findings from this study contribute to the body of knowledge on leukemia education and inform strategies for improving nursing care for leukemia patients.

Chapter Four

Result

Table1. Age of participants

No.	Age group	Frequency	Percent %
1	30-35	6	12.0
2	35-40	10	20.0
3	40-45	12	24.0
4	45-50	8	16.0
5	>50	14	28.0
	Total	50	100.0
	Average	10	20.0

Table1 illustrates the breakdown of participants by age groups, highlighting their frequencies and corresponding percentages.

Among all age brackets, the 35-40 age groups holds the largest share, encompassing 20% of the total participants. Following, closely behind, the 40-45 age group accounts for 24% of participants, represented by 12 individuals. Notably, the over-50 age group constitutes the largest portion, comprising 28% of the total participants. Conversely, the 30-35 age group exhibits the smallest participation rate among all age categories.

Table2. Gender of participant

No.	Gender	Frequency	Percentage
1	Male	32	64.0
2	Female	18	36.0
	Total	50	100.0

Table2 illustrates the gender distribution of participants (Nurses), along with their frequencies and percentages. In which out of 50 participants 32 was male which is accounted for 64% of the total participants. While only 18 participants was female which is accounted for 36% of the total participants.

Table3. Years of Experience of participant

N	Years of experience	Frequency	Percentage
1	<10	7	14%
2	10-20	20	40%
3	20-30	23	46%
4	Average	34.6	

Table 3 provides data on the years of experience of participants, with four categories: less than 10 years, 10-20 years, 20-30 years, and an average experience of 34.6 years. The frequencies and percentages for each category are as follows:

1. Less than 10 years of experience: 7 nurses, constituting 14% of the total.
2. 10-20 years of experience: 20 nurses, accounting for 40% of the total.
3. 20-30 years of experience: 23 nurses, making up 46% of the total.
4. Average experience: The average years of experience among the participants are calculated to be 34.6 years.

Table 4, Nurses Knowledge about the Lukima disease

No.	Questions	True	False
1	Leukemia is a type of cancer that affects the blood and bone marrow. (True/False).	82.7%	13.5%
2	Acute lymphoblastic leukemia (ALL) is more commonly seen in adults than in children. (True/False).	86.5%	9.6%
3	Chemotherapy is the primary treatment option for leukemia. (True/False).	53.8%	42.3%
4	Stem cell transplantation is a potential cure for some types of leukemia. (True/False).	50.%	46%
5	Radiation therapy is commonly used as the first-line treatment for leukemia. (True/False)	42.3%	53.8%
6	Leukemia can be diagnosed through a bone marrow biopsy(True/False).	38,5%	57.7%
7	Acute leukemia progresses more slowly than chronic leukemia (true)(false).	55.8%	40.4%
8	Common signs and symptoms of leukemia include fatigue, bruising easily, and frequent infections (True)(false).	36.5%	59.6%
9	Complications of leukemia may include anemia, bleeding disorders, and increased susceptibility to infections. (True)(False).	50%	46.2%

Table 4 contains several questions related to leukemia, along with the percentage of respondents who answered each question as true or false. Question one is about the information of nurses about the leukemia , and majority of respondents answered true more than 80 % of, indicating a high level of awareness among nurse about the disease that leukemia affects both the blood and bone marrow. Inversely the majority of participating responded true for question two: 86.5% of respondents answered false, suggesting that most people understand that ALL is more commonly seen in children. Furthermore, slightly more than half of the participants (53%) recognize chemotherapy as the primary treatment option for

leukemia. However, 50% of respondents answered true for question 4, showing that there's split understanding regarding stem cell transplantation as a potential cure for certain types of leukemia. While according to the respondent answers there's a misconception about radiation therapy being the first-line treatment for leukemia. The answer for question 6 is 38.5% of respondents answered true, and 57.7% answered false, indicating a lack of awareness regarding the diagnostic procedure for leukemia. According to the nurses answer 55.8%, suggesting a reasonable understanding that acute leukemia progresses more rapidly than chronic leukemia. While 59.6% of participants answered false for question 7, indicating a lack of awareness regarding the common signs and symptoms of leukemia. Lastly 50% of respondents answered true for questions 9, indicating some recognition of the complications associated with leukemia, though it's not universally acknowledged.

Summing up, there is a varying level of awareness and knowledge among respondents regarding different aspects of leukemia, including its treatment, diagnosis, symptoms, and complications.

Chapter Five

Discussion:

The existing data provides insight into the knowledge level of nurses regarding leukemia, as well as their demographic characteristics. Here are some key points for discussion:

First: Knowledge Disparities: The results show varying levels of knowledge among nurses regarding different aspects of leukemia, including its definition, treatment options, symptoms, and diagnosis. While some questions received high correct response rates, others demonstrated misconceptions or lack of awareness among participants.

Second: in regard to the Demographic Insights: The demographic data of the participants reveal interesting trends, such as the distribution of participants across different age groups and genders. Understanding these demographics can help tailor educational interventions and training programs to address specific needs.

Third: Importance of Nurse Knowledge: Nurses play a crucial role in leukemia care planning and management. Their understanding of the disease directly impacts patient outcomes, including early detection, appropriate treatment, and supportive care provision.

Fourth: Need for Continuous Education: The study underscores the importance of ongoing education and training for nurses to keep them abreast of advancements in leukemia care. Continuous professional development programs can help bridge knowledge gaps and ensure high-quality care delivery.

Fifth: Implications for Patient Care: Enhancing nurses' knowledge about leukemia can lead to improved patient outcomes, better communication within healthcare teams, and enhanced patient satisfaction. It can also contribute to early detection and timely interventions, ultimately improving prognosis and quality of life for leukemia patients.

Chapter Six

Conclusion:

- 1- Knowledge Variation:** The study has demonstrated variation in knowledge related to leukemia in nurses, showing variations in awareness levels associated with disease definition, treatment process, and diagnostic procedures.
- 2- Knowledge assessments conducted among nurses identified specifics on areas of deficiencies, calling for targeted educational initiatives to correct misconceptions and to heighten understanding.**
- 3- Significance of Education:** Findings reemphasize the critical importance of continuous education and training of the nurse in planning and management of care of leukemia patients, hence the need for the nurse to be updated with the current development within the field.
- 4- Impact on Patient Care:** Nurses are the frontline caregivers for leukemia patients; therefore, the depth of their understanding dictates the outcomes for the patients. Better understanding of leukemia among nurses will be manifested in timely detection, compliance with treatment, and general higher quality of care.
- 5- Call to Action:** The responsibility is now on healthcare institutions to provide thorough educational programs purposely designed to take care of the needs of nurses, thus, making them able to handle the needs of leukemia patients in an ideal manner. Such investments in continued education shall be aimed at the realization of positive outcomes and the quality of life of those affected by leukemia.

Recommendations

- 1- Develop specialized training programs: Design educational modules specifically focusing on leukemia awareness, diagnosis, treatment modalities, and supportive care.
- 2- Implement regular workshops and seminars: Organize periodic workshops and seminars to provide nurses with opportunities for continuous learning and skill enhancement in leukemia care.
- 3- Utilize technology for education: Explore the use of online platforms, webinars, and e-learning modules to facilitate convenient and accessible education for nurses, especially those in remote areas.
- 4- Foster interdisciplinary collaboration: Encourage collaboration between nurses, oncologists, hematologists, and other healthcare professionals to exchange knowledge and best practices in leukemia care.
- 5- Evaluate knowledge retention: Conduct periodic assessments to measure the effectiveness of educational interventions and identify areas for improvement in nurses' knowledge retention.

Implementing these recommendations can contribute to enhancing nurses' competency in leukemia care, ultimately improving patient outcomes and quality of life.

Questionnaire

Thank you for agreeing to participate in this research.

Please answer these questions.

Part one :Data collection

Number Case ()

Age :

Gender:

years of experience :

No.	Questions	True	False
1	Leukemia is a type of cancer that affects the blood and bone marrow. (True/False).		
2	Acute lymphoblastic leukemia (ALL) is more commonly seen in adults than in children. (True/False).		
3	Chemotherapy is the primary treatment option for leukemia. (True/False).		
4	Stem cell transplantation is a potential cure for some types of leukemia. (True/False).		
5	Radiation therapy is commonly used as the first-line treatment for leukemia. (True/False)		
6	Leukemia can be diagnosed through a bone marrow biopsy(True/False).		
7	Acute leukemia progresses more slowly than chronic leukemia (true)(false).		
8	Common signs and symptoms of leukemia include fatigue, bruising easily, and frequent infections (True)(false).		
9	Complications of leukemia may include anemia, bleeding disorders, and increased susceptibility to infections. (True)(False).		

References

Atallah E, Durand J-B, Dantarjian H, Cortes J. Congestive heart failure is a rare event in patients receiving imatinib therapy. *Blood*. 2007;24:1204-1208.

Aversa, F., Tabilio, A., Velardi, A., Cunningham, I., Terenzi, A., Falzetti, F., Ruggeri, L., Barbabietola, G., Aristei, C., Latini, P. and Reisner, Y., 1998. Treatment of high-risk acute leukemia with T-cell–depleted stem cells from related donors with one fully mismatched HLA haplotype. *New England Journal of Medicine*, 339(17), pp.1186-1193.

Brenner, M.K. and Pinkel, D., 1999, October. Cure of leukemia. In *Seminars in hematology* (Vol. 36, No. 4 Suppl 7, pp. 73-83).

Chu, S., McDonald, T., Lin, A., Chakraborty, S., Huang, Q., Snyder, D.S. and Bhatia, R., 2011. Persistence of leukemia stem cells in chronic myelogenous leukemia patients in prolonged remission with imatinib treatment. *Blood, The Journal of the American Society of Hematology*, 118(20), pp.5565-5572.

Cortes J, Hochhaus A, Hughes T, Kantarjian H. Front-line and salvage therapies with tyrosine kinase inhibitors and other treatments in chronic myeloid leukemia. *J Clin Oncol*. 2011 Feb 10;29(5):524-531. Epub 2011 Jan 10.

Cortes JE, Kantarjian H, Shah NP, et al. Ponatinib in refractory Philadelphia chromosome-positive leukemias. *N Engl J Med*. 2012 Nov 29;367(22):2075-88.

Cortes JE, Kantarjian HM, Brümmendorf TH, et al. Safety and efficacy of bosutinib (SKI-606) in chronic phase Philadelphia chromosome-positive chronic myeloid leukemia patients with resistance or intolerance to imatinib. *Blood*. 2011 Oct 27;118(17):4567-76. Epub 2011 Aug 24.

Cortes JE, Talpaz M, O'Brien S, et al. Staging of chronic myeloid leukemia in the imatinib era: an evaluation of the World Health Organization proposal. *Cancer*. 2006;106:1306-1315.

Druker BJ, Guilhot F, O'Brien SG, et al. Five-year follow-up of patients receiving imatinib for chronic myeloid leukemia. *N Engl J Med*. 2006;355:2408-2417.

Druker BJ, Marin D. Chronic myelogenous leukemia. In: DeVita VT, Lawrence TS, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and*

Practice of Oncology. 10th ed. Philadelphia, Pa: Lippincott Williams & Wilkins; 2015:1644-1653.

Ferrer, J.F., Abt, D.A., Bhatt, D.M. and Marshak, R.R., 1974. Studies on the relationship between infection with bovine C-type virus, leukemia, and persistent lymphocytosis in cattle. *Cancer Research*, 34(4), pp.893-900.

Flynn, C.M. and Kaufman, D.S., 2007. Donor cell leukemia: insight into cancer stem cells and the stem cell niche. *blood*, 109(7), pp.2688-2692.

Giles FJ, Cortes J, Jones D, Bergstrom D, Kantarjian H, Freedman SJ. MK-0457, a novel kinase inhibitor, is active in patients with chronic myeloid leukemia or acute lymphocytic leukemia with the T315I BCR-ABL mutation. *Blood*. 2007;109:500-502.

Gilliland, D.G., Jordan, C.T. and Felix, C.A., 2004. The molecular basis of leukemia. *ASH Education Program Book, 2004*(1), pp.80-97.

Lee, Y. and Lee, C.K., 2003. Classification of multiple cancer types by multicategory support vector machines using gene expression data. *Bioinformatics*, 19(9), pp.1132-1139.

Manisha, P., 2012. Leukemia: a review article. *International Journal of Advanced Research in Pharmaceutical & Bio Sciences*, 1(4), pp.397-408.

Ravandi, F. and Estrov, Z., 2006. Eradication of leukemia stem cells as a new goal of therapy in leukemia. *Clinical cancer research*, 12(2), pp.340-344.

Rose-Inman, H. and Kuehl, D., 2017. Acute leukemia. *Hematology/Oncology Clinics*, 31(6), pp.1011-1028.

Taniguchi, L.U., Correia, M.D.T. and Zampieri, F.G., 2014. Overwhelming post-splenectomy infection: narrative review of the literature. *Surgical infections*, 15(6), pp.686-693.

Tebbi, C.K., 2021. Etiology of acute leukemia: A review. *Cancers*, 13(9), p.2256.

Udensi, U.K. and Tchounwou, P.B., 2014. Dual effect of oxidative stress on leukemia cancer induction and treatment. *Journal of Experimental & Clinical Cancer Research*, 33, pp.1-15.

Wang, J.C. and Dick, J.E., 2005. Cancer stem cells: lessons from leukemia. *Trends in cell biology*, 15(9), pp.494-501.

Wolk, R.W., Masse, S.R., Conklin, R. and Freireich, E.J., 1974. The incidence of central nervous system leukemia in adults with acute leukemia. *Cancer*, 33(3), pp.863-869.

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پوخته

پوخته

شیرپه‌نجه‌ی خونین بووته یه‌کئیک له جۆره باوه‌کانی شیرپه‌نجه له کوردستان به‌تایبهت له منداناندا. هیچ هۆکارێکی دیاریکاراو نییه بۆ ده‌ست‌نیشانکردنی ئەم نه‌خۆشییە و له‌م لیکۆلینه‌وه‌یه‌دا ده‌مانه‌وێت بۆ ئێمه و ئەم ئازیزانه‌ی روونی بکه‌ینه‌وه چه‌ند پرسیاریکمان ئاماده‌کرد و دوا‌ی وەرگرتنی مۆله‌ت پرسیارمان له‌ په‌رستاره‌کان کرد که ئایا ئاساییه بۆ ئێمه دیاریکردنیان، و بۆ ئەمه‌ش مه‌به‌ستمان چووینه نه‌خۆشخانه‌ی نانه‌که‌لی له هه‌ولێر، له سه‌ره‌تای ۱۲. ۲۶. ۲۰۲۳ و کۆتایی ۲۹. ۲۶. ۲۰۲۴ کۆتای هات ئەم توێژینه‌وه‌یه

کۆی گشتی ۶۰ په‌رستار له به‌شه جیاوازه‌کانی نه‌خۆشخانه‌که به‌شدار بیان له توێژینه‌وه‌که‌دا کردووه بۆ هه‌لسه‌نگاندنی زانیاری په‌رستاران له‌سه‌ر شیرپه‌نجه، ئامانجی ئەم توێژینه‌وه‌ته هه‌لسه‌نگاندنی پراکتیکی په‌رستاران بوو ده‌رباره‌ی شیرپه‌نجه‌ی خوین بیه‌نگومان ئه‌وه جیگای سه‌رنجه که له کاتی هه‌لسه‌نگاندنی په‌رستاره‌کانمان به‌ئه‌نجامدانی هه‌لسه‌نگاندنی ورد، چاودێریکردنی نیشانه‌کان، پێشکه‌شکردنی په‌روه‌رده و پشتگیری، و هاوکاریکردن له‌گه‌ڵ تیمی چاودێری ته‌ندروستی، په‌رستاران ده‌توانن یارمه‌تیده‌ر بن له‌ باشترکردنی ده‌ره‌نجامه‌کانی نه‌خۆش و کوالیتی ژیان له کاتی گه‌شتی چاره‌سه‌رکردندا زۆر هاوکار بوون له‌گه‌ڵمان و ستافیکی زۆر به‌توانا بوون.

الخلاصة

أصبح سرطان الدم أحد أكثر أنواع السرطان شيوعاً في كردستان، وخاصة عند الأطفال. لا يوجد سبب محدد لتشخيص هذا المرض وفي هذه الدراسة نريد أن نوضح لنا ولهؤلاء الأحاب قمنأ بإعداد عدة أسئلة وبعد الحصول على الإذن سألنا الممرضات إذا كان من الطبيعي بالنسبة لنا تشخيصهم. ١٢ ٢٠٢٣ و. نهاية ٢٩ أبريل ٢٠٢٤ انتهت هذه الدراسة

شارك في الدراسة ما مجموعه ٦٠ ممرضاً من أقسام مختلفة بالمستشفى لتقييم معرفة الممرضات بالسرطان. وكان الهدف من هذه الدراسة هو تقييم ممارسات الممرضات حول سرطان الدم. دعم فريق الرعاية الصحية والتعاون معه، يمكن للممرضات المساعدة في تحسين حالة المريض. كانت النتائج ونوعية الحياة خلال رحلة العلاج متعاونة للغاية معنا ومع فريق عمل قادر للغاية..



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زانکۆی پۆلیتیه کینیکی هه ولیر

کۆلیژی تهکنیکی شهقلاوه

بهشی پرستاری

قوناغی دووهم

پروژهی دهرچوون (توئیزینهوه) بۆ کۆلیژی تهکنیکی شهقلاوه

دهربارهی (ههڵسهنگاندنی زانیاری سهبارت به ژیر پهنجههی خوین)

نامادهکردنی

زه ره سالار زا هیر

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زه کریا قاسم سابیر

وار هیل کازم

روژین یاسین عبدالله

سه پر شتی کراوه له لایهن:

م. دلیر محمهد

(2024-2023)