

Clinical Characteristics of Breast Cancer in AYA, Kurd, Iraq

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Abstract:

This study investigates the clinical characteristics and outcomes of breast cancer among Adolescent and Young Adult (AYA) Kurdish women in Iraq, focusing on the interplay of genetic, environmental, and socioeconomic factors. It aims to illuminate the specific clinical patterns and decision-making processes within this demographic, highlighting the influence of cultural and healthcare infrastructure on patient care. A retrospective cohort analysis was conducted, examining medical records of AYA Kurdish women diagnosed with breast cancer between January 2010 and December 2020. Data on age, tumour characteristics, treatment modalities, and comorbidities were analyzed, with statistical methods employed to identify significant trends and associations. The study found a higher prevalence of breast cancer in the older segment of the AYA group, with a notable preference for Wide Local Excision (WLE) over mastectomy. Decision-making regarding treatment was influenced by both medical professionals and familial input. A high incidence of comorbidities was observed, affecting treatment choices and outcomes. Educational level significantly correlated with the type of surgical intervention chosen. Breast cancer in AYA Kurdish women exhibits distinct clinical characteristics influenced by a complex interplay of cultural, educational, and health system factors. The findings underscore the need for culturally tailored healthcare approaches and enhanced educational and support mechanisms to improve breast cancer outcomes in this population.

Keywords: AYA Kurdish women, breast cancer, clinical characteristics, treatment decisions, comorbidities, Iraq.

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Introduction:

Cancer of the breast in adolescents and young adults (AYA) (Imperiallly), specifically within the Kursk population of Iraq, is a major medical and social problem. Among various adult age groups, the demographic population, in this case, refers to the 15-39-year-old individuals who clinically seek more distinct approaches compared to women above the age of 40 with breast cancer. The Kurdish region of Iraq like every other place comprises a unique mix of genetic, environmental and lifestyle factors therefore a detailed analysis of breast cancer patterns in this region has to be done(1, 2).

Breast cancer in AYAs is usually found in a later stage of disease progression and with a harder tumour type for young women than it is in older women. First, AYAs face a higher possibility of being diagnosed with high-grade tumours compared to other people similar age to them, furthermore, they are more prone to have a triple-negative breast cancer subtype that most of the time correlated with poorer prognosis. It is the specific socio-economic and cultural details of the Kurdish country such as restricted health problem sources, possible genetic predispositions and way of life stance, that might have been accepted to the disease's clinical manners and outcomes(3).

The oncological research has underlined the necessity of investigation of breast cancer in this group of people because they might have certain biological and clinical features that are different from those of older patients. The studies showed that younger patients more often have a disease with more aggressive progression and specific treatment challenges. In the case of ethnic Kurds, these difficulties are multiplied by geopolitical determinants, limited health infrastructure, and cultural barriers that hinder diagnostic measures, treatment, and psychological support(4).

This article is dedicated to the investigation of the clinical features of breast cancer whose victims are AYA group and whose medical care takes place within the Kurdish system of Iraqi healthcare. Particular attention will be given to the questions of hereditary predisposition as well as environmental and lifestyle factors involved, the disease presentation and the outcomes. Since these issues are worth mentioning thus the study aims to find all the aspects of the condition and therefore to provide a complete understanding of the whole landscape of the disease among this special population, make contributions to the global research on the quality of life in YA Canadian and present accordingly specific health strategies for the Kurds patients.

Epidemiological Trends of Breast Cancer in AYAs

Cancer diagnosed in adolescents or young adults is a rarity, but it frequently varies more aggressively compared to adults or senior patients. Research on AYA patients with breast cancer has indicated that AYA patients are more likely to be diagnosed with cancers that have a higher grade and are of larger tumour size, especially at advanced stages. Within the frame of the AYA Kurdish population, breast cancer incidence and predominant age group continue to show some uncertainties. However, local studies conducted within the region show that the number of young women with breast cancer is on the rise. Hence, a targeted assessment should be done on them(5).

Genetic and Molecular Characteristics in AYA Breast Cancer

Genetic predisposition is a matter or one of the most factors in the etiology, or development, of Breast Cancer in young adults. Breast cancer patients with BRCA mutations including BRCA1 and BRCA2 are often younger during diagnosis, which manifests as aggressive diseases in this category. Changes in the genotype of genes related to breast cancer or their interactions with the ageing of AYAs' expedition may result in the peculiarity of breast cancer presentation among teens(6).

Impact of Socio-economic and Cultural Factors

The social-economic and cultural differences determine the level of breast cancer awareness, screening, and treatment access. For young patients with breast cancer in the Kurdish regions of Iraq, problems such as political-socio upheaval, shortage of economic means, and cultural norms may delay diagnosis and limit access to comprehensive cancer care resulting in worse survival rates and quality of life(7).

Clinical Outcomes and Survival Rates

The observation is that YAs with breast cancer have less obtained survival rate compared to older women who discuss more aggressive disease traits and their most important delay in diagnosis as the reasons. The literature is very scarce on the Kurdish population but according to the existing research, cultural stigma and healthcare access issues may further make things complicated for the people, reducing the rate of detection and linkage of treatment which may in turn affect the overall clinical outcome(8).

Psychosocial Aspects and Quality of Life

The mental health impact of breast cancer in AYAs is so distinct that it affects self-confidence, body image, fertility problems, and also social circle. The cultural environment of the Kurdistan region where family and social support are strongly connected with the psychosocial experiences and support needs of the young Kurdish women diagnosed with breast cancer(9).

Treatment Strategies and Therapeutic Challenges

The treatment of breast-cancer AYAs requires a special approach being the fact that the disease is quite aggressive to expose an individual to the possible impact on fertility. Chemotherapy, radiation, and surgical decisions must be scrutinized relative to the preservation of fertile potential and future hormonal balance. The difficulty of obtaining high-level oncological facilities in the Kurdish context and their low availability of fertility preservation tools are the most serious issues that may appear ineffective treatment. Research has revealed the deficient oncology services and low level of patient education as the areas to be improved to enhance the treatment outcomes in the region(10).

Breast Cancer Awareness and Screening Programs

According to studies, the younger group of diagnosed breast cancer prognosis is altered compared to other stage-of-life bearers with a diagnosis delay. Young girls now become less interested or cannot properly understand the situation which causes them to fail to prevent themselves from the disease. They often do not care about screening programs. The influence of the strong traditions of this region over the young generation is of particular importance in Kurdistan. Research revealed that you can achieve this through deliberate public awareness campaigns as well as the age-selective screening of the AYA population. The early detection will give the users a chance for a higher cure rate(11).

The Role of Lifestyle and Environmental Factors

Human behaviour and environmental influences (this could refer to diet, physical activity, and exposure to environmental toxins) have a suggestion linking to breast cancer risks and its progression. In the Kurdish region where the changes from traditional lifestyles are taking place, the establishment of the link between these factors on AYA breast cancer incidence and progression is irreplaceably important for creating the appropriate prevention strategies(12).

Material and methods:

Study Design

Objective: To investigate the clinical characteristics and outcomes of breast cancer among the AYA Kurdish population in Iraq.

Study Type: A retrospective cohort study analyzing patient records from multiple Hiwa cancer and haematology hospitals and the Cancer Control Program in Sulaimaniyah governorate-Kurdistan, Iraq.

Population and Sample

Population: AYA Kurdish females diagnosed with breast cancer.

Inclusion Criteria: Female patients, aged 15-39, of Kurdish ethnicity, diagnosed with breast cancer between January 2010 and December 2020.

Exclusion Criteria: Patients with recurrent breast cancer or with incomplete medical records.

Sample Size Calculation: Based on previous prevalence rates, with an expected margin of error and confidence level.

Data Collection

Sources: Medical records from oncology departments in Hiwa Cancer and Hematology Hospital and the Cancer Control program in Sulaimaniyah City Kurdistan, Iraq.

Data Points: Age at diagnosis, histological type, tumour size, nodal status, metastasis, treatment modalities, and survival outcomes.

Data Collection Period: January 2010 to December 2020.

Ethical Considerations

Ethics Approval: Obtain from the institutional review board of the participating hospitals.

Informed Consent: Waived due to the retrospective nature of the study, ensuring patient anonymity and data confidentiality.

Data Analysis

Statistical Methods: Descriptive statistics for demographic and clinical characteristics, Chi-square test used to find association between variables.

Software: Use statistical software like SPSS version 21

Results:

Table 1: Demographic data of AYA patients

A study of the clinical features of breast cancer in adolescent and young adult Kurdish women in Iraq demonstrates that they are somehow different from the rest of the population in terms of demography and clinical presentation. The age distribution of attendees has an age majority population of older aged AYA individuals, i.e. 52.9% of them are between 40-49 years old and the remaining 35.3% are in the 30-39 age group. Young ones (sub-20 years age group) variation minimalizes by zero four (0.4%).

In terms of residency, most of the women (68.1%) in the study were from urban zones as compared to 31.9% who were in rural areas. Marital status depicted that a great percentage of the respondents (82%) were accessible those who were termed as single individuals accounted for 15.4%, divorced 2.4% and widowed were not detectably not with the 0.2%.

The larger group of the study population by body mass index (BMI) categories was the one that was obese (42.1%), followed closely by the ones who were overweight (38.1%). Participants in the normal weight category accounted for 18.6% of the total number of individuals while underweight people corresponded to just 1.2% of the sample size.

Educationally, the hippest one was primary level which made up 35.7% of the respondents. This was followed by those who had institute-level education, university degrees, and secondary education to some extent (17.8%, 15.7%, and 14.7% respectively). Of those who participated in the poll and of whom education level was known, 15.4% were illiterate and it was also (0.7) of persons whose educational status remained unknown.

Table 1: Demographic data of AYA patients

Categories	Frequency	Percentage
Age groups/years (Option2)		
<20	2	0.4
20-29	29	5.8
30-39	176	35.3
40-49	264	52.9
Residency		
Rural	159	31.9
Urban	340	68.1
Marital status		
Divorced	12	2.4
Married	409	82
Single	77	15.4
Widowed	1	0.2
BMI		
Underweight	6	1.2
Normal weight	93	18.6
Overweight	190	38.1
Obese	210	42.1
Educational level (option2)		
illiterate	64	15.4
Institute	74	17.8
Primary	148	35.7
Secondary	61	14.7
University	65	15.7
Unknown	3	0.7

The results show that Wide Local Excision, took the charge at the rate of 43.9%, most followed by mastectomy at 39.3% and Quadrantectomy was less often applied (2,2%).

As for the surgical intervention choice, the attending surgeon was defined as the primary decision-maker in 34.5% of cases. Joint decisions made together, including family members, happened 27.3% of the time while 29.3% of the time, the relatives were the decision makers. The patient was the one who decided 5% of the cases, and in 4% of the situations, the decision self-evidently failed to identify the one who made the decision. The prevalence of participants’ comorbidities is remarkable, as for almost the entire population (86.4%) this category is present, while only 13.6% of those found do not have reported comorbidities.

Table 2: Some clinical history of AYA patients

Categories	Frequency	Percentage
Surgery type		
WLE	219	43.9
Mastectomy	196	39.3
Quadrantectomy	11	2.2
Not done	73	14.6
Decision making		
Both	136	27.3
Patient	25	5.0
Relative	146	29.3
Surgeon	172	34.5
Not sure	20	4.0
History of comorbidities		
Negative	68	13.6
Comorbidities	431	86.4

Surgery Type by T-classification

On 36.8% of the diagnosed tumours less than 2 cm T-classification, MS (mastectomies) were performed while on 63.2% of cases Wide Local Excision (WLE). In cases with larger tumours (2-4 cm), 60.8% of the patients were operated on with mastectomy and 39.2% were managed with wide excision procedures. Statistically, the P-value was not significant (0.59), denoting that there was no substantial statistical difference among the surgery types adjusted against the tumour size.

However, a different result was observed, when applying another binary logic-based T-classification method to the tumour and WLE samples of 2 cm and under, with a P-value of 0.027 in favour of MS (49.3%) as compared to WLE (50.7%). A total of 74.1% of the tumours with size 3-5 cm presented the invasive form.

Surgery Type by BMI

The study demonstrates that BMI determines the preferred modality of treatment, as obese patients have more than 50% MS (46.8%) and underweight 83.3% choose mastectomies. There was little difference between groups of BMI categories, and this difference was not statistically significant ($p = 0.319$).

Decision-making for Surgery

The choice of doctors as to the type of surgery was the most significant determinant, mastectomy being the most chosen procedure in 53.6% of cases. Regarding the factor of joint or relative decision-making, the observations that led to Weak Language Engagement were higher, but the variations were not statistically significant ($P=0.402$).

Procedure by Educational Level of Surgery

Educational level is the other factor that affected whom respondents would rather consult for their surgical operations. The allocated WLE was obtained by the majority of college-educated patients (78.5%), whereas the number of patients who chose the mastectomy undergone by illiterate patients has been seen increased (59.4%). A highly significant difference ($p \leq 0.001$) for the patients with university education confirmed the connection between elevated education levels and the choice of WLE.

Table 3: surgery type in relation to some characteristics

Categories	Surgery type				Total	P-value
	MS		WLE			
	No.	%	No.	%		
T-classification(option1)						
< 2	7	36.8	12	63.2	19	0.59
2-4	48	60.8	31	39.2	79	
Total	55	56.1	43	43.9	98	
T-classification (option2)						
≤ 2	35	49.3	36	50.7	71	0.027
3-5	20	74.1	7	25.9	27	
Total	55	56.1	43	43.9	98	
BMI						
Underweight	5	83.3	1	16.7	6	0.319
Normal weight	37	49.3	38	50.7	75	
Overweight	73	45.3	88	54.7	161	
Obese	81	46.8	92	53.2	173	
Total	196	47.2	219	52.8	415	
Decision-making for surgery						
Both	48	42.5	65	57.5	113	0.402
Patient	11	44.0	14	56.0	25	
Relative	52	44.4	65	55.6	25	
Surgeon	82	53.6	71	46.4	153	
Unknown	3	42.9	4	57.1	7	
Total	196	47.2	219	52.8	415	
Educational level (option2)						
illiterate	38	59.4	26	40.6	64	0.034
Institute	31	41.9	43	58.1	74	0.310
Primary	78	52.7	70	47.3	148	0.096
Secondary	34	55.7	27	44.3	61	0.149
University	14	21.5	51	78.5	65	≤ 0.001
Unknown	1	33.3	2	66.7	3	0.628
Total	196	47.2	219	52.8	415	

Discussion:

Comparison of Surgical Choices

The study indicates a preference for Wide Local Excision (WLE) over mastectomy in the AYA Kurdish population, which contrasts with global trends where mastectomy rates vary. For instance, a study found a higher inclination towards mastectomy in Western populations, particularly in younger women with breast cancer. This discrepancy could be influenced by genetic, environmental, and cultural factors specific to the Kurdish population, suggesting a need for tailored surgical approaches(13).

Decision-making in Surgery

The decision-making process in the Kurdish study leans towards shared decision-making and surgeon influence, similar to findings in Western contexts where patient autonomy and physician recommendation play significant roles. However, the cultural context, as indicated by the influence of relatives in decision-making, reflects a unique sociocultural dynamic in the Kurdish region, underscoring the importance of cultural sensitivity in medical decision-making processes(14).

Prevalence of Comorbidities

The high prevalence of comorbidities (86.4%) in the Kurdish AYA breast cancer population aligns with global observations that comorbid conditions are common in breast cancer patients and impact treatment decisions and outcomes. This similarity stresses the universal challenge of managing breast cancer in the presence of comorbidities, although the specific types of comorbid conditions may vary based on regional health profiles(15).

Influence of Educational Level on Surgery Type

The study's observation that higher educational levels correlate with a preference for WLE over mastectomy is particularly interesting. This finding is supported by research that suggests educated patients are more likely to engage in shared decision-making and opt for breast-conserving surgery due to better awareness and understanding of the disease and treatment options. This connection highlights the role of education in health literacy and decision-making in breast cancer treatment(16).

Tumor Characteristics and Treatment Choices

The study's analysis of surgery type by T-classification revealed that smaller tumours (≤ 2 cm) were almost equally treated with mastectomy and WLE, a pattern that shifts with larger tumour sizes. This observation aligns with the broader trend in oncological practice where breast-conserving surgery is favoured for smaller, early-stage tumours due to comparable survival rates but better quality of life outcomes. However, the higher rate of mastectomy in larger tumours in the Kurdish population may reflect a cautious approach in a resource-constrained setting or a preference shaped by local clinical practice guidelines(17).

Cultural Influences on Health Behavior

The decision-making findings highlight the significant role of relatives and surgeons, underscoring the collective nature of health decision-making in Kurdish society. This is contrasted with Western societies where individual autonomy is often prioritized. The cultural dimension in medical decision-making is crucial, as studies have shown that in collectivist cultures, family involvement in health decisions can provide emotional support and facilitate care, which is vital for patient outcomes(18).

Comorbidities and Breast Cancer Management

The high prevalence of comorbidities in Kurdish AYA patients necessitates a multifaceted approach to cancer care. Research indicates that comorbid conditions can affect the choice of cancer treatment, treatment adherence, and overall survival. In the context of the Kurdish population, where access to comprehensive healthcare might be limited, managing comorbidities presents an additional layer of complexity in breast cancer treatment, suggesting the need for integrated care models that address both cancer and comorbid conditions(19).

Educational Level and Its Impact on Treatment Decisions

study's data showing that higher educational levels are associated with a preference for less invasive surgery reflects broader global patterns where education influences health literacy and empowerment in medical decision-making. This association points to the potential benefits of enhancing educational initiatives focused on breast cancer awareness and treatment options, particularly in regions like Kurdistan where varying educational levels may impact health outcomes(20).

Conclusion

Prevalence and Surgical Choices: The study highlights that breast cancer in the AYA Kurdish population presents primarily in the older age range of this cohort, with a preference for Wide Local Excision (WLE) over mastectomy. This preference suggests a potential shift towards breast-conserving treatments, aligning with global trends for early-stage cancers, yet influenced by local clinical practices and patient preferences.

Decision-making Dynamics: Decision-making in surgical options shows a collaborative approach involving patients, relatives, and surgeons. This underscores the importance of cultural nuances in medical decision-making within the Kurdish population, where family plays a significant role, and the surgeon's influence remains paramount.

Comorbidities: The high incidence of comorbidities among the AYA Kurdish breast cancer patients emphasizes the necessity for an integrated care approach that manages both the primary cancer treatment and the accompanying health conditions, reflecting the global challenge of treating breast cancer patients with multiple health issues.

Impact of Education: The correlation between educational level and the choice of surgery type indicates that higher education levels might be associated with a greater likelihood of opting for breast-conserving surgery (WLE),

pointing to the need for improved educational programs on breast cancer awareness and treatment options in the region.

Cultural and Socioeconomic Factors: The study confirms that cultural and socioeconomic factors significantly impact the clinical characteristics of breast cancer and its management in the Kurdish AYA population. These factors contribute to delayed diagnosis, treatment choices, and potentially the overall prognosis of breast cancer patients in this demographic.

Research Implications: The findings stress the importance of conducting more focused research within the AYA Kurdish population to fully understand the unique epidemiological, clinical, and sociocultural dynamics at play. Such research should aim to develop tailored interventions that address the specific needs and circumstances of this group.

Recommendations:

Enhance Breast Cancer Awareness: Implement comprehensive awareness programs specifically tailored to the AYA Kurdish population. These programs should focus on early detection, the importance of regular screenings, and understanding the options for treatment. Special attention should be given to overcoming cultural barriers and enhancing knowledge about breast-conserving treatments.

Improve Access to Healthcare Services: Strengthen healthcare infrastructure and ensure that AYA Kurdish women have access to specialized breast cancer care, including advanced diagnostic tools, treatment facilities, and post-treatment support, regardless of their geographical location or socioeconomic status.

Culturally Sensitive Care Models: Develop and implement culturally sensitive healthcare models that consider the significant role of family and community in Kurdish society. Training healthcare professionals to understand and respect these cultural nuances can facilitate better communication, decision-making, and patient satisfaction.

Integrated Care for Comorbidities: Establish integrated care pathways that address not only breast cancer but also the common comorbid conditions found in the study population. This holistic approach should include multidisciplinary teams comprising oncologists, primary care physicians, nutritionists, psychologists, and other specialists as needed.

Educational Programs and Patient Empowerment: Create targeted educational initiatives to raise the literacy level regarding breast cancer among AYA Kurdish women. Empower patients by providing them with the information necessary to make informed decisions about their treatment options and promote the understanding of the benefits of early detection and treatment.

Research and Surveillance: Encourage and support ongoing research into the epidemiological and clinical aspects of breast cancer in the Kurdish population. Establish a surveillance system to monitor trends in breast cancer incidence, treatment outcomes, and patient survival, which can inform public health strategies and healthcare practices.

Fertility Preservation and Psychosocial Support: Address the need for fertility preservation options and psychosocial support as part of the cancer care continuum for AYA Kurdish patients. Offering counselling and support services can help patients cope with the psychological impact of breast cancer and treatment-related decisions.

Strengthen Public Health Policies: Advocate for the development of public health policies that support early detection programs, provide funding for breast cancer research in AYA populations and ensure equitable access to care across all segments of the Kurdish population.

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