

# A Review of Breast-Conservation Therapy vs Mastectomy in Early-Stage Breast Cancer

Bridgette Brauer, PA-S

## Background & Purpose

In the United States, an estimated 242,100 individuals, predominantly women, are diagnosed with breast cancer annually.<sup>1</sup> Early-stage breast cancer can be defined as abnormal cell growth that has not spread beyond the breast or local lymph nodes, specifically the axillary lymph nodes.<sup>2</sup> Treatment modalities include breast-conservation therapy (BCT) or a mastectomy.

Some may believe that extensive measures are the only option to truly improve quality of life and overall survival in those with breast cancer of any stage. The goal of this paper is to establish a better understanding of the difference in overall survival rates and quality of life between those with early-stage breast cancer who undergo either BCT or a mastectomy alone (MA).

## PICOT

In women with early-stage breast cancer, how effective is breast-conservation therapy (BCT) versus mastectomy alone (MA) at improving overall survival and quality of life?

## Design & Methods

**Keywords:** Early-stage breast cancer, BCT versus mastectomy, lumpectomy with radiation, triple negative breast cancer, Breast-Q, BRCA gene mutation

•**Inclusion:** Diagnosed with early-stage breast cancer, Must have had BCT or MA, Published 2018 or later in English, Full text online.

•**Exclusion:** Diagnosed with later stage/metastatic breast cancer, Lumpectomy alone, Case reports, Editorials, Published before 2018.

## Summary of Evidence Search:

Database	Yielded	Reviewed	Included in Analysis
Google Scholar	25,200	15	6
Christopher Center	10,018	7	1
Science Direct	1,799	4	1
Total:	37,017	26	8

## Synthesis of Evidence

Primary endpoints are overall survival and quality of life. Secondary endpoint is recurrence rates.

Level of Evidence	Studied Included
Meta-analysis	2
Systemic Review	1
Cohort	4
Retrospective Study	1

## Results:

- ❖ Early-stage Breast Cancer in General: Overall survival, locoregional recurrence, lymph node recurrence, and distant metastasis were improved with BCT vs MA in early stage BrCA overall.<sup>3, 4</sup>
- ❖ Early-stage TNBC: Overall survival rates were higher, and both locoregional recurrence and distant metastasis rates were lower with BCT vs MA. Increased number of tumor-infiltrating lymphocytes (TILs) improved overall survival and distant metastasis recurrence in those with early-stage breast cancer.<sup>5, 6</sup>
- ❖ Early-stage Breast Cancer with BrCA mutations: Locoregional recurrence was improved with MA vs BCT, but overall survival was equivocal between the two.<sup>7</sup>
- ❖ BCT showed improved both psychosocial and sexual well-being vs mastectomy w/ reconstruction without radiation (M&R).<sup>8-10</sup>
- ❖ MA showed improved physical well-being vs BCT.<sup>9, 10</sup>



VALPARAISO  
UNIVERSITY

Honor code: "I have neither given or received, nor have I tolerated other's use of unauthorized aid."

### References:

1. Basic Information About Breast Cancer | CDC. Centers for Disease Control and Prevention. Published July 25, 2023. Accessed March 6, 2024. [https://www.cdc.gov/cancer/breast/basic\\_info/index.htm](https://www.cdc.gov/cancer/breast/basic_info/index.htm)

2. NCI Dictionary of Cancer Terms. Early-Stage Breast Cancer. National Institute of Health. Accessed February 22, 2024. <https://www.cancer.gov/publications/dictionaries/cancer-terms/def/early-stage-breast-cancer>

3. Corradini S, Reitz D, Pazos M, et al. Mastectomy or Breast-Conserving Therapy for Early Breast Cancer in Real-Life Clinical Practice: Outcome Comparison of 7565 Cases. *Cancers*. 2019;11(2):160. doi:10.3390/cancers11020160

4. Mouabbi J, Chand M, Asghar I, et al. Lumpectomy followed by radiation improves survival in HER2 positive and triple-negative breast cancer with high tumor-infiltrating lymphocytes compared to mastectomy alone - Mouabbi - 2021 - Cancer Medicine - Wiley Online Library. Accessed November 15, 2023. <https://onlinelibrary.wiley.com/doi/full/10.1002/cam4.4050>

## Best Practice

### Discussion:

- ❖ BCT has shown favorable outcomes in both overall survival, recurrence rates, psychosocial well-being, and sexual well-being compared to MA in early-stage breast cancer overall.
- ❖ Higher number of TILs can increase chances of more favorable outcomes in early-stage breast cancer.
- ❖ MA have improved recurrence rates in those with BrCA gene mutations vs BCT.

### Limitations/Further study:

- Studies didn't assess types, duration, or frequency of radiation.
- Studies didn't assess mastectomy type.
- Limited research on quality of life of BCT vs MA.
- Short follow-up periods.

More research needs to be completed to further compare:

- BCT and specific radiation/mastectomy types.
- Long-term quality of life in both BCT and MA groups.

## Conclusion:

Overall survival, recurrence rates, quality of life improved after BCT vs MA for early-stage breast cancer overall. Those with BrCA gene mutations had improved recurrence with MA vs BCT, but equivocal overall survival.

Future research needs to be done to further specify radiation and mastectomy types.

5. Fancellu A, Houssami N, Sanna V, Porcu A, Ninniri C, Marinovich M. Outcomes after breast-conserving surgery or mastectomy in patients with triple-negative breast cancer: meta-analysis | *British Journal of Surgery* | Oxford Academic. Accessed November 15, 2023. <https://academic.oup.com/bjs/article/108/7/760/6289948>

6. Wang S, Sun Y, Zhao S, Wei F, Yang G. Breast conserving surgery (BCS) with adjuvant radiation therapy showed improved prognosis compared with mastectomy for early staged triple negative breast cancer patients<br />. Accessed November 15, 2023. <https://www.aimspress.com/article/doi/10.3934/mbe.2020005?viewType=HTML>

7. Davey MG, Davey CM, Ryan EJ, Lowery AJ, Kerin MJ. Combined breast conservation therapy versus mastectomy for BRCA mutation carriers – A systematic review and meta-analysis. *Science Direct*. 2021;56:26-34.

8. Hanson S, Lei X, Roubaud M, et al. Long-term Quality of Life in Patients With Breast Cancer After Breast Conservation vs Mastectomy and Reconstruction. *JAMA Surgery*. 2022;157(6):463-553. doi:10.1001/jamasurg.2022.0631

9. Stolpner I, Heil J, Riedel F, et al. Long-Term Patient Satisfaction and Quality of Life After Breast-Conserving Therapy: A Prospective Study Using the BREAST-Q. *Annals of Surgical Oncology*. 2021;28:8742-8751.

10. Cordova L, Hunter-Smith D, Rozen W. Patient reported outcome measures (PROMs) following mastectomy with breast reconstruction or without reconstruction: a systematic review. *Annal Report of Gland Surgery*. 2019;8(4):441-451.