Breast Conservative Surgery vs. Modified Radical Mastectomy: The Commonest Surgical Practice to Treat Breast Cancer Patients among Surgeons in Kirkuk City

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Abstract

Background: Worldwide breast-conserving surgery (BCS) became more common than mastectomy in treating breast cancer patients after the National Institutes of Health Consensus Statement in 1990.

Objective: To evaluate the preferred surgical procedures used by surgeons in Kirkuk city.

Methods: A total of 104 patients with breast cancer underwent surgery (BCS vs. Mastectomy) collected from Kirkuk General Hospital, Azadi Teaching Hospital and Kirkuk Oncology Center from June 2015 to August 2017.

Results: Mean age of patients with breast cancer in this studied were 47.3±9.2 years. Two thirds of patients were premenopausal and a third was postmenopausal. The presenting stage at diagnosis of breast cancer patients was (17.3% stage I, 36.6% stage II, 42.3% stage III, and 3.8% stage IV). Three quarter of patients with breast cancer underwent mastectomy and only one quarter underwent Breast Conservative. Mastectomy rate per staging was: (10.5% stage I, 21% stage II, 36% stage III, and 2.8% stage IV), while BCS rate per staging was: 7.7% stage I, 17.3% stage II, 2.8% stage III, and 1.9% stage IV).

Conclusions: Mastectomy is most common surgical procedure in treating breast cancer patients regardless to disease staging among surgeons in Kirkuk city.

Keywords: Breast Cancer, Mastectomy, Breast Conservative Surgery, Kirkuk.

Introduction:

Breast cancer is the commonest malignancy found in women in Europe and the United States, and the incidence continues to raise slowly [(1)]. In Iraq, breast cancer is the commonest type of female malignancy, accounting for approximately one-third of the registered female cancers according to the latest Iraqi Cancer Registry. This shows that the breast is the leading cancer site among the Iraqi population in general, surpassing even bronchogenic cancer [(2)]. As per NSABP B-06 and EORTC 10801, no survival difference is seen in patients who are treated with modified radical mastectomy versus lumpectomy and radiation therapy (breast conservation therapy [BCT]). BCT is the preferred treatment for early-stage breast cancer [(3)]. As per NCCN guidelines contraindications for breast-conserving therapy requiring radiation therapy include**:** *Absolute*: (1- Prior radiation therapy to the breast or chest wall, 2- Radiation therapy during pregnancy, 3- Diffuse suspicious or malignant appearing micro calcifications, 4- Widespread disease that cannot be incorporated by local excision through a single incision that achieves negative margins with a satisfactory cosmetic

result, and 5- Positive pathologic margin.) and *Relative:* (1- Active connective tissue disease involving the skin (especially scleroderma & lupus), 2- Tumors >5 cm, 3- Focally positive margin, and 4- Women with a known or suspected genetic predisposition to breast cancer may have an increased risk of ipsilateral breast recurrence or contralateral breast cancer with breast conserving therapy). Prophylactic bilateral mastectomy for risk reduction may be considered.

Axillary lymph node dissection remains an important part of the surgical approach, given the prognostic importance of lymph node involvement. In an effort to decrease the morbidity associated with axillary lymph node dissection (especially lymphedema and pain), while maintaining accurate staging, a sentinel lymph node (SLN) biopsy can be obtained. The SLN (the first node in the lymphatic chain that receives lymphatic flow from the entire breast) is at the highest risk for harboring occult metastatic disease in breast cancer patients [(4)].

Breast-conserving surgery (BCS) is an operation to remove the cancer while leaving as much normal breast as possible. Some surrounding healthy tissue and lymph nodes are usually also removed. How much of the breast is removed depends on the size and location of the tumor and other factors. Breast-conserving surgery is sometimes called lumpectomy, quadrantectomy, partial mastectomy, or segmental mastectomy. It's often an option for a woman with early-stage cancer, and allows her to keep most of her breast [(5)].

Patients and Methods:

This study was a retrospective-prospective study, carried out at Kirkuk General Hospital, Azadi Teaching Hospital, and Kirkuk Oncology Center from June 2015 to August 2017. A sample of 104 cases, which were diagnosed with breast cancer and managed in the previous mentioned centers were randomly selected and evaluated. Collected data included full questionnaire regarding (age, residency, occupations, and education levels), clinic-pathological assessment (such as tumor size, site, histological type, lymph node status, TNM staging.). A detail of clinical staging (according to breast cancer TNM staging system) and information of (multifocal, multicentric distribution of masses) obtain from preoperative mammography report of each patient, and type of surgery (BCS VS mastectomy).

The first step of the data collection was general information collection from Kirkuk General Hospital, Azadi Teaching Hospital, and Kirkuk Oncology Center records via patient database provided in their files in the registry unit at the hospital. Completion of the full questionnaire for each patient was done during their requested visits to the hospital, either for receiving treatments or follow up sessions or merely for this study. *Inclusion Criteria:* (Female patients with unilateral breast cancer aged $\geq$ 20 year old and any female patients (regardless of menopausal status). *Exclusion Criteria***:** (Male patient, dead patient data, non-compliant and uncooperative patients, and age below 20 years old.

Results:

A total of 104 breast cancer women were included in the present study. Mean age of breast cancer patients at diagnosis was 47.3±9.2 years; (77.5%) of them were between 36-55 years at diagnosis. These data are shown in table (1).

As showed in table (2), about (80.7%) were housewife and only (19.3%) of them were employed. Three quarter of patients were either illiterate or with elementary education and only one quarter of patients were with higher education levels. Majority of patients (60.6%) were premenopausal and (39.3%) of them were postmenopausal.

TNM staging were distributed as followings; stage I for (17.3%) of cancer patients, stage II for (36.6%) of them, stage III for (42.3%) of breast, and stage IV for (3.8%) of them. All these findings were shown in figure (1).

A (92.3%) of patients had single breast mass and (7.7%) had multiple masses. Those patients with multiple breast masses were six (five of them had multifocal breast masses (83.3%, no=5) and one of them had multicentric breast masses (16.7%, no=1). As seen in figure (2, 3).

Tow third of breast cancer found in left breast and one third found in right breast. The distributions of patients with breast masses according to breast quadrant were: right upper quadrant RUQ (36.5%, no=38), left upper quadrant LUQ. (38.5%, no=40), right lower quadrant RLQ. (16.3%, no=17), left lower quadrant LLQ. (5.8%, no=6), and unknown location (2.9%, no=3). As seen in figure (4, 5).

Three quarter of patients underwent Mastectomy and only on quarter of patients underwent BCS. Mastectomy rate per staging was: (10.5% stage I, 21% stage II, 36% stage III, and 2.8% stage IV), while BCS rate per staging was: (7.7% stage I, 17.3% stage II, 2.8% stage III, and 1.9% stage IV). As showed in figure (6) and table (3).

As shown in figure (6): Postsurgical complications for mastectomy was seroma (21%, no=), wound infection (7.6, no=), pain (7.6, no=), and arm edema (51.3% no=) postsurgical complications for mastectomy was seroma (21%, no=), wound infection (7.6, no=), pain (7.6, no=), and arm edema (51.3% no=).

Table (1): Distributions of patients according to age at diagnosis.

Age Group	No %
25-35 years	11 10.5 %
36-45 years	38 36.6%
46-55years	42 40.5%
56-65years	10 9.6%
≥66 years	3 2.8%

Table (2): Distributions of patients according to sociodemographic characteristics.

Occupation	**N %**
Housewife	84 80.7%
Employed	20 19.3%
Education Level	
Illiterate	38 36.5%
Elementary	43 41.3%
High School	12 11.6%
Higher Educations	11 10.6%
Menopausal status	
Premenopausal	63 60.6%
Postmenopausal	41 39.4%

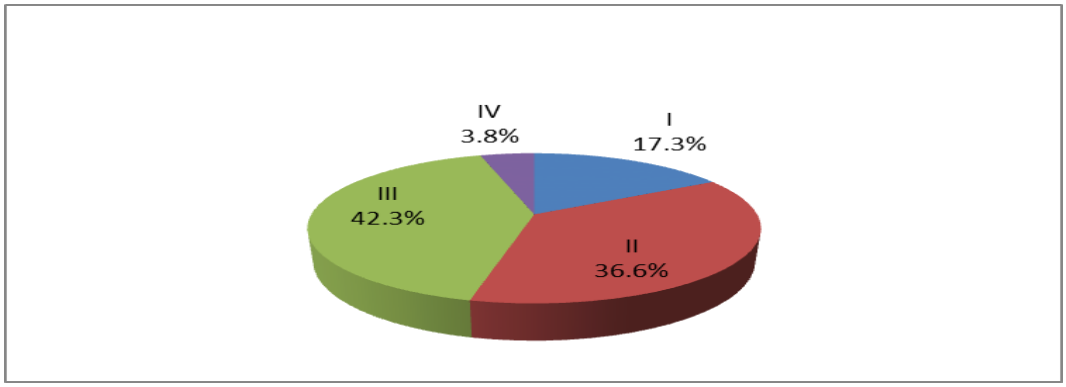

Figure (1): Distributions of patients according to TNM staging.

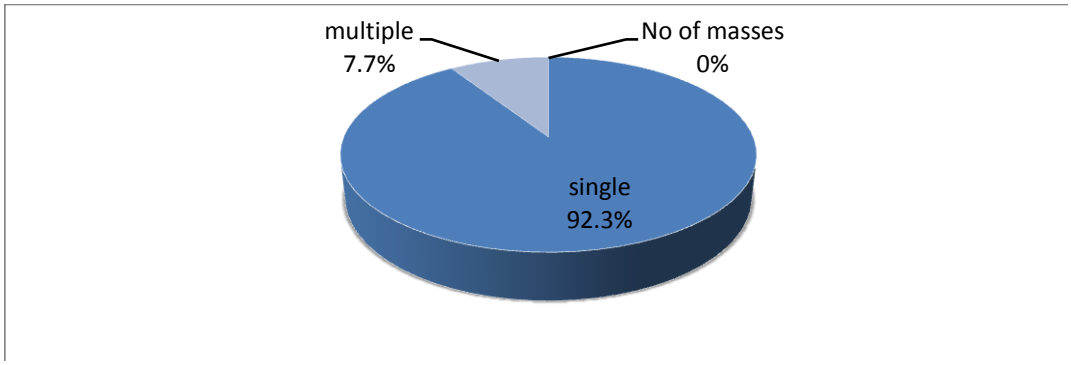

Figure (2): Distributions of patients according to number of breast masses.

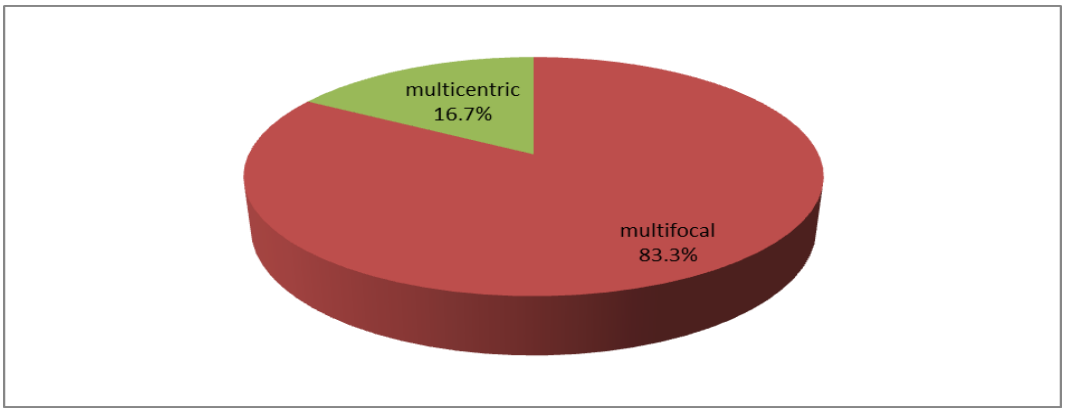

Figure (3): Distributions of patients according to multifocal or multicentric breast cancer.

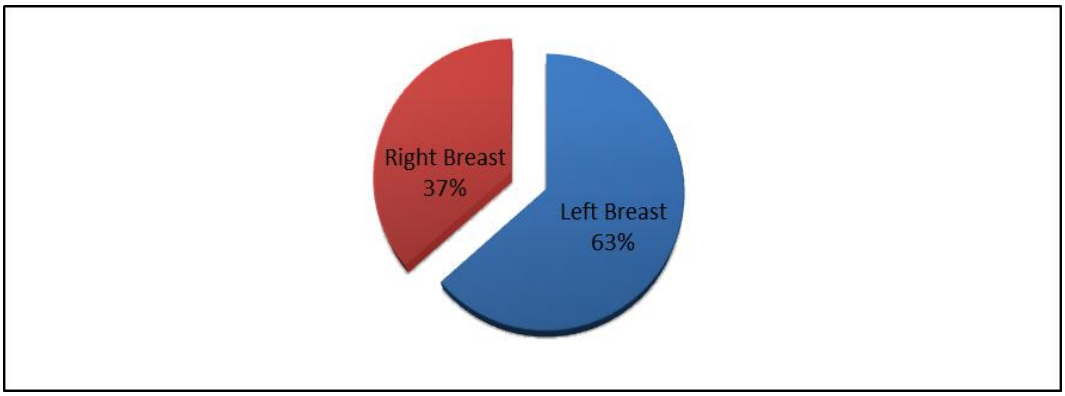

Figure (4): Distributions of patients according to localization of breast cancer to left or right breast.

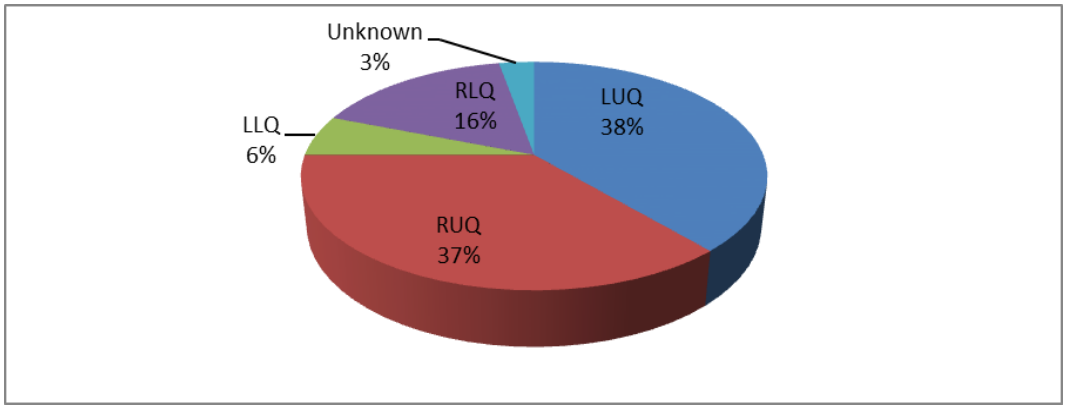

Figure (5): Distributions of patients according to location of mass in breast quadrant.

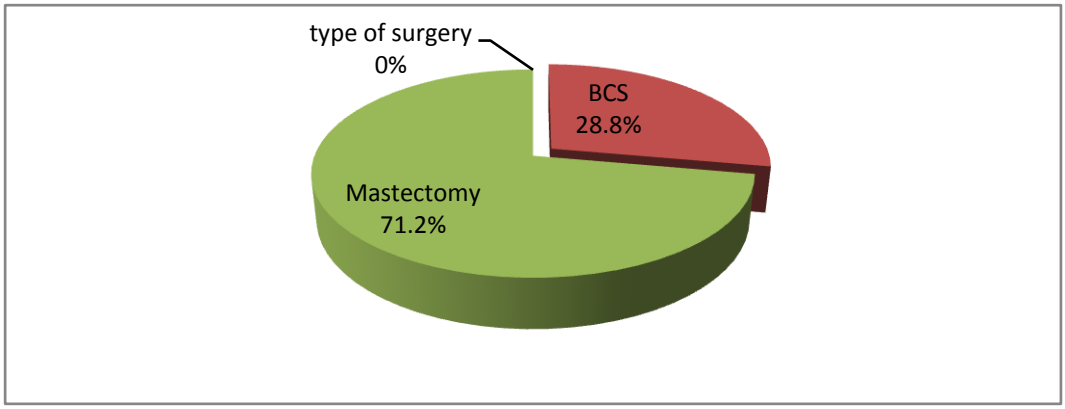

Figure (6): Distributions of patients according to type of surgery.

Table (3): Distributions of patients according to type of surgery and staging of disease.

Staging	BCS No %	Mastectomy No %
I	8 7.7%	11 10.5%
II	18 17.3%	22 21%
III	3 2.8%	37 36%
IV	2 1.9%	3 2.8%

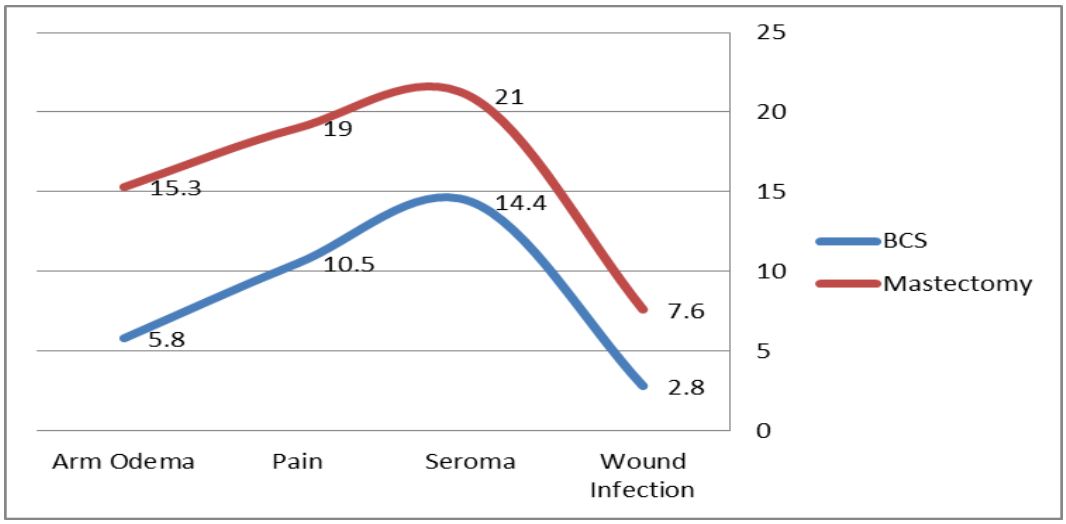

Figure (7): Distributions of patients according to postsurgical complications.

Discussions:

The mean age at diagnosis of breast cancer patients was 47 ± 9 years. The peak incidence of breast cancer occurs in age group 36-55 year old; see table (1). This result was lower than mean age reported by study done in Iraq as 49.7 years [6]. And it was similar to another study done in Sulaymaniyah which reported mean age as 47.4 ± 11 [7]. And similar to the result of the Korean study which reported peak incidence of breast cancer in patients aged between 40 and 49 years [8]. While in USA the peak incidence of breast cancer were at age group 55-64, with median age 60 years old at diagnosis [9]. Most of breast cancer patients were housewives that agreed with previous Iraqi studies [6, 10].

About two third of breast cancer patients were premenopausal and one third of them were postmenopausal. These findings are similar to results of previous study done in Sulaymaniyah which reported: (60.4%) of breast cancer patients were < 50 years old [11], and was somehow similar to Al -Safi study: He reported that half of the breast cancer patients were postmenapausal [6].

Most of patients with breast cancer presented as stage II and III (36.6% stage 11 and 42.3 % stage III) at time of diagnosis, while about half of patients presented as stage II of disease in study carried out at India [12], In this study the mastectomy rate for stage I-III was (70%) and its rather high percentage of we compared with other studies we saw (37.0%) in United States 2006 and in study done in UK there was decreased in mastectomy rates by (24.2%) [13, 14].

A number of factors influence the decision to pursue BCS. Factors that may contribute to a recommendation against BCS include increased risk for locoregional recurrence among younger patients [15, 16], recent recommendations for larger margins in the surgical treatment of DCIS [17], greater likelihood of poor cosmetic outcome in small-breasted women, and MRI detection of more extensive disease. Locoregional management decisions, particularly in younger women, may also be influenced by recent data from the 2005 Early Breast Cancer Trialists' Collaborative Group demonstrating that overall survival at 15 years is improved when a local recurrence is avoided in the first 5 years [18]. Lack of multidisciplinary team work and absence of medical oncology role in treating patient with breast cancer may also identify as a cause of increase rate of mastectomy in Kirkuk city. Elsaghir et al (2007) reviewed published literature and obtained data from cancer registries of several Arab countries. They attempted to describe the trends and management of breast cancer in the developing Arab countries. See table (4) for a summary of findings [19].

Table (4): Clinical Data for Breast Cancer in Arab Counties

Country	Year(s)	No. of patients	ASR	Age at presentation	Mastecto-my rate	Tumor size(cm)	Stage	Ref.
Algeria	1990-93	-	9.5	-	-	-	-	Parkin et al., 2002
Bahrain	1982-94	117	-	-	-	70% > 2	I: 6.8%; II: 51.3%; III: 21.4%; IV: 11.1%	Fakhro et al., 1999
Egypt	2002-03	Hospital-based	-	Median age 49	79.9-82%	-	III and; IV: 68%	Abdel-fattah et al., 2001, Elattar et al., 2005
Jordan	1997	National	21.3	-	-	-	-	Freedman et al., 2003
Kuwait	-	258 (National)	32.8	78% < 50	-	-	-	Paszko et al., 1993
Saudi Arabia	1994-96	1430 (National)	11.2	48.3	-	-	I: 9%; II: 44%; III: 30%; IV: 16%	Elhaj et al., 2002, Ezzat et al., 1999
Lebanon	1964 1984 1982-20 1998	Hospital-based 1094 2673 2092	20 - 30.6 46.7	-Medianage 49, 49% < 50 Medianage5, 50% < 50	-	-	-	Geahchan & Taleb, 1986 Ghosn et al., 1992 Elsaghir et al., 2002 Shamseddine et al., 2004
Morocco	1986-87	5148	-	-	-	-	-	Chaouki et al., 1991
Oman	1993-97	1809	13	-	65%	4.6	III: 34.9%; IV: 15.8%	Al-lawati et al., 1999 Al-Moundhri et al., 2004
Palestine	1995	-	13.6 in Arabs vs 102.2 in Jews	-	70%	3.9	I: 23%; II: 43%; III: 33%; IV: 2% (+ve LNs 53%)	Nissan et al., 2004
Syria	1998-99	230	30.4	88%	-	-	-	Semaan et al., 2003, Mzayek et al., 2002
Tunisia	1994	689	16.7	Average 50	82.40%	4.95	T1: 7.2%;T2: 48.9%; T3: 18.5%; T4: 23.4%; CIS: 3.3%; M1:22.1%	Maalej et al., 1999
Yemen	1989-96	225	-	69% < 50	-	-	-	Abdul Hamid et al., 2001

Conclusions and Recommendations:

Mastectomy is the dominant surgical procedure in treating breast cancer patients regardless to disease staging among surgeons in Kirkuk city. Majority of patients presented with advance stage (II &III) disease at time of diagnosis. Emphasis of importance of national screening program for early detection of breast cancer, and encourage and emphasis the role of medical oncologist and multidisciplinary team in managing each patient with breast cancer.

References:

[1]. Janet E. Husband, Rodney H. Reznek. *Husband & Reznek's imaging in oncology*. Third edition. United Kingdom: informa healthcare; 2010.

[2]. N.A.S. Alwan. Breast cancer: demographic characteristics and clinico-pathological presentation of patients in Iraq. *Eastern Mediterranean Health Journal* 2010; 16(11): 1159-1164.

[3]. Jame Abrahm, James L. Gulley, Carmen J. Allegra. *The Bethesda Handbook of Clinical oncology*. Forth edition. USA: Lippincott Williams & Wilkins, a Wolters Kluwer business; 2014

[4]. Amanda Cashen, Brian A.van Tine. The Washington Manual of Hematology and Oncology Subspecialty Consult (Washington Manual Subspecialty Consult). USA: Lippincott Williams & Wilkins, a Wolters Kluwer business; 2012.

[5]. American Canceer Association, 2017. Breast-conserving Surgery (Lumpectomy), https://www.cancer.org/cancer/breastcancer/treatment/surgery-for-breast-cancer/breast-conserving-surgery-lumpectomy.html. (Accessed October 2017).

[6]. AL- Safi AMH, Yassin BAG, AL-Tameemi EA. body mass index among women with proved or suspected breast cancer attending national center for early detection. Medical City Campus. IOSR Journal of Dental and Medical Sciences 2015; 14(5): 53-59

[7]. Ruunak A Majid, Hazha A Mohammed, Heshu M Saeed, Banaz M Safar, Rekawt M Rashid, Michael D Hughson. Breast cancer in kurdish women of northern Iraq: incidence, clinical stage, and case control analysis of parity and

family risk. BMC women's health 2009; 9(33): 12-16.
[8]. Beom Seok Ko, Woo Chul Noh, Sung Soo Kang, Byeong Woo Park, Eun Young Kang, Nam Sun Paik, Jung Hyun Yang, et al. Changing patterns in the clinical characteristics of korean breast cancer from 1996-2010 using an online nationwide breast cancer database. *J Breast Cancer* 2012; 15(4):393-400.
[9]. National Cancer Institute. SEER Stat Fact Sheets: Female Breast Cancer 2005-2011.
http://seer.cancer.gov/statfacts/html/breast.html, Accessed September 2016).
[10]. Abdul-Jabbar RAM. Immunohistochemical and Genetic Study in Iraqi Women with Breast Cancer. A thesis submitted to Baghdad University for PhD Requirement, 2014.
[11]. Runnak AM, Hazha A M, Hemin A H, Wasan AA, Rekawt M R, Michael DH. A population-based study of Kurdish breast cancer in northern Iraq: Hormone receptor and HER2 status. A comparison with Arabic women and United States SEER data. BMC Women's Health 2012; 12:16.
[12]. Mohammad Fazelul Rahman Shoeb, et al. Breast cancer, Clinical presentations, Risk factors, Staging. *ISG* (2017): 4(2). doi:http://dx.doi.org/10.18203/23492902.isj20170207
[13]. Elizabeth B. Habermann, et al. Are Mastectomy Rates Really Increasing in the United States? *Journal of Clinical Oncology* 2010 28:21, 3437-3441.
[14]. M Zorzi, et al. Mastectomy rates are decreasing in the era of service screening: a population-based study in Italy (1997–2001). *British Journal of Cancer* (2006) 95, 1265–1268. doi:10.1038/sj.bjc.6603405.
[15]. de Bock GH, van der Hage JA, Putter H, et al: Isolated loco-regional recurrence of breast cancer is more common in young patients and following breast conserving therapy: Long-term results of European Organisation for Research and Treatment of Cancer studies. *Eur J Cancer* 2006: 42:351-356.
[16]. Nixon AJ, Neuberg D, Hayes DF, et al: Relationship of patient age to pathologic features of the tumor and prognosis for patients with stage I or II breast cancer. *J Clin. Oncol*. 1994:12:888-894.
[17]. MacDonald HR, Silverstein MJ, Mabry H, et al: Local control in ductal carcinoma in situ treated by excision alone: Incremental benefit of larger margins. *Am J Surg* 2005190: 521-525.
[18]. Clarke M, Collins R, Darby S, et al: Effects of radiotherapy and of differences in the extent of surgery for early breast cancer on local recurrence and 15-year survival: An overview of the 124andomized trials. *Lancet* 2005:366:2087- 2106.
[19]. El Saghir, N., et al Trends in epidemiology and management of breast cancer in developing Arab countries: A literature and registry analysis. *Inter J Surg A.* (2007*):* 5, 225-233.