

Pregnancy-associated Breast Cancer: Impact of Pregnancy on Surgical Adherence

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Introduction

The incidence of pregnancy-associated breast cancer (PABC) has been in an increasing trend because modern women delay childbearing into their third and fourth decade. Even breast cancer therapies have been progressively advancing to improve survival, PABC women have higher risk of death and recurrence. Therefore, the treatment adherence is crucial for the optimal outcome.

Materials and Methods

All newly diagnosed breast cancer from January 1, 2013, to Sept 30, 2023 were reviewed in this single-institution study. PABC is defined as newly diagnosed breast cancer during the antenatal period or in the first postpartum year and the surgical adherence is defined as women undergoing surgery within 30 days of tissue diagnosis or post neoadjuvant chemotherapy.

Results

| Category | Total patients, n (%) | Time to surgery interval (Days) | | Median (IQR) |
|---------------------------|-----------------------|---------------------------------|-----------|--------------------|
| | | ≤ 30 | > 30 | |
| No. Patients, n (%) | 30 | 9 (36.0%) | 16 (64.0) | 79.0 (36.0, 159.0) |
| Breast-conserving surgery | 3 (10.0) | 0 | 3 (100.0) | 117.3 (33.5)* |
| Mastectomy | 22 (73.3) | 9 (40.9) | 13 (59.1) | 57.0 (28.8,164.3) |
| Reconstruction | 3 (13.6) | 3 (100.0) | 0 | 124.3 (89.7)* |
| No reconstruction | 19 (86.4) | 13 (68.4) | 6 (31.6) | 52.0 (29.0, 156.0) |
| No surgery | 5 (16.7) | - | - | - |

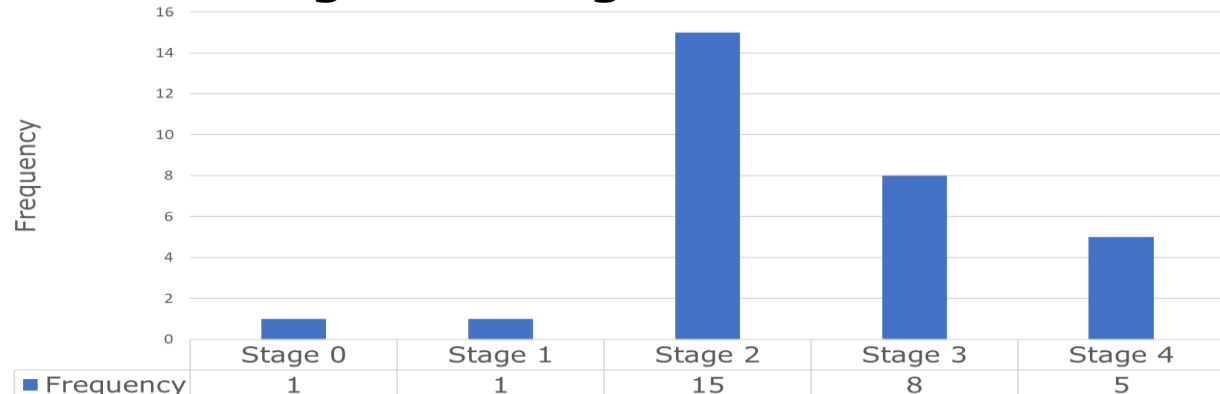
*Mean (SD)

Table 1 Time to Surgery Interval

| Category | Frequency (%) |
|--|---------------|
| Age (Year) (Mean, SD) | 34.2 (4.8) |
| Ethnicity | |
| Malay | 28 (93.3) |
| Chinese | 2 (6.7) |
| Indian | 0 |
| Others | 0 |
| Gestation week | 17.4 (9.5) |
| First trimester | 11 (36.7) |
| Second trimester | 11 (36.7) |
| Third trimester | 5 (16.7) |
| Postpartum | 3 (10.0) |
| Family history of breast cancer | |
| Yes | 11 (36.6) |
| No | 19 (63.3) |
| Comorbidity | |
| Yes | 6 (20.0) |
| No | 24 (80.0) |
| Financial reimbursement | |
| Yes | 14 (46.7) |
| No | 16 (53.3) |
| Presenting symptom | |
| Breast lump | 30 (100.0) |
| Non-breast lump | 0 |
| Duration of symptom (months) | 7 (9.8) |
| ≤ 3 | 16 (53.3) |
| > 3 | 14 (46.7) |

Table 2 Clinical Characteristics

Figure 1 Stage of PABC



| Category | Frequency (%) |
|---------------------------------------|---------------|
| Tumour size (mm) (Median, IQR) | 4.8 (3.0,7.0) |
| Tumour histology | |
| IDC | 28 (93.3) |
| ILC | 0 |
| DCIS | 1 (3.3) |
| Others | 1 (3.3) |
| Grading | |
| 1 | 1 (3.3) |
| 2 | 12 (40.0) |
| 3 | 12 (40.0) |
| NA | 5 (16.7) |
| Lymphovascular invasion (LVI) | |
| Yes | 13 (43.3) |
| No | |
| NA | 11 (43.3) |
| Molecular classification | |
| Luminal A | 10 (33.3) |
| Luminal B | 8 (26.7) |
| HER-2 | 4 (13.3) |
| Triple negative | 8 (26.7) |

Table 3 Pathological Characteristics

| Category | Frequency (%) |
|-------------------------------------|---------------|
| Mode of delivery | |
| Spontaneous vaginal birth | 7 (29.2) |
| Caesarean section | 17 (70.8) |
| Prelabour | 12 (50.0) |
| Intrapartum | 5 (20.8) |
| Duration of Pregnancy | |
| Preterm | 11 (45.8) |
| Term (≥37 weeks) | 13 (54.2) |
| Maternal morbidity | |
| Yes | 0 |
| No | 24 (100.0) |
| Perinatal death | |
| Yes | 0 |
| No | 24 (100.0) |
| Birthweight percentiles | |
| <10 th | 9 (37.5) |
| 10 th – 90 th | 14 (58.3) |
| >90 th | 1 (4.2) |

Table 3 Maternal and Perinatal Outcomes

| Category | Adherence (%) | Crude odds ratio | 95% CI | Adjusted odds ratio* | 95% CI |
|--|---------------|------------------|-----------|----------------------|------------|
| Family history of breast cancer | | | | | |
| No | 3 (33.3) | | Reference | | |
| Yes | 6 (66.7) | 8.7 | 1.3, 56.2 | 11.5 | 1.0, 127.8 |

*Multiple logistic regression - adjusted for age, ethnicity, gestation week, family history, comorbidity, financial reimbursement, duration of symptoms, and tumour size

Table 4 Univariate and Multivariate Analysis of Surgical Adherence

Discussion

This study demonstrated low surgical adherence rate, late-stage presentation and high defaulter rate in PABC. This is likely due to the young women commitment to their families and careers. The family history of breast cancer was associated with surgical adherence. This implied breast cancer awareness improved surgical adherence. However, this is a single center study, which has a comprehensive breast service. To our knowledge, this is the first research on surgical adherence among PABC women.

Conclusion

Breast cancer awareness and treatment counselling are crucial to improve the breast health literacy among PABC women. Hence, better breast health literacy, better surgical adherence.

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