# Primary Tumor Extirpation in the Setting of Stage IV Breast Cancer

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## Background

- Surgical management of patients with stage IV breast cancer is controversial.
- Existing studies in Stage IV breast cancer have not closely evaluated the role of patient response to induction systemic therapy (IST) in its relationship to survival outcomes.

## Objective

Evaluate our recent experience with patients undergoing resection of the primary tumor in the setting of metastatic breast cancer.

## Methods

- Institutional database reviewed from 2008-2018 to identify patients with a diagnosis of de novo stage IV breast cancer defined as metastasis diagnosed within 4 months of breast cancer diagnosis.
- Patients were included if they underwent primary tumor extirpation (lumpectomy, mastectomy).
- Patients were grouped according to their response in the primary disease site to IST into progression (progressive primary disease on IST) or no progression (Response to IST/ nonprogressive primary, comprising complete, partial and stable response).

## Results

- 45 patients were included.
- Median age was 55 years, 4 patients had a diagnosis of inflammatory breast cancer.
- Operations were wide local excision (n=11), total mastectomy (n=29), skin-sparing (n=4) or nipple-sparing mastectomy (n=1).
- Demographics and tumor characteristics were similar between the two groups, despite slightly higher percentage of T4 and N2-3 disease and ≥5 metastatic sites in the progressive primary disease compared to the nonprogressive primary group (p>0.05). Patient characteristics and survival data are shown in Table 1, and Figures 1,2.
- Predictors of overall survival are summarized in Table 2.

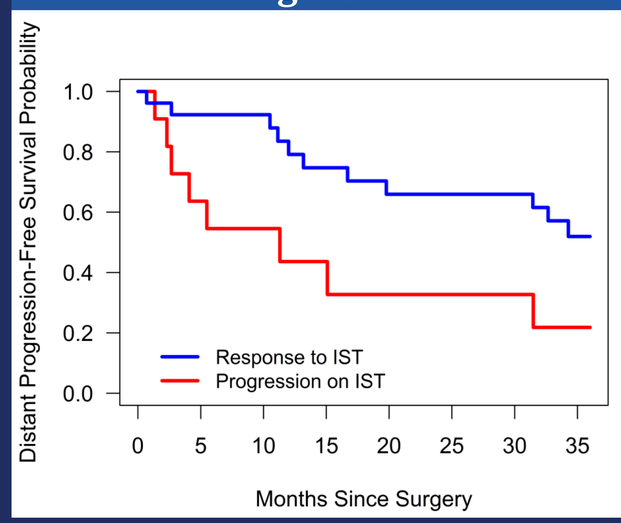
**Table 1. Patient Characteristics and Survival Analysis**

| | Overall N(%) | Progression N(%) | No Progression N(%) | p-value |
|---|---|---|---|---|
| No. of Patients | 45 | 13(29) | 29(64) | |
| Distant Disease Response to Systemic Therapy | | | | |
| Complete | 16(38) | 3(23) | 13(45) | 0.013* |
| Partial | 14(33) | 4(31) | 10(34) | |
| Stable | 6(14) | 1(8) | 5(17) | |
| Progression | 4(10) | 4(31) | 0(0) | |
| Median Survival, months | 117 | 117 | NA | 0.378 |
| 2-year Survival | 90% | 83% | 92% | |
| 5-year Survival | 76% | 71% | 81% | |
| Median Distant Disease-Free Survival, months | 31 | 11 | 50 | 0.028* |
| 2-year Distant Disease-Free Survival | 53% | 22% | 62% | |
| 5-year Distant Disease-Free Survival | 39% | NA | 45% | |
| Alive | 33(73) | 4(31) | 7(24) | 0.713 |

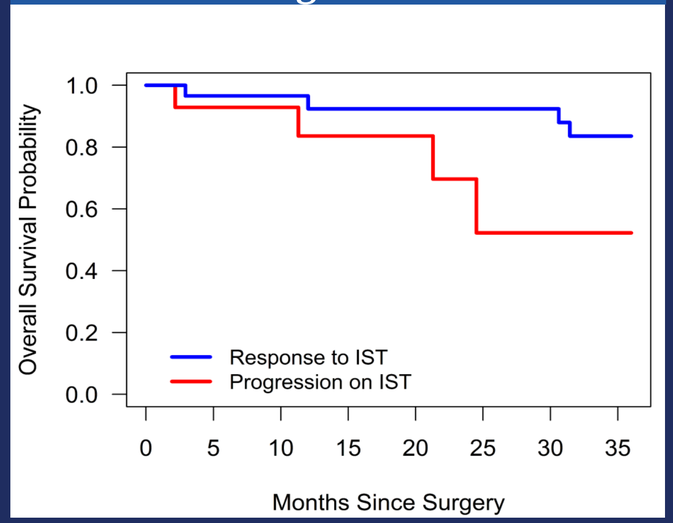
**Table 2. Predictors of Decreased Overall Survival**

| Predictor | Hazard Ratio (95% CI) | p-value |
|---|---|---|
| Age ≥55 vs. <55 | 3.9 (1.1, 20.7) | 0.03 |
| Hormone Receptor: positive vs. negative | 0.4 (0.1, 1.3) | 0.10 |
| Her-2 Receptor Status: positive vs. negative | 0.3 (0.03, 1.1) | 0.08 |
| No. of metastasis: 1 vs. >1 | 2.0 (0.6, 7.0) | 0.23 |
| Metastatic site: bone vs. other | 0.8 (0.3, 2.6) | 0.76 |
| Clinical T3/T4 vs. T1/T2 | 2.5 (0.8, 8.0) | 0.12 |
| Clinical N2/N3 vs. N1 | 7.5 (2.0, 26.9) | 0.005 |
| Primary Disease Response to Systemic Therapy | 0.3 (0.1, 1.2) | 0.08 |
| Distant Disease Response to Systemic Therapy | 0.4 (0.1, 1.6) | 0.21 |
| Closest Margin, per 1 cm | 1.3 (0.6, 2.6) | 0.45 |
| Pathologic Tumor Size, per 1 cm increase | 1.4 (1.2, 1.6) | <0.001 |
| Number of Positive Nodes, per 1 node increase | 1.1 (1.05, 1.16) | <0.001 |

## Figure 1.




## Figure 2.




## Conclusions

- Surgery is reasonable to consider in stage IV breast cancer patients with good performance status, low disease burden and good response to systemic therapy.

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