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POSITIVE FAMILY HISTORY EFFECTS OF COLORECTAL AND BREAST CANCER AMONG THOSE WITH CURRENT CANCER IN BAGHDAD CITY, IRAQ/ 2022

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ABSTRACT

Introduction: Cancer is the second leading cause of death in the United States, with colorectal and breast cancer being the second and third most common causes of cancer deaths, respectively, Colorectal cancer is the most common malignant in the intestine. It ranks third in the list of most common cancers among men and the second among women in developed countries. Breast cancer patients are characterized by high levels of endogenous estrogen. However, only 18% of these patients are under the age of 50, and most cases of breast cancer are diagnosed in postmenopausal women. It is uncertain whether the risk of colorectal cancer is increased after a diagnosis of breast cancer compared to the general population. **Objectives:** To identify association the family history of colorectal cancer and breast cancer and whether there is a correlation among those with current cancer. **Methods:** Cross section study were conducted on 65 patients age ranging (30-71 years). Who they attended in Al Yarmouk Teaching Hospital, in Baghdad, Iraq. Data was collected from the medical records in the breast cancer unit in the hospital for the period from (1/1/2022 to 1/1/2023). Data were collected included patient demographic and risk information and receipt of screening mammography and/or one of four modalities to screen for colorectal cancer. **Results:** shows the presence of family history of breast cancer among the female participants, as 28 (43.07%) of the total 65 females had 1st degree, 27 (41.54%) 2nd degree of relatives had breast cancer, as such the results showed that 44 (67.69%), 14 (21.54%), 7 (10.77%) of females where they BIRADS 4, 5, 6, respectively. The results also showed that 7 (10.76%) of the females had a family history of colorectal cancer 1st degree among their relatives, and 7 (10.76%) of females have a family history of colorectal cancer of the 2nd degree among their relatives. The results also showed that 8 (12.30%), Fecal occult blood test (FOBTs) was positive for all participants. **Conclusion:** We conclude from this that the family history of relatives has a clear effect that makes the possibility of cancer high, and a scan must be done to detect cancer from those who have a family history, and there is a significant relationship between breast cancer, as it is a risk factor for colorectal cancer.

KEY WORDS: *Colorectal Cancer, Breast Cancer, Family History, Association.*

INTRODUCTION

Cancer is the second leading cause of death in the United States[1], with colorectal and breast cancer being the second and third most common causes of cancer deaths, respectively.[2] In addition, the economic burden from cancer-related illnesses and deaths is high, with Medicare expenditures alone estimated at $26 billion in 2006 for these two types of cancer alone.[3] Breast and colorectal cancer screening has been shown to reduce mortality[4], [5] and is cost effective[6], [7], making it a clinical priority as noted by the United States Preventive Services Task Force (USPSTF).[8], [9] This is especially true among patients with a family history of both types of cancer, as the risk of developing them later is increased.[10] For the importance of family history in assessing the incidence of cancer many studies show clinicians often collect information about family history[11], [12], [13], other studies indicate that family history is either not obtained or is not used appropriately. Adequate in risk assessments.[14], [15] One study by Felson et al,[16] found that having a personal or family history of colorectal cancer increases the odds of updating colorectal cancer screening. This study focused only on

colorectal cancer screening and the study focused on an urban population. Research in rural areas is not particularly present. Colorectal cancer is the most common tumor in the intestine. It ranks third in the list of most common cancers among men and the second among women in developed countries.[1] For a long time, the incidence and mortality rates of colorectal cancer have shown persistent gender differences worldwide.[1], [2] Reproductive factors - including parity and use of oral contraceptives and hormone replacement therapy (HRT) - are associated with the risk of breast cancer and are concurrently known risk factors for colorectal cancer. The identification of genetic markers associated with the risk of a breast-colorectal cancer phenotype has clinical implications for prevention and screening/surveillance guidelines. Further, it could aid in identifying families/persons who are at high- risk of an inherited predisposition for breast and colorectal cancer, but do not have any of the known high- penetrance mutations. There are "breast-colon cancer susceptibility genes for which there are variants that predispose to co-occurrence of breast and colorectal cancer.[17], [18] While co-occurrence of these two common cancers in some families could be due to chance, there is evidence that members of families with segregating germline mutations in BRCA1, BRCA2 and CHEK2 genes (which are associated with breast cancer) are also at moderately increased risk of colorectal cancer.[19], [20] Approximately 35% of patients with colorectal cancer (CRC) have a family history of the disease attributed to genetic factors, common exposures, or both. Some families with a history of CRC carry genetic variants that cause CRC with high or moderate penetrance, but these account for only 5% to 10% of CRC cases.[21] Most families with a history of CRC and/or adenomas do not carry genetic variants associated with cancer syndromes; this is called common familial CRC. Our understanding of familial predisposition to CRC and cancer syndromes has increased rapidly due to advances in next-generation sequencing technologies. As a result, there has been a shift from genetic testing for specific inherited cancer syndromes based on clinical criteria alone, to simultaneous testing of multiple genes for cancer-associated variants. We summarize current knowledge of common familial CRC, provide an update on syndromes associated with CRC (including the nonpolyposis and polyposis types), and review current recommendations for CRC screening and surveillance. We also provide an approach to genetic evaluation and testing in clinical practice. Determination of CRC risk based on family cancer history and results of genetic testing can provide a personalized approach to cancer screening and prevention, with optimal use of colonoscopy to effectively decrease CRC incidence and mortality.[21] Specifically, female dominance and prognosis in old age were observed in cases of proximal colon cancer, while men showed a predominance for distal colon cancer. Breast cancer patients are characterized by high levels of endogenous estrogen.[10], [22] However, only 18% of these patients are under the age of 50, and most cases of breast cancer are diagnosed in postmenopausal women. It is uncertain whether the risk of colorectal cancer is increased after a diagnosis of breast cancer compared to the general population. Furthermore, treatment for breast cancer includes anti-hormonal therapy (such as tamoxifen or aromatase inhibitors) which may affect sex hormone levels and further contribute to the risk of colorectal cancer.

Aim of the study

To identify the role of family history of colorectal cancer and breast cancer among those with current cancer.

MATERIAL AND METHODS

Cross section study was conducted on 65 patients age ranging (30-71 years). Who they attended in Al Yarmouk Teaching Hospital, in Baghdad, Iraq. Data was collected from the medical records in the breast cancer unit in the hospital for the period from (1/1/2022 to 1/1/2023). Data were collected included patient demographic and risk information and receipt of screening mammography and/or one of four modalities to screen for colorectal cancer.

Data management and Statistical analysis

The final analysis set consisted of 65 patients whose medical records were reviewed. the collected data were coded and entered into SPSS 16.0 (Statistical Package for the Social Sciences (SPSS) 16.0 by IBM) (SPSS for windows, Rel. 16.0.2007, SPSS Inc., Chicago, IL, USA).

RESULTS

Table 1 shows the demographic information of 65 participants, which are age, marital status, and employment status. It was 48.29 ± (9.83) the average age of participants. So as too from Table 1, it is clear to us the marital status, as 46 (70.76%) were married, 11 (16.92%) were widow, 8 (12.30%) were single as well as 23 (35.38%) employees, 36 (55.38%) housewives, 2 (3.07%) were retired and 2 (3.07%) were students.

Table 1 Demographic characteristic of participants, n=65

characteristics	Female n=(65)
Age mean (SD)	48.29± (9.83)
Marital status: Married Widow single	 46 (70.76%) 11 (16.92%) 8 (12.30%)
Occupation:	

Employed	23 (35.38%)
Housewife	36 (55.38%)
Retired	2 (3.07 %)
student	2 (3.07 %)
SD= Standard Deviation	

Table 2 shows the prevalence The presence of a family history of cancer among the female participants, as 28 (43.07%) of the total 65 females had 1st degree, 27 (41.54%) 2nd degree of relatives had breast cancer, as such the table showed that 44 (67.69%), 14 (21.54%), 7 (10.77%) of females where they BIRADS 4, 5, 6, respectively.

Table 2 Distribution of positive relative family history as risk factor and mammo screening, BIRADS for participants, n=65

Positive Family History of breast cancer	Female n=(65)
degree	
1st	28 (43.07%)
2nd	27 (41.54%)
Mammographic screening BIRADS	
4	44 (67.69%)
5	14 (21.54%)
6	7 (10.77%)
BIRADS= Breast imaging-reporting and data system, 1st= first degree, 2nd = second degree	

In Table 3, the results showed that 7 (10.76%) of the females had a family history of colorectal cancer 1st degree among their relatives, and 7 (10.76%) of females have a family history of colorectal cancer of the 2nd degree among their relatives. The results also showed that 8 (12.30%), Fecal occult blood test (FOBTs) was positive for all participants.

Table 3 Distribution of positive relative family history as risk factor and positive FOBT for participants, n=65

Positive Family History of colorectal cancer	Gender		
degree	Female n=(65)		
1st	7 (10.76%)		
2nd	7 (10.76%)		
FOBT			
Positive	8 (12.30%)		
FOBT= fecal occult blood test, 1st= first degree, 2nd = second degree			

Table 4 shows the prevalence of breast cancer according to mammography BIRADS and colorectal cancer according to FOBTs, among the participants and shows what is the relationship between them, as 6 (9.23%) of females who had positive FOBTs and BIRADS 4, 1 (1.54%) who had positive FOBTs and BIRADS 5, 1 (1.54%) who had positive FOBTs and BIRADS 6.

Table 4 shown the relation between breast cancer and colorectal cancer among participants, n =65

Mammographic	Positive FOBT
BIRADS	Female
4	6 (9.23%)
5	1 (1.54%)
6	1 (1.54%)
BIRADS= Breast imaging-reporting and data system, FOBT= fecal occult blood test	

In table 5 the results shown that there were 5 (7.69%) of participants who have positive mammography BIRADS 4 and they have positive 1st degree of family history of colorectal cancer, also 4 (6.15%) 2nd degree of family history of colorectal cancer, as such 1 (1.53/%), 1 (1.53/%) who they have BIRADS 5, 6 respectively and 1st degree of family history of colorectal cancer, 3 (4.61%) who they have 2nd degree of family history of colorectal cancer. And as shown in the same table 5 results illustrated that 1 (1.53/%) who they have 1st

degree of family history of breast cancer and 1 (1.53/%) of them was positive FOBt, while 3 (4.61%) who they have 2nd degree of family history of breast cancer and 3 (4.61%) of them were positive FOBt.

Table 5 shown cross association between breast cancer and (+ve)family H. of colorectal cancer among participants, n =65

Mammographic	Positive Family H. of Colorectal Cancer			
BIRADS	1st degree n (%)		2nd degree n (%)	
4	5 (7.69%)		4 (6.15%)	
5	1 (1.53/%)		3 (4.61%)	
6	1 (1.53/%)		0 (0.00)	
Positive Family H. of Breast Cancer			FOB Positive	
degrees	n	(%)	n	(%)
1st degree	1	(1.53/%)	1	(1.53/%)
2nd degree	3	(4.61%)	3	(4.61%)
BIRADS= Breast imaging-reporting and data system, FOBT= fecal occult blood test, H.= history, 1st =first degree, 2nd = second degree				

DISCUSSION

Breast cancer and colorectal cancer are two common diseases in the world among women and men, and the causes for them are many, but scientists focus on risk factors that have the largest share in the investigation of cancer, and therefore, family history is one of the main risk factors that support the decision to detect the presence of cancer in People with a positive family history of cancer, where people with a positive family history should be screened because the possibility of them getting cancer is high. Studies on the collection, value and use of family history in primary care settings are contradictory.[22], [23] However, with advancements in genetics and familial cancers, it is becoming increasingly important to record family history, the self-report of which is fairly sensitive and specific.[24] Table 1 shows the demographic information of the participants, which are age, marital status, and employment status. It was 48.29 ± (9.83) the mean (SD) age of women. Table 2 shows the prevalence The presence of a family history of breast cancer among the female participants, as 6 (9.23%) of the total participants had 1st degree, 7 (10.77%) 2nd degree of relatives had breast cancer, and this is near of results of a study by Patricia et al, (Our study showed only 11% of women had a documented family history of breast cancer and 2% and 3% had a documented family history of colorectal cancer among men and women respectively)[25], which that their results were near to this study results. As such the table showed that 44 (67.69%), 14 (21.54%), 7 (10.77%) of female where they BIRADS 4, 5, 6, respectively. In Table 3, the results showed that 5 (7.69%) of the females had a family history of colorectal cancer 1st degree among their relatives, and 7 (10.76%) of females have a family history of colorectal cancer of the 2nd degree among their relatives. The results also showed that 8 (12.30%), Fecal occult blood test (FOBTs) was positive for all participants. Which fecal occult blood test is considered one of the tests that doctors use to find colorectal cancer, as reported in ASCO Journals that, FOBTs are one type of screening tool that doctors use to find colorectal cancer. Regular colorectal cancer screenings are recommended for people age 45 and older. If you have a family history of colorectal cancer or if you have other risk factors of developing colorectal cancer, your doctor may recommend that you start regular screening earlier.[26] Table 4 shows the prevalence of breast cancer according to mammography BIRADS and colorectal cancer according to FOBTs, among the participants and shows what is the relationship between them, as 6 (9.23%) who had positive FOBTs and BIRADS 4, and 1 (1.54%) who had positive FOBTs positive and BIRADS 5, 1 (1.54%) who had a positive fecal occult blood test, and BIRADS 6, while the result of the FOBTs was negative with the other BIRADS values 1,2,3, among the participating women, and this indicates that there is a significant relationship between breast cancer and colorectal cancer in this study, and these results are consistent with some studies that it is findings, indicated that there is a significant proportion of the patients with adenomatous polyps had a first-degree relative with a history of colorectal cancer, were older, and had a higher BMI compared to patients without polyps. A higher BMI could act as a driver for their breast cancer and the development of adenomatous polyps. This finding conflicts with the hormonal aspect of colonic adenoma. Nonetheless, the hormonal status of breast cancer was not associated with a greater risk of colorectal neoplasia in our cohort. Additionally, a history of colorectal cancer in a first-degree relative hints at a genetic susceptibility to the development of adenomatous polyps. The potential influence from obesity and a positive family history is further supported by the fact that, for patients younger than 50 years who were not obese or did not have a family history of colorectal cancer, the adenoma detection rate was only 26%.[27] Also the results shown that there were 5 (7.69%) of participants who have positive mammography BIRADS 4 and they have positive 1st degree of family history of colorectal cancer, also 4 (6.15%) 2nd degree of family history of colorectal cancer, as such 1 (1.53/%), 1 (1.53/%) who they have BIRADS 5, 6 respectively and 1st degree of family history of colorectal cancer, 3 (4.61%) who they have 2nd degree of family history of colorectal cancer. And as shown in the same table 5 results illustrated that 1

(1.53/%) who they have 1st degree of family history of breast cancer and 1 (1.53/%) of them was positive FOBt, while 3 (4.61%) who they have 2nd degree of family history of breast cancer and 3 (4.61%) of them were positive FOBt, and this is agree with a study of Abu-Sbeih *et al*.[27] Several studies have explored the risk of colorectal cancer after a breast cancer diagnosis and treatment, and the results have been inconsistent.[28], [29], [30]

CONCLUSION AND RECOMMENDATIONS

Finally, we conclude from this that the family history of relatives has a clear effect that makes the possibility of cancer high, and a scan must be done to detect cancer from those who have a family history, and there is a significant relationship between breast cancer, as it is a risk factor for colorectal cancer. We recommend raising people's awareness of the importance of visiting early detection centers for cancer, especially those who have a history of this disease, and educating them about the need to conduct screening tests and detection of colorectal cancer, especially those who have a history of this disease.

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