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HORMONE RECEPTOR STATUS OF INVASIVE DUCTAL CARCINOMA OF THE BREAST

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Dedication:

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Abstract:

Background: Breast cancer is the most common invasive cancer in women, and the second main cause of cancer death in women, after lung cancer.

Advances in screening and treatment have improved survival rates dramatically since 1989. Most breast cancers—about 80 percent—are ductal carcinomas, which begin in milk ducts. Women with a family history of breast cancer may be at a higher risk for developing the cancer, the other risk factors include: obesity, menstrual history, heavy medication etc....the most common presentation is a breast lump. Imaging tests including :ultrasound and mammogram.

Surgery is a common treatment option for breast cancer.

Aim: To study the relation between hormone receptor and invasive ductal carcinoma .

Patients and method: The retrospective study that taken from the index of the breast clinic in AL-Emamain Alkadimian medical city in the period between October 2018 to March 2019 , total number of 50 cases are observed by their histopathological records, all patients were presented with breast mass, tenderness, and breast discharge who diagnosed as an invasive breast cancer were included in this study.

Results: during the review period 50 patients were seen in the hospital, it was found the largest age group affected with invasive ductal carcinoma is in those above 45 years old (66%), the most common presentation is the mass only (76%), most patients presenting at grade 2 (52%) and the largest percentage of patients have estrogen receptor (60%).

Conclusion: This study show that invasive ductal carcinoma is more common after 45 years old which commonly presented with breast lump which was commonly diagnosed at stage 2 and estrogen receptor is more common than progesterone.

Introduction:

Breast cancers are prevalent and account for 15% of all cancer deaths in women worldwide (1-3). A large number of cancer statistics show that the incidence of breast cancer is expected to increase rapidly with human development (4)

Risk factors

1-geographical

Carcinoma of the breast occurs commonly in the western world, accounting for 3-5 percent of all deaths in women. In developing countries it accounts for 1-3 percent of deaths

2-age

Carcinoma of the breast is extremely rare below the age of 20 years but, thereafter, the incidence steadily rises so that by the age of 90 years old nearly 20 percent of women are affected

3-gender

Less than 0.5 percent of the patients with breast cancer are male

4-genetic

It occurs more commonly in women with a family history of breast cancer than in the general population

5-diet

Because breast cancer so commonly affects women in the developed world, dietary factors may play a part in its causation

There is some evidence that there is a link with diets low in phyto-estrogens. A high intake of alcohol is associated with an increased risk of developing breast cancer

6-Endocrine

Breast cancer is more common in nulliparous women and breast feeding in particular appears to be protective. Also protective is having a first child at an early age, especially if associated with late menarche and early menopause. It is known that in postmenopausal women, breast cancer is more common in the obese.

7- previous radiation (5).

Pathology

Breast cancer may arise from the epithelium of duct system anywhere from the nipple end of the major lactiferous ducts to the terminal duct unit, which is in the breast lobule.

The disease may be entirely in situ, an increasingly common finding with the advent of breast cancer screening, or may be invasive cancer.

The degree of differentiation of the tumors is usually described using three grades; well differentiated, moderately differentiated or poorly differentiated.

Ductal carcinoma is the most common variant (85-90%), lobular carcinoma occurring in up to 15 percent of cases.

Occasionally, the picture may be mixed with both ductal and lobular features..(6).

Breast carcinoma in situ

The term breast carcinoma in situ (BCIS) encompasses lesions that contain abnormal epithelial cells that are completely confined within breast lobules and/or ducts without invasion beyond the basement membrane. BCIS includes a variety of pathological types. The 2 major types of breast carcinoma in situ are ductal carcinoma in situ (DCIS) and lobular carcinoma in situ (LCIS). The incidence of BCIS increased rapidly after the introduction of mammography as a population screening tool and has subsequently increased at a slower rate (7-10). In the majority of patients, BCIS is primarily viewed as an indicator of an increased risk for invasive breast cancer. Moreover, several studies have revealed that BCIS lesions tend to be small in size, grade II or III, and widely positive for estrogen receptor (ER) and progesterone receptor (PR), but HER2 testing is not a routine part of the pathologic evaluation (11). However, studies have also suggested that high nuclear grade DCIS lesions are often negative for ER and that they over express HER2 (12).

Ductal carcinoma in situ is characterized by a proliferation of presumably malignant epithelial cells within the mammary ductal lobular system without light microscopic evidence of invasion into the surrounding stroma, Previously , DCIS was an uncommon lesion that was routinely cured by mastectomy, and little attention was given to defining its natural history or exploring alternative local treatment(13).

Invasive breast cancer

Cancer that has spread from where it began in the breast to surrounding normal tissue. The most common type of invasive breast

cancer is invasive ductal carcinoma, which begins in the lining of the milk ducts (thin tubes that carry milk from the lobules of the breast to the nipple). Another type is invasive lobular carcinoma, which begins in the lobules (milk glands) of the breast. Invasive breast cancer can spread through the blood and lymph systems to other parts of the body. Also called infiltrating breast cancer.

Presentation of invasive ductal carcinoma

Lump in the breast

Thickening of the breast skin

rash or redness of the breast

swelling in the breast

New pain in one particular location of a breast

Dimpling around the nipple or on the breast skin

Nipple pain or the nipple turning inward(14)

Hormone receptors

Cell receptors, including hormone receptors, are special proteins found within and on the surface of certain cells throughout the body, including breast cells. These receptor proteins are the “eyes” and “ears” of the cells, receiving messages from substances in the bloodstream and then telling the cells what to do. In other words, the receptors act like an on-off switch for a particular activity in the cell. If the right substance comes along that

fits into the receptor — like a key fitting into a lock — the switch is turned on and a particular activity in the cell begins.

One type of receptor found in normal breast cells is the hormone receptor. By attaching to hormone receptors, estrogen and/or progesterone contribute to the growth and function of breast cells. Estrogen and progesterone are often called “female hormones” because they play an important role in women’s menstrual cycle, sexual development, pregnancy, and childbirth. Even after menopause, however, women continue to have these hormones in their bodies. Men have them, too, although in much smaller amounts than women.

Like healthy breast cells, most breast cancer cells — but not all — have hormone receptors and respond to the signals coming from these hormones. Knowing whether or not breast cancer cells have hormone receptors is an important piece of information for making treatment decisions. For hormone-receptor-positive breast cancer cells, hormonal therapy can be used to interrupt the influence of hormones on the cells’ growth and overall functioning. If you take the hormone away or block it, as these medications do, the cancer cells are less likely to survive.

It’s also worth noting that some breast cancers that are hormone-receptor-positive can lose their receptors over time. The opposite is also true: hormone-receptor-negative cancers can gain receptors. If the breast cancer recurs in the future as advanced disease, doctors should order a repeat biopsy and retest the cancer for hormone receptors. If the cancer cells no longer have receptors, hormonal therapy is unlikely to help treat the cancer. If the cells have gained hormone receptors, however, then hormonal therapy may be helpful (15)

Aim:

To study the relation between hormone receptor and invasive ductal carcinoma of the breast.

Patients and Method:

The retrograde study that taken from the index of the breast clinic in AL-Emamain ALkadimian medical city in the period between October 2018 to march 2019 , total number of 50 cases are observed by their histo pathological records, all patient was presented with breast mass, tenderness, and breast discharge who diagnosed as an invasive breast cancer were included in this study.

Result:

In this study 50 patients were included, all of them are females (100%) the age is ranging from 24 to 70 years old with a mean age of 46.6

Table1: show the age percentage of age.

Age group	Frequency	Percentage
Less than 35	5	10%
35-45	12	24%
More than 45	33	66%
Total	50	100%

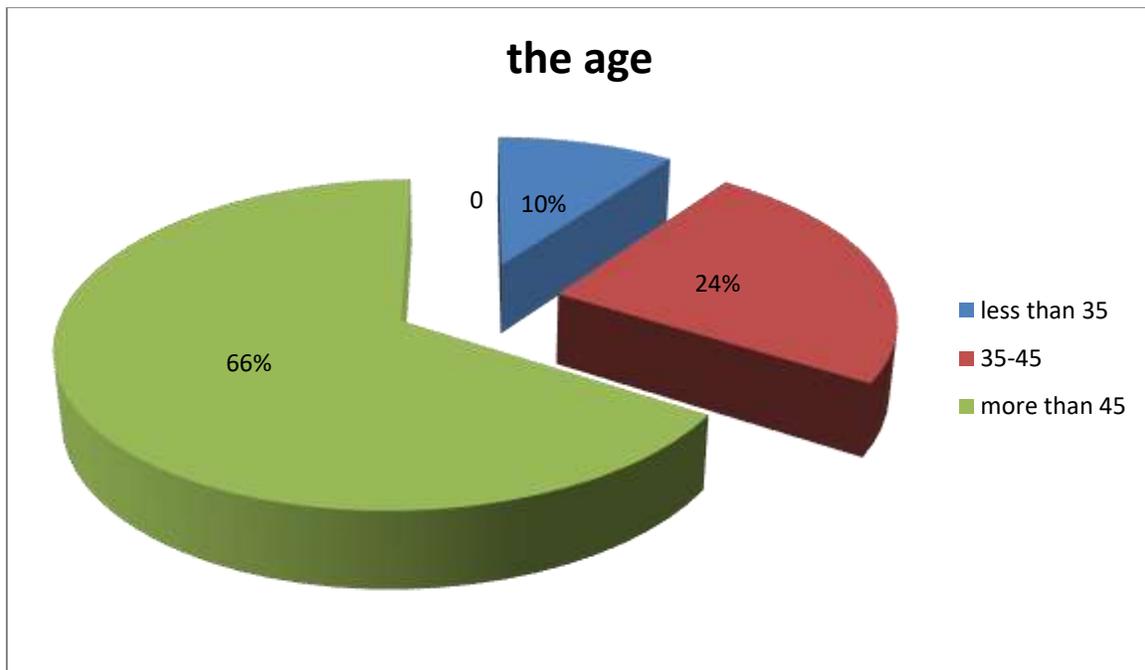


Figure1: show the age percentage :

Table2: show the percentage of presentation.

presentation	frequency	Percentage
Mass only	38	76%
Mass and tenderness	6	12%
Mass and discharge	4	8%
Accidently discovered	2	4%
Total	50	100%

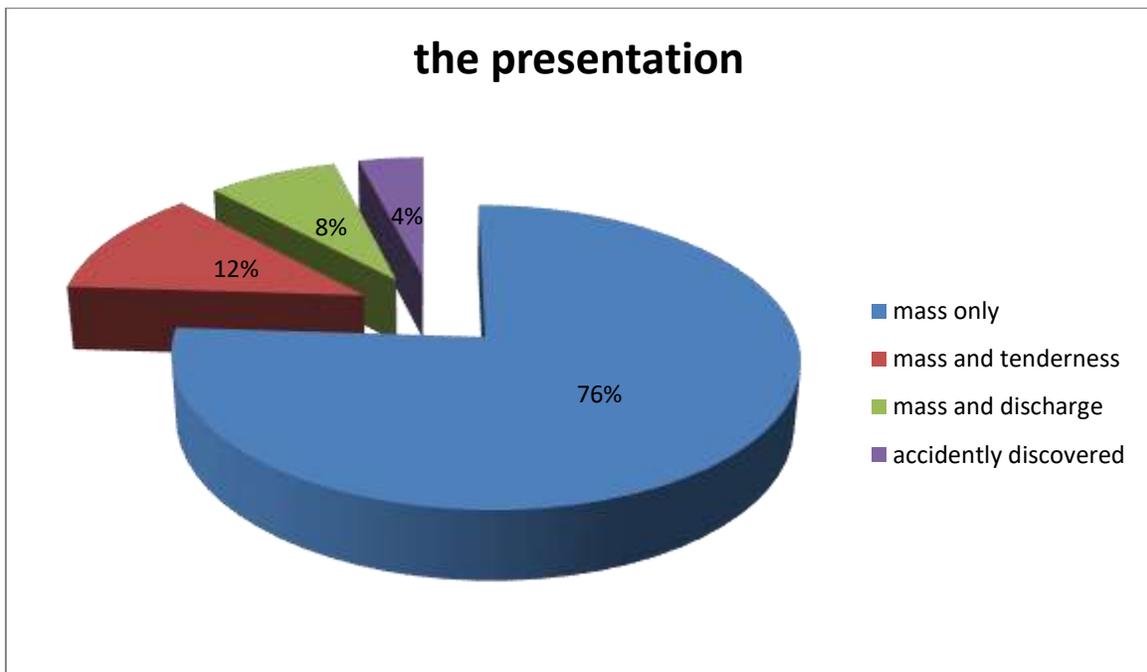


Figure 2: show the percentage of presentation

Table3: show the percentage of the grade.

The grade	frequency	Percentage
Grade 1	11	22%
Grade 2	26	52%
Grade 3	13	26%
Total	50	100%

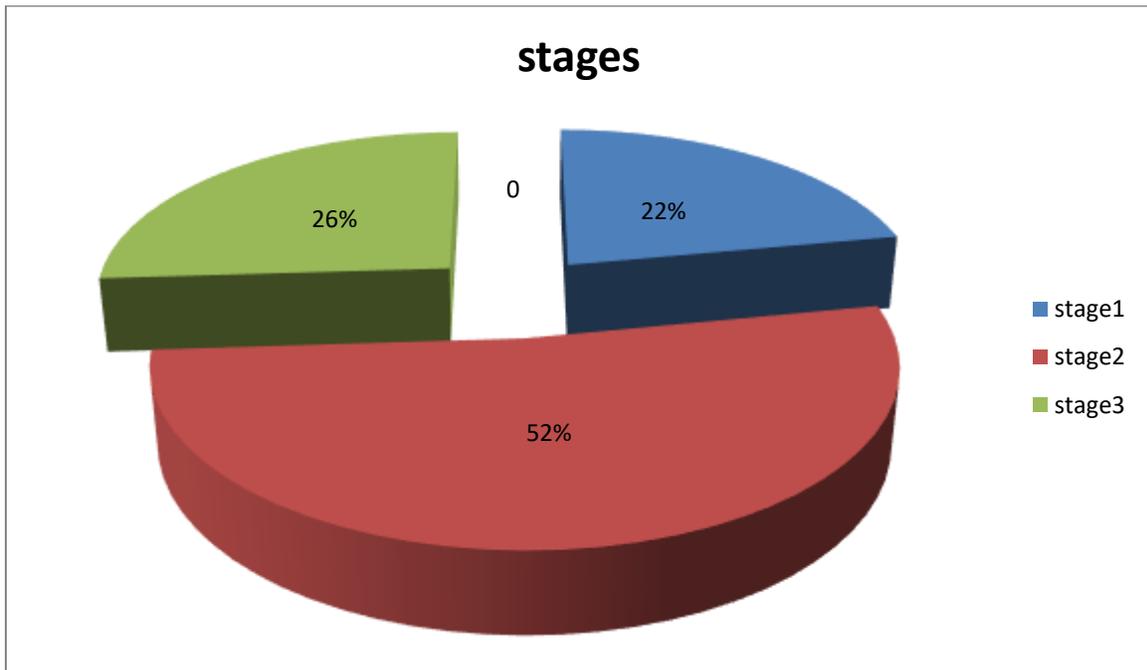


Figure 3: show the percentage of the stage.

Table4: show the percentage of hormone receptor.

Hormone receptor	frequency	Percentage
ER	30	60%
PR	20	40%
Total	50	100%

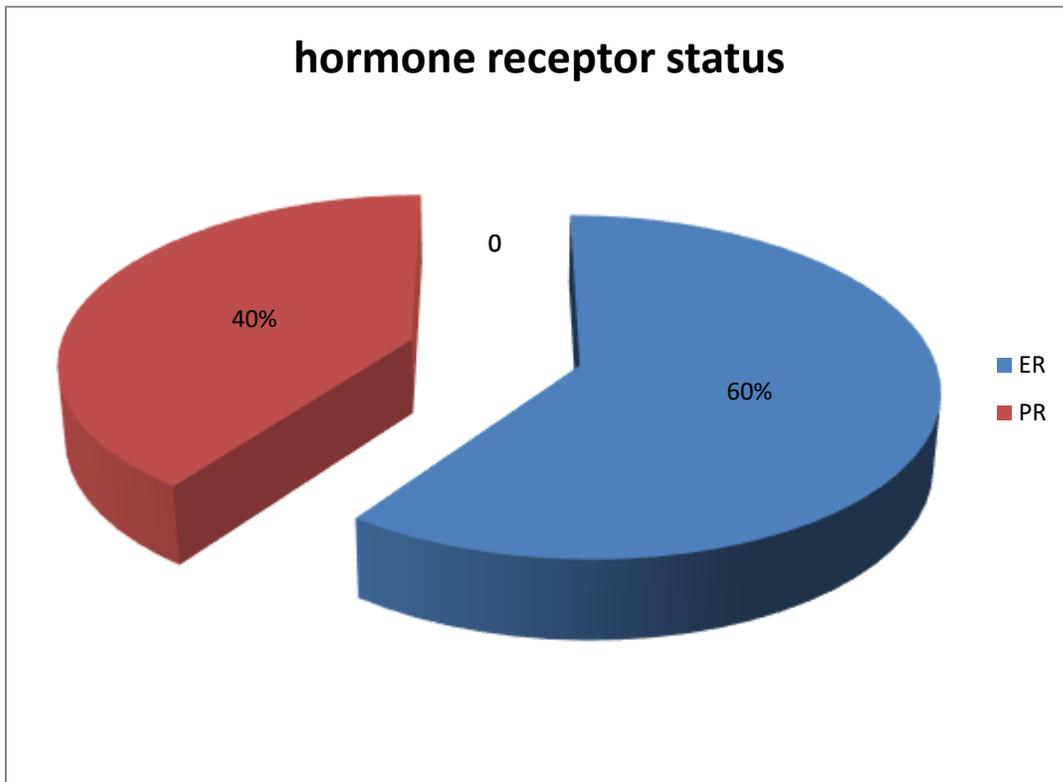


Figure 4: show the percentage of hormone receptor status.

Discussion:

On our study of the 50 patient the most common age group of invasive ductal carcinoma were above 45 years old , similar to Kennedy DL et al, which found that the disease was most pronounced among woman 50 years of age and older and also similar to the other studies reported in india and other asian countries(16.17.18)

invasive ductal carcinoma the commonest presenting feature was breast lump , which also constitutes the majority of Omar S et al, presented with breast lump and Also in India the chief complaint was breast lump (87.9%)(19.20)

In regard of grades of invasive ductal carcinoma the majority of patient were in grade 2 (52%), This observation is in accordance with studies conducted by Bonnier p et al, in contrast to study done be . Ravichandran et al, which done in Canada found the majority of patient were diagnosed at grade 1(21.22)

Hormonal receptor states of invasive ductal carcinoma in our study the majority were ER positive 60% , this findings are consistent with study done by G. Arpino,H.L et al , In contrast to the study done by Fisher B et al, which found that 32.6% of cancer were ER positive and 46.1% were PR positive(23.24)

Conclusion

This study show that invasive ductal carcinoma is more common after 40 years old which commonly presented with breast lump which was commonly diagnosed at stage and estrogen receptor is more common than progesterone.

Recommendation:

Breast self exam for women starting in their 20s that should be done monthly

Women below 40s should have a clinical breast exam by a health professional, at least every 3 years and after 40 , women should have a breast exam and a screening mammogram every year and should continue to do so far as long as they are in good health.

Also there are factors that individual can control, which include smoking, not exercising, being overweight and their diet.

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