CLINICAL RELEVANCE OF COEXISTENCE OF DUCTAL CA IN SITU AND INVASIVE DUCTAL CARCINOMA OF BREAST

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ABSTRACT

BACKGROUND

There are many studies reported in the literature with respect to the Ductal Carcinoma in Situ (DCIS) progressing into Invasive Ductal Carcinoma (IDC) of the breast. However, there is hardly any study on the coexistence of both and its clinical significance. The aim of the study is to analyse the clinical and pathological parameters of synchronous DCIS and IDC to predict the prognostic factors.

MATERIALS AND METHODS

42 patients with a final pathological diagnosis of synchronous DCIS and IDC diagnosed in 2009-11 were included in the study. Statistical analysis was done using SPSS software utilising the appropriate analytical methods.

RESULTS

Majority of the patients in this study group presented with early breast cancer (64.3%). Forty eight percent were Her2 subtype (ER, PR negative and HER2/neu-positive) and 31% were triple negative. Eighty one percent of the IDC associated histology was Not Otherwise Specified (NOS) type. Grade 3 lesions were more common (57%). Recurrence of the disease occurred in 66% of patients during a mean duration of follow up of 3.6 years with predominance of visceral metastasis (51.5%). Recurrence was more common in node positive disease (59.5%), those with lymphovascular emboli (59.5%) and perinodal spread (76%) on histopathological examination.

CONCLUSION

Synchronous DCIS and IDC disease entity appears to have an aggressive nature compared to the course of IDC alone entity. Prognostic factors relating to IDC appears to correlate well with recurrence than that of the prognostic factors of DCIS component in such synchronous setting.

KEYWORDS

Synchronous Ductal Carcinoma in Situ and Invasive Duct Carcinoma Breast, Ductal Carcinoma in Situ Breast.

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BACKGROUND

There is scarcity of knowledge on the synchronous existence of Ductal Carcinoma in Situ (DCIS) and Invasive Ductal Carcinoma (IDC) and its clinical relevance in the literature.[1-3] It is not known if there is any impact on the disease process and prognosis when IDC is accompanied by DCIS. Also, it is not known that the DCIS associated pathological prognostic factors have the same prognostic implications in the synchronous entity too. Hence, this study was done to understand the clinical importance of the presence of DCIS in patients with IDC.

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AIMS AND OBJECTIVES

The objective is to study the clinical relevance of the coexistence of DCIS and IDC in breast cancer patients.

MATERIALS AND METHODS

Forty eight patients with a synchronous existence of DCIS (defined as a proliferation of malignant epithelial cells that has not breached the myoepithelial layer of the ductal system) and IDC out of the total 467 patients with final histopathological diagnosis of ductal carcinoma of breast diagnosed between 2009-11 were included in the study. Six were excluded due to unavailable data with a final forty two patients being included in the study (Figure 1).

Following surgery, all the patients received adjuvant chemotherapy. Adjuvant radiotherapy was instituted based on the tumour "T" and "N" status on the final histopathology. Hormonal therapy was instituted as per the hormonal status of the patients. None of the patients were given anti-HER2/neu therapy as they were not affordable. Statistical analysis was performed by utilising the SPSS software with both univariate and multivariate analyses done to look for

the correlation of the clinical and pathological parameters predictive of disease recurrence.

RESULTS

Mean age of the study population was 45.5 years (range is 35-66 years). Twenty three out of 42 patients (55%) were postmenopausal and were right-sided tumours. Fifty percent of them presented with lump as a main complaint (21 patients) with other complaints being nipple discharge (9.5%), nipple erosion (9.5%). Six patients (14.3%) presented with mastectomy done elsewhere for DCIS and 2 presented following modified radical mastectomy (4.8%). Duration of symptoms ranged from 1 month to 18 months.

Twenty seven patients (64.3%) presented with T2 disease, 14 (33.3%) with T3 and 1 (2.4%) with T4a disease. Twenty four patients (57.1%) had N1 disease, 7 (16.6%) had N2 disease and 4 (9.5%) had N3 disease. Hence, majority of them were early breast cancers accounting for 27 patients (64.3%). Only 4 patients underwent breast conservation surgery with rest undergoing modified radical mastectomy/completion surgery following lumpectomy or mastectomy.

The most common subtype of IDC was NOS (not otherwise specified) type (81%). High-grade (grade 3) lesion was seen in 24 cases (57.11%). Grade 2 lesions were present in 12 (28.6%) and grade 1 in 6 patients (14.3%). All the patients had negative margins for IDC. Desmoplastic reaction was observed in twelve patients (28.6%). Mild, moderate and severe lymphocytic response were seen in 15 (35.7%), 13 (31%) and 14 (33.3%) patients, respectively. HER2/neu subtype was predominant and was seen in 21 patients (47.6%) followed by basal (31%) and luminal A/B (21.4%) (Figure 2).

Diffuse type DCIS was present in 15 patients (35.7%). High-grade DCIS was present in 62% with 23.8% intermediate grade and 14.2% low grade. Solid subtype was the most common accounting for 40.5%, i.e. in 17 patients followed by mixed (14.3%) and other types such as cribriform, papillary constituting the remaining. Necrosis was observed in 15 patients (35.7%).

In 17 patients (40.5%), adjacent parenchyma had fibrocystic changes. On a median follow up of 3.3 years, 66.6% (28/42) developed recurrence (Figure 3) with majority being visceral metastases. Recurrence was more common in patients with node positive disease (0/17 vs. 15/25-p<0.0001), lymphovascular emboli (6/15 vs. 22/27-p=0.025) and perinodal spread (2/13 vs. 21/29-p=0.0008) on the histopathological examination. However, prognostic factors of DCIS such as histological subtype, grade of the DCIS, necrosis did not correlate with recurrence.

DISCUSSION

Coexisting lesions of DCIS and IDC are mostly early breast cancers to present with[1,2] as observed by Dieterich M et al and Wong H et al in their studies. However, unlike in the study done by Wong H et al group where the presence of DCIS predicted a less aggressive nature, our study demonstrates that this subset is highly aggressive as depicted by the high grade of the tumour, increased incidence of LVE, perinodal spread and increased rate of recurrence.[2] Our study observation is supported by the study conducted by Shinn Young Kim et al in the genomic study where they have observed that synchronous IDC and DCIS is more aggressive than the DCIS counterparts and behave more like IDC.[3]As predicted by Kim et al, grade of DCIS in synchronous IDC-DCIS doesn't predict recurrence.[4] High-grade lesions were equally distributed in both recurrent and non-recurrent groups. However, high-grade lesions parse were very high in our study, which can be responsible for high rates of recurrence in the current study despite of the lesions being in early stage and the difference not being made out in our study could be because of the less number.

Majority of them are of HER2/neu subtype with aggressive nature as described in the subtype population of a study done by Pape Zambeto et al,[5] which again correlates with the increased incidence of visceral metastases over bone metastases on follow up. The poor histopathological factors that correlate with recurrence are positive nodal disease, presence of lymphovascular emboli and perinodal spread, which correlate well with the observations made in the literature.[2,5,6] However, other histological prognostic factors for isolated DCIS such as necrosis, lymphocytic response, desmoplasia, diffuse or focal type do not correlate with recurrence in our study (p value statistically not significant).

CONCLUSION

Synchronous DCIS and IDC disease entity appears to have an aggressive nature compared to the course of IDC alone entity. Prognostic factors relating to IDC appear to correlate well with recurrence than that of the prognostic factors of DCIS component in such synchronous setting. Prospective study with large number of patients enrolled with a long follow up would further enlighten the relevance of this unique disease entity.

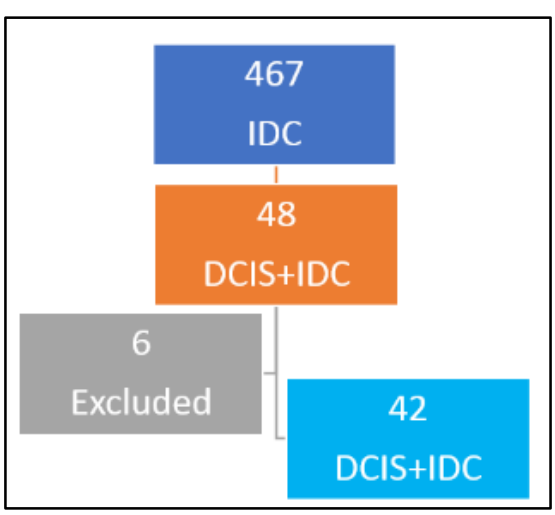

Figure 1. Study Population

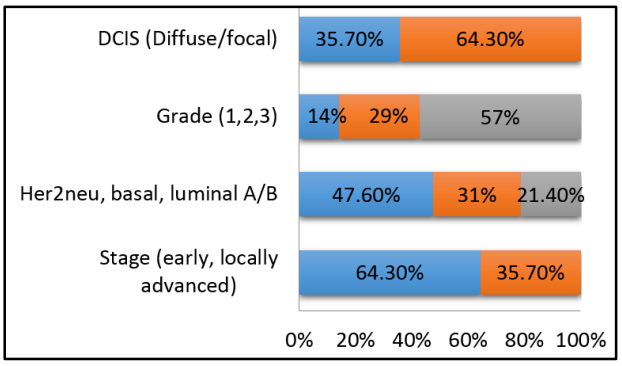

Figure 2. Clinicopathological Parameters

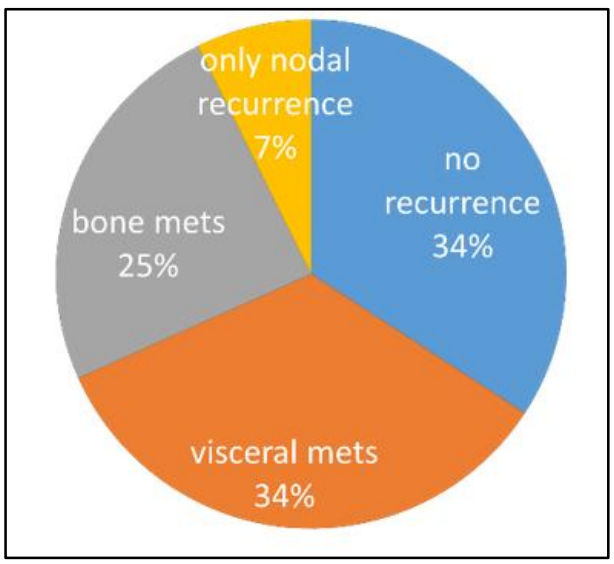

Figure 3. Disease Events on Follow Up

REFERENCES

[1] Dieterich M, Hartwig F, Stubert J, et al. Accompanying DCIS in breast cancer patients with invasive ductal carcinoma is predictive of improved local recurrence-free survival. The Breast 2014;23(4):346-351.

[2] Wong H, Lau S, Leung R, et al. Coexisting ductal carcinoma in situ independently predicts lower tumour aggressiveness in node-positive luminal breast cancer. Med Oncol 2012;29(3):1536-1542.

[3] Kim SY, Jung SH, Kim MS, et al. Genomic differences between pure ductal carcinoma in situ and synchronous ductal carcinoma in situ with invasive breast cancer. Oncotarget 2015;6(10):7597-7607.

[4] Kim JY, Han W, Moon HG, et al. Grade of ductal carcinoma in situ accompanying infiltrating ductal carcinoma as an independent prognostic factor. Clin Breast Cancer 2013;13(5):385-391.

[5] Pape-Zambito D, Jiang Z, Wu H, et al. Identifying a highly-aggressive DCIS subgroup by studying intra-individual DCIS heterogeneity among invasive breast cancer patients. PLoS One 2014;9(6):e100488.

[6] Crombie N, Rampaul RS, Pinder SE, et al. Extent of ductal carcinoma in situ within and surrounding invasive primary breast carcinoma. Br J Surg 2001;88(10):1324-1329.