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Ministry of Higher Education and Scientific Research
Erbil Polytechnic University
Mergasor Technical Institute
Department of Nursing

Incidence and Trends of Acute Lymphoblastic Leukemia, Chronic Myeloid Leukemia, Breast Cancer, and Lung Cancer at Nanakali Hospital in Erbil (2022)

A Study

Submitted to the Council of the Nursing Department- Mergasor Technical Institute as Partial Fulfillment of the Requirements for the Degree of diploma (Nursing)

By

Sakar Idrees Mahmoud

Shayma Muttalib Ali

Zhyaw Sofy Husen

Mardin Rzgar Ali

Supervised by

Assist. Prof. Dr. Hazhar Muhammad Balaky

PhD (Medical Physiology)

Mergasor- Kurdistan

2025

DECLARATION

We declare, that this study entitled **(Incidence and Trends of Acute Lymphoblastic Leukemia, Chronic Myeloid Leukemia, Breast Cancer, and Lung Cancer at Nanakali Hospital in Erbil (2022))** is our own original work, and hereby, we certify that unless stated, all work contained within this study is our own independent research, and has not been submitted for the award of any other degree at any institution, except where due acknowledgement is made in the text.

Signature:

Name: Sakar Idrees Mahmoud

Signature:

Name: Shayma Muttalib Ali

Signature:

Name: Zhyaw Sofy Husen

Signature:

Name: Mardin Rzgar Ali

SUPERVISOR CERTIFICATE

I certify that this study has been written under my supervision and has been submitted for the award of the degree of diploma in **Nursing.**

Signature

Assist. Prof. Dr. Hazhar Muhammad Balaky

Date: 14/4/2025

APPROVAL OF THE DEPARTMENT

In view of available recommendation, I forward this study for debate by the examining committee.

Signature:

Assist Prof. Dr. Hazhar Muhammad Balaky

Head of the Nursing Department

Date:

EXAMINING COMMITTEE CERTIFICATION

We certify that we have read this study **(Incidence and Trends of Acute Lymphoblastic Leukemia, Chronic Myeloid Leukemia, Breast Cancer, and Lung Cancer at Nanakali Hospital in Erbil (2022))** and as an examining committee examined the students (**Sakar Idrees Mahmoud, Shayma Muttalib Ali, Zhyaw Sofy Husen, Mardin Rzgar Ali**) in its content and what related to it. We approve that it meets the standards of a study for the degree of diploma **(Nursing).**

Examining Committee Members:

Signature:

Name: Assist Prof. Dr. Hazhar Muhammad Balaky

Member and Supervisor

Date:

Signature:

Name:

Member

Date:

Signature:

Name:

Head

Date:

DEDICATION

We dedicate this study to:

Our dear Family

To all our lovely friends

ACKNOWLEDGEMENTS

First of all, thanks to "**ALLAH**" the Almighty for blessings that we managed to complete our study. We wish to express our appreciation and gratitude to our supervisor **(Assist. Prof. Dr. Hazhar Muhammad Balaky)** for his beneficial guidance, support and patient throughout the duration of this research work. Finally, thanks to all our friends and relatives who supported us, thanks a lot for everything. May Allah reward and blessing all.

ABSTRACT

Background: Cancer remains a serious global health concern, with rising incidence and fatality rates in developing countries like Iraq. This retrospective, hospital-based study focused on four cancers: breast cancer, lung cancer, acute lymphoblastic leukemia (ALL), and chronic myeloid leukemia (CML) and investigated cancer distribution patterns among patients treated at Nanakali Hospital in Erbil City in 2022. **Methodology:** Data were extracted from hospital records and analyzed descriptively using Microsoft Excel. **Results:** The most common malignancy, according to the results, was breast cancer (251 cases, 96.4% female), which primarily affected people between the ages of 28 and 90. Lung cancer (84 cases, 69% male, ages 32–84) came in second. The distribution of hematologic malignancies by gender was balanced: 33 cases (16 female, 17 male, ages 2–65) had ALL, and 24 cases (8 female, 16 male, ages 15–80) had CML. While hematologic cancers showed no discernible sex-based differences, the results show notable gender disparities, with breast cancer disproportionately afflicting women and lung cancer disproportionately affecting men. **Conclusion:** These findings highlight the necessity of improved cancer registry systems in Erbil, gender-specific prevention strategies, and improved early detection initiatives. In order to reduce the rising cancer burden in the Kurdistan Region of Iraq, the study offers vital baseline data that will direct public health interventions, budget allocation, and awareness campaigns.

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LIST OF ABBREVIATIONS

ALL	Acute Lymphoblastic Leukemia
CML	Chronic Myeloid Leukemia
LC	Lung Cancer
BC	Breast Cancer
CRC	Colorectal Cancer
KRG	Kurdistan Regional Government
IARC	International Agency for Research on Cancer
DNA	Deoxyribonucleic Acid
UV	Ultraviolet
HRT	Hormone Replacement Therapy
SCLC	Small Cell Lung Cancer
NSCLC	Non-Small Cell Lung Cancer
CT	Computed Tomography

EGFR	Epidermal Growth Factor Receptor
HER2	Human Epidermal Growth Factor Receptor 2
TKIs	Tyrosine Kinase Inhibitors
BRCA1	Breast Cancer Gene 1
BRCA2	Breast Cancer Gene 2

CHAPTER ONE

1. INTRODUCTION AND LITERATURE REVIEW

1.1 Background of study

Cancer is a complex group of diseases characterized by the uncontrolled growth and spread of abnormal cells, which can invade and destroy surrounding tissues. It results from genetic mutations that interfere with the regular processes that control DNA repair, apoptosis, and cell division. Numerous variables, including as genetic predisposition, environmental exposures (such tobacco smoke and UV radiation), and lifestyle decisions (like food and inactivity), can result in these alterations (American Cancer Society, 2021). There are many different kinds of the disease, such as lymphomas, leukemias, sarcomas, and carcinomas, each having unique biological characteristics and treatment difficulties. Although many cancer types now have far higher survival rates thanks to developments in early identification, targeted medicines, and immunotherapy, cancer is still the world's largest cause of death (Sung et al., 2021). Better patient outcomes and more effective treatments are possible with ongoing research into the molecular causes of cancer and the growth of customized medicine.

In 2018, cancer claimed 9.6 million lives, making it one of the world's leading causes of death. In developing nations, where access to healthcare is restricted and risk factors including political and economic instability and a shift toward Western lifestyles are on the rise, particularly negative outcomes are anticipated (Fitzmaurice et al., 2019). The rise in cancer incidence and mortality is concerning, even though Iraq has had national cancer registries and control initiatives in place since 1974 (Iraqi Cancer Board, 2018). More than 25,000 new

cases of cancer and 14,000 cancer-related deaths were reported in Iraq in 2018, according to recent estimates from the International Agency for Research on Cancer (IARC). The top five most common cancer types in the country were BC, LC, leukemia, bladder, and colorectal cancer (CRC) (Bray et al., 2018). Over the past 20 years, the Iraqi government and KRG have made major efforts to restore supporting infrastructures in an effort to alleviate this growing burden. They have also improved the cancer registration system and established cancer centers in an effort to boost the capacity of the health system. However, there are relatively limited published statistics on current trends of cancer incidence in the KRG (Karwan et al., 2022).

1.1.1 Acute Lymphoblastic Leukemia (ALL)

The aggressive blood and bone marrow cancer known as acute lymphoblastic leukemia (ALL) is typified by the fast growth of immature lymphocytes, or lymphoblasts. Although it can also strike adults, it is the most prevalent kind of children cancer, making up over 25% of all pediatric cancers (Terwilliger and Abdul-Hay, 2017). According to Inaba et al. (2013), the condition is caused by genetic abnormalities that interfere with normal lymphocyte development. This results in the accumulation of non-functional blast cells that push away healthy blood cells, causing symptoms like anemia, bleeding tendencies, exhaustion, and frequent infections. Genetic predisposition, including Down syndrome and other inherited genetic diseases, exposure to ionizing radiation, and exposure to specific environmental chemicals are risk factors for ALL.

Furthermore, some research indicates that the etiology of ALL, especially in children, may be influenced by early-life infections and immune system development (Greaves, 2018). Although hematopoietic stem cell transplantation, targeted treatments, and chemotherapy have greatly increased survival rates, particularly for pediatric patients, adult results are still worse because of higher rates of relapse and treatment resistance (Pui et al., 2015).

1.1.2 Chronic Myeloid Leukemia (CML)

The malignancy known as chronic myeloid leukemia (CML) starts in the bone marrow and is typified by the unchecked growth of myeloid cells. The Philadelphia chromosome, a genetic anomaly brought about by a reciprocal translocation between chromosomes 9 and 22, is what causes it and produces the BCR-ABL1 fusion gene. The constitutively active tyrosine kinase that this gene produces suppresses apoptosis and encourages excessive cell proliferation (Jabbour and Kantarjian, 2018). Fatigue, weight loss, and splenomegaly are among the symptoms that frequently manifest in the later stages of chronic myeloid leukemia (CML), which usually develops through three phases: chronic, accelerated, and blast crisis. Although there are fewer established risk factors for CML than for other malignancies, significant doses of ionizing radiation exposure—such as from radiation therapy or atomic bomb survivors—have been closely associated with the development of the disease (Baccarani et al., 2013). Tyrosine kinase inhibitors (TKIs), like imatinib, have changed the course of treatment for CML, turning it from a deadly illness to one that most patients can manage over time.

1.1.3 Breast Cancer

The most prevalent type of cancer in women globally, breast cancer is defined by the unchecked proliferation of cancerous cells in the breast tissue, which mostly start in the ducts or lobules. It is a diverse illness with several subtypes, such as triple-negative, HER2-positive, and hormone receptor-positive breast cancer, each of which needs a different treatment strategy (Harbeck et al., 2019). Breast cancer risk factors encompass both changeable and non-modifiable components. A family history of breast cancer, early menarche or late menopause, age, and genetic abnormalities (such BRCA1 and BRCA2) are examples of non-modifiable variables. Lifestyle decisions like obesity, inactivity, alcohol usage, and hormone replacement treatment (HRT) use are examples of modifiable risk factors (Colditz and Bohlke, 2014). Survival rates have increased dramatically as a result of early detection via mammography and developments in targeted medicines, including HER2 inhibitors and hormonal treatments. Disparities in access to screening and treatment, however, continue to be a problem on a global scale.

1.1.4 Lung Cancer

One of the most prevalent and lethal malignancies in the world, lung cancer is defined by the unchecked proliferation of cancerous cells in the lung tissue, mostly in the bronchi or alveoli. According to Herbst et al. (2018), it can be roughly divided into two types: small cell lung cancer (SCLC), which is more aggressive and closely linked to smoking, and non-small cell lung cancer (NSCLC), which makes up around 85% of cases. Tobacco use is the main risk factor for lung cancer, accounting for around 85% of cases; the risk rises with the length and intensity of smoking. Additional risk factors include asbestos, air pollution, radon gas exposure, secondhand smoking exposure, and a family history of lung cancer (Sung et al., 2021).

Lung cancer frequently manifests at advanced stages, which contributes to its high death rate, even with advancements in early identification with low-dose CT screening and targeted therapies like immunotherapy and EGFR inhibitors. In order to avoid this disease, public health initiatives to lower smoking rates and limit exposure to carcinogens are still essential.

1.2 Problem statement

The incidence of cancer in Erbil City increased significantly in 2022, highlighting the urgent need for precise and thorough data to address this expanding health issue. A large percentage of cancer occurrences in the Kurdistan Region occurred in the city, and there were several challenges, including delayed diagnoses and a lack of public knowledge about early screening. The lack of comprehensive research and strong cancer registries made it difficult to pinpoint certain trends, risk factors, and outcomes, and the current healthcare system struggled to meet the growing demand. To ensure that healthcare services could successfully manage the growing cancer burden in Erbil, it was imperative to improve data collecting and analysis in 2022 in order to support focused prevention, early detection, and treatment initiatives.

1.3 Specific Objectives

To determine the incidence rates of ALL, CML, breast cancer, and lung cancer in Erbil City in 2022

1.4 Significant of study

By offering crucial information for local public health planning and resource allocation, this study will greatly advance our understanding of cancer in Erbil City. The findings will direct more efficient healthcare measures, such as focused preventive campaigns and early detection programs, by determining the prevalence, risk factors, and trends of cancer in the area. The study will also provide insightful information on existing treatment practices, which could result in better cancer care. Beyond healthcare systems, the study will increase community awareness and promote proactive health practices and better lives, which will ultimately assist to lower the cancer burden and improve Erbil's general public health results.

CHAPTER TWO
2. METHODOLOGY

2.1 Design of Study

This study used a retrospective, hospital-based cross-sectional design to analyze the distribution of cancer types among patients treated at Nanakali Hospital in Erbil in 2022. Data on confirmed cancer cases were extracted from hospital records in February and March 2025, focusing on clinical (cancer type) and demographic (age, sex) characteristics. The sample included 251 breast cancer cases, 84 lung cancer cases, 33 ALL cases, and 24 CML cases, representing diverse age ranges and demographic distributions.

2.2 Statistical Analysis

To evaluate the data, Microsoft Excel was used. Overall cancer types and sex-specific stratification were summarized by descriptive data (frequencies, percentages). Since the study was only descriptive, no comparison analyses were conducted.

CHAPTER THREE
3. RESULTS

3.1 Gender and Age Distribution of Cancer Cases at Nanakali Hospital

Figure 1 and Table 1 exhibit the findings. With 251 instances overall (242 female, 9 male), breast cancer had the highest incidence and primarily affected individuals between the ages of 28 and 90. Then came lung cancer, which affected 84 people between the ages of 32 and 84 (58 men and 26 women). Hematologic malignancies were less prevalent: CML (Chronic Myeloid Leukemia) accounted for 24 cases (8 female, 16 male) in patients aged 15-80 years, while ALL (Acute Lymphoblastic Leukemia) occurred in 33 cases (16 female, 17 male) throughout a broad age range (2-65 years). The results show more balanced gender distributions in the hematologic malignancies, but a notable female predominance in breast cancer (96.4% of cases) and a male predominance in lung cancer (69% of cases).

Table 1: Cancer case distribution by type, gender, and age at Nanakali Hospital (2022)

Cancer Type	Female	Male	Total Cases	Age Range
ALL (Acute Lymphoblastic Leukemia)	16	17	33	2-65
CML (Chronic Myeloid Leukemia)	8	16	24	15-80
Breast Cancer	242	9	251	28-90
Lung Cancer	26	58	84	32-84

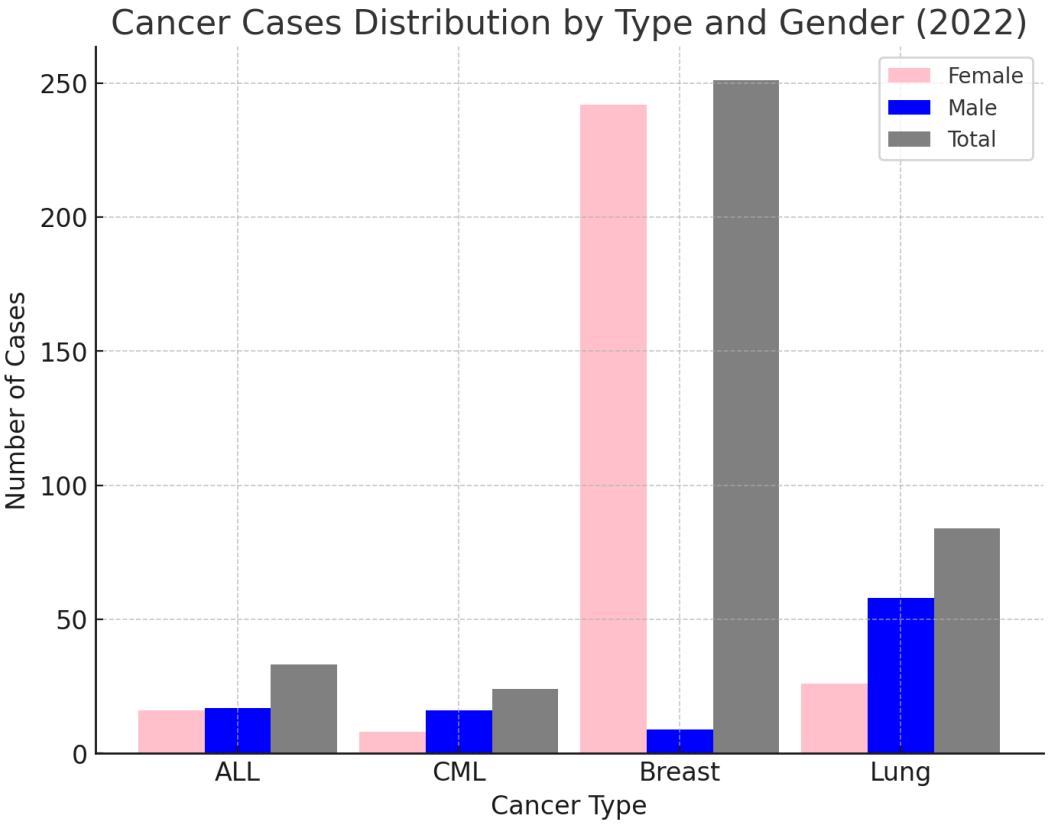

Figure 1: Distribution of cancer cases by type and gender at Nanakali Hospital, Erbil (2022).

CHAPTER FOUR

4. DISCUSSION

Due to a confluence of hormonal, genetic, and lifestyle variables, breast cancer continues to be the most common disease among women worldwide. Its high occurrence is mostly caused by BRCA1/2 mutations, prolonged estrogen exposure, and reproductive patterns such postponed childbirth and decreased nursing (Sung et al., 2021). Furthermore, discrepancies also exist in male breast cancer patients, which are frequently under diagnosed because of lower clinical suspicion, despite improved detection rates brought about by enhanced screening and awareness campaigns (Giordano, 2018). Future incidence may be decreased by addressing modifiable risk factors including alcohol use and obesity.

Males are more likely than females to get lung cancer, which has historically been associated with increased tobacco use and occupational exposures to radon and asbestos (Malhotra et al., 2022). However, the recent increase in occurrence among females points to both possible biological variations in vulnerability and shifting smoking practices (Islami et al., 2018). Late-stage diagnosis worsens the disease's poor prognosis, highlighting the need for stronger tobacco control laws and improved early detection techniques. Additionally important are environmental variables, such as air pollution, which call for focused public health initiatives.

Because of their different molecular etiologies rather than hormonal impacts, hematologic malignancies such acute lymphoblastic leukemia (ALL) and chronic myeloid leukemia (CML) exhibit a more equal gender distribution. ALL affects people of all ages; in children, it is frequently linked to genetic predispositions such Down syndrome, whereas in adults, it may result from exposure to environmental

factors like radiation (Inaba et al., 2013). However, the Philadelphia chromosome is closely associated with CML, and improvements in targeted treatments have led to a notable increase in survival rates (Hochhaus et al., 2017). Even though these malignancies are less common than solid tumors, more research into possible genetic and environmental origins is necessary.

The significance of ongoing public health initiatives in early identification and risk reduction is highlighted by the high prevalence of breast cancer in comparison to other cancers. Early diagnoses have been made possible by mammography screening programs, although access to these tests is still unequal across socioeconomic classes (Marmot et al., 2013). On the other hand, the ongoing death rate from lung cancer emphasizes the shortcomings of the available screening methods and the demand for novel diagnostic techniques. According to Hirsch et al. (2017), low-dose CT scans have demonstrated promise in high-risk populations; nevertheless, wider adoption is required to reduce late-stage presentations.

Although the introduction of targeted medicines, like tyrosine kinase inhibitors for CML, has changed treatment paradigms for hematologic cancers, primary prevention methods are still difficult to implement because of a lack of knowledge about risk factors (Jabbour and Kantarjian, 2022). Investigations into environmental carcinogens, like ionizing radiation and benzene, may shed more light on the etiology. Age-specific research methods are also required because the bimodal age distribution of ALL indicates different pathogenic pathways in pediatric vs adult instances (Terwilliger and Abdul-Hay, 2017).

CHAPTER FIVE

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

With notable differences in the incidence of breast cancer, lung cancer, ALL, and CML by age and gender, this study offers important new information about the cancer burden in Erbil City. According to the results, lung cancer was more common in men, and breast cancer was the most common cancer, primarily affecting women. Although they differed by age group, hematologic malignancies showed a more even distribution of genders. These trends highlight the necessity of focused public health initiatives that enhance early detection and target risk factors unique to each gender. The study's hospital-based strategy adds to the few information currently available on cancer epidemiology in the Kurdistan Region by providing a snapshot of cancer distribution in 2022. But since the results only include instances from Nanakali Hospital, more extensive, population-based research is required to completely comprehend Erbil's cancer profile and inform all-encompassing preventative measures.

5.2 Recommendations

The study suggests the following measures to address the rising cancer burden: (1) putting in place gender-specific awareness campaigns that emphasize smoking cessation programs for men and breast cancer screening for women; (2) fortifying cancer registry systems to incorporate data from various medical facilities in Erbil; and (3) investing in better diagnostic capabilities for the early detection of hematologic malignancies. The study's main drawback was time constraints, which made it unable to gather data from other Erbil clinics and hospitals, which might have limited how broadly the results could be applied. Future studies should use longitudinal follow-up to monitor treatment outcomes and broaden the scope of data sources to include several universities. Furthermore, examining regionally unique environmental and lifestyle risk factors may improve preventive measures. These initiatives would assist evidence-based policymaking for cancer control in the Kurdistan Region and offer a more thorough understanding of cancer patterns.

REFERENCES

American Cancer Society. (2021). *Cancer Facts & Figures 2021*. Atlanta: American Cancer Society.

Baccarani, M., Deininger, M.W., Rosti, G., Hochhaus, A., Soverini, S., Apperley, J.F., Cervantes, F., Clark, R.E., Cortes, J.E., Guilhot, F. and Hjorth-Hansen, H., 2013. European LeukemiaNet recommendations for the management of chronic myeloid leukemia: 2013. *Blood, The Journal of the American Society of Hematology*, *122*(6), pp.872-884.

Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R.L., Torre, L.A. and Jemal, A., 2018. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: a cancer journal for clinicians*, *68*(6), pp.394-424.

Colditz, G.A. and Bohlke, K., 2014. Priorities for the primary prevention of breast cancer. *CA: a cancer journal for clinicians*, *64*(3), pp.186-194.

Fitzmaurice, C., Abate, D., Abbasi, N., Abbastabar, H., Abd-Allah, F., Abdel-Rahman, O., Abdelalim, A., Abdoli, A., Abdollahpour, I., Abdulle, A.S.M. and Abebe, N.D., 2019. Global, regional, and national cancer incidence, mortality, years of life lost, years lived with disability, and disability-adjusted life-years for 29 cancer groups, 1990 to 2017: a systematic analysis for the Global Burden of Disease Study. *JAMA oncology*, 5(12), pp.1749-1768.

Giordano, S.H., 2018. Breast cancer in men. *New England Journal of Medicine*, *378*(24), pp.2311-2320.

Greaves, M. (2018). A causal mechanism for childhood acute lymphoblastic leukaemia. *Nature Reviews Cancer, 18*(8), 471-484.

Harbeck, N., Penault-Llorca, F., Cortes, J., Gnant, M., Houssami, N., Poortmans, P., Ruddy, K., Tsang, J. and Cardoso, F., 2019. *Breast cancer. Nature reviews Disease primers 5: 66.*

Herbst, R.S., Morgensztern, D. and Boshoff, C., 2018. The biology and management of non-small cell lung cancer. *Nature*, *553*(7689), pp.446-454.

Hirsch, F.R., Scagliotti, G.V., Mulshine, J.L., Kwon, R., Curran, W.J., Wu, Y.L. and Paz-Ares, L., 2017. Lung cancer: current therapies and new targeted treatments. *The Lancet*, *389*(10066), pp.299-311.

Hochhaus, A., Larson, R.A., Guilhot, F., Radich, J.P., Branford, S., Hughes, T.P., Baccarani, M., Deininger, M.W., Cervantes, F., Fujihara, S. and Ortmann, C.E., 2017. Long-term outcomes of imatinib treatment for chronic myeloid leukemia. *New England Journal of Medicine*, *376*(10), pp.917-927.

Inaba, H., Greaves, M. and Mullighan, C.G., 2013. Acute lymphoblastic leukaemia. *The Lancet*, *381*(9881), pp.1943-1955.

Iraqi Cancer Board, 2018. *Annual report of the Iraqi Cancer Registry 2017*. Baghdad: Iraqi Ministry of Health.

Islami, F., Goding Sauer, A., Miller, K.D., Siegel, R.L., Fedewa, S.A., Jacobs, E.J., McCullough, M.L., Patel, A.V., Ma, J., Soerjomataram, I. and Flanders, W.D., 2018. Proportion and number of cancer cases and deaths attributable to potentially modifiable risk factors in the United States. *CA: a cancer journal for clinicians*, *68*(1), pp.31-54.

Jabbour, E. and Kantarjian, H., 2022. Chronic myeloid leukemia: 2022 update on diagnosis, therapy, and monitoring. *American journal of hematology*, *97*(9), pp.1236-1256.

Jabbour, E., & Kantarjian, H. (2018). Chronic myeloid leukemia: 2018 update on diagnosis, therapy, and monitoring. *American Journal of Hematology, 93*(3), 442-459.

Karwan, M., Abdullah, O.S., Amin, A.M., Mohamed, Z.A., Bestoon, B., Shekha, M., Najmuldeen, H.H., Rahman, F.M., Housein, Z., Salih, A.M. and Mohammed, A.S., 2022. Cancer incidence in the Kurdistan region of Iraq: Results of a seven-year cancer registration in Erbil and Duhok Governorates. *Asian Pacific journal of cancer prevention: APJCP*, *23*(2), p.601.

Malhotra, J., Malvezzi, M., Negri, E., La Vecchia, C. and Boffetta, P., 2016. Risk factors for lung cancer worldwide. *European Respiratory Journal*, *48*(3), pp.889-902.

Marmot, M.G., Altman, D.G., Cameron, D.A., Dewar, J.A., Thompson, S.G. and Wilcox, M., 2013. The benefits and harms of breast cancer screening: an independent review. *British journal of cancer*, *108*(11), pp.2205-2240.

Pui, C. H., Yang, J. J., Bhakta, N., & Rodriguez-Galindo, C. (2015). Global efforts toward the cure of childhood acute lymphoblastic leukaemia. *The Lancet Oncology, 16*(6), e315-e326.

Sung, H., Ferlay, J., Siegel, R.L., Laversanne, M., Soerjomataram, I., Jemal, A. and Bray, F., 2021. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: a cancer journal for clinicians*, *71*(3), pp.209-249.

Terwilliger, T. and Abdul-Hay, M.J.B.C.J., 2017. Acute lymphoblastic leukemia: a comprehensive review and 2017 update. *Blood cancer journal*, *7*(6), pp.e577-e577.

پوختە

شێرپەنجە بەردەوامە لە بوون بە یەکێک لە گەورەترین بەربەستەکانی تەندروستی جیهانی، لەگەڵ زیادبوونی ڕێژەی ڕوودان و مردن لە ناوچە گەشەسەندووەکان، لەنێویاندا عێراق. ئەم لێکۆڵینەوە پشتبەستووە بە بینینی داتاکانی پێشوو، لە نەخۆشخانەی نانەکەلی لە شاری هەولێر بۆ ساڵی ٢٠٢٢، کە تیشکی خستووەتە سەر چەشنە جیاوازەکانی شێرپەنجە: شێرپەنجەی مەمک، شێرپەنجەی سییەکان، لوکیمیای لیفۆبلاستیکی خێرا(ALL) ، و لوکیمیای میەلۆیدی درێژخایەن (CML)

داتاکان لە تۆمارەکانی نەخۆشخانە وەرگیران و شیکاریان کراوە بە شێوەیەکی وەسفی لە ڕێگەی .Microsoft Excel ئەنجامەکان نیشانیاندا کە شێرپەنجەی مەمک زۆرترین ڕێژەی هەبووە (٢٥١ حاڵەت، ٩٦.٤٪ی مێینە)، زۆرترین کاریگەری لەسەر تەمەنی ٢٨-٩٠ ساڵ بووە، دواتر شێرپەنجەی سییەکان (٨٤ حاڵەت، ٦٩٪ی نێرینە، تەمەنی ٣٢-٨٤). نەخۆشیە خوێنییەکان هاوسەنگی ڕەگەزیان نیشاندا ALL :لە ٣٣ حاڵەتدا ڕوویدا (١٦ مێینە، ١٧ نێرینە، تەمەنی ٢-٦٥)، لەکاتێکدا CML ٢٤ حاڵەتی تێدابوو (٨ مێینە، ١٦ نێرینە، تەمەنی ١٥-٨٠). ئەنجامەکان جیاوازی ڕەگەزی بەرچاویان نیشاندا، کە شێرپەنجەی مەمک زۆرینەی مێینەکان و شێرپەنجەی سییەکان زۆرینەی نێرینەکان گرتەوە، لەکاتێکدا نەخۆشیە خوێنییەکان جیاوازی ڕەگەزی بەرچاویان نەبوو. ئەم ئەنجامانە پێویستی بە ستراتیجیی پێشگیریی تایبەت بە ڕەگەز، پڕۆگرامەکانی دۆزینەوەی زوو، و باشترکردنی سیستەمی تۆمارکردنی شێرپەنجە لە هەولێر ئاماژە پێدەکات. ئەم لێکۆڵینەوەیە داتایەکی بنەڕەتی گرنگی دەستەبەر دەکات بۆ ڕێنماییکردنی چارەسەرەکانی تەندروستی گشتی، دابەشکردنی سەرچاوەکان، و هەوڵی بەرزکردنەوەی ئاگایی کە ئامانجیان کەمکردنەوەی بارودۆخی شێرپەنجەیە لە هەرێمی کوردستان.

الخلاصة

لا يزال السرطان أحد أهم التحديات الصحية العالمية، مع تزايد معدلات الإصابة والوفيات في المناطق النامية، بما في ذلك العراق. ركزت هذه الدراسة الرجعية المستندة إلى المستشفى على أنماط توزيع السرطان بين المرضى الذين تم علاجهم في مستشفى نانه‌كه‌لي بمدينة أربيل خلال عام 2022، مع التركيز على أربعة أنواع من الأورام الخبيثة: سرطان الثدي، وسرطان الرئة، وسرطان الدم الليمفاوي الحاد(ALL) ، وسرطان الدم النخاعي المزمن (CML).

تم استخراج البيانات من سجلات المستشفى وتحليلها وصفياً باستخدام Microsoft Excel.كشفت النتائج أن سرطان الثدي كان الأكثر انتشاراً (251 حالة، 96.4% إناث)، حيث أثر بشكل رئيسي على الأفراد الذين تتراوح أعمارهم بين 28-90 سنة، يليه سرطان الرئة (84 حالة، 69% ذكور، أعمار 32-84). أظهرت الأورام الدموية توزيعاً متوازناً بين الجنسين: حيث حدث سرطان الدم الليمفاوي الحاد في 33 حالة (16 أنثى، 17 ذكر، أعمار 2-65)، بينما شكل سرطان الدم النخاعي المزمن 24 حالة (8 إناث، 16 ذكور، أعمار 15-80). تسلط النتائج الضوء على تفاوتات كبيرة بين الجنسين، حيث يؤثر سرطان الثدي بشكل ساحق على النساء بينما يؤثر سرطان الرئة بشكل غير متناسب على الرجال، في حين لم تظهر الأورام الدموية اختلافات واضحة بين الجنسين. تؤكد هذه النتائج الحاجة إلى استراتيجيات وقائية خاصة بالجنس، وبرامج تعزيز الكشف المبكر، وتحسين أنظمة تسجيل السرطان في أربيل. توفر الدراسة بيانات أساسية حرجة لتوجيه التدخلات الصحية العامة، وتخصيص الموارد، وحملات التوعية التي تهدف إلى تقليل العبء المتزايد للسرطان في إقليم كوردستان العراق.