Contralateral Prophylactic Mastectomy: Weighing the Risks of Delayed Chemotherapy, Radiotherapy, and Hormonal Therapy

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Introduction

- Many unilateral breast cancer patients opt for contralateral prophylactic mastectomy (CPM) occurring either
  - At time of therapeutic mastectomy ("immediate CPM")
  - Following completion of adjuvant therapy
- Additional surgical site for immediate CPM relative to unilateral mastectomy (UM) → theoretical higher risk of postoperative complications
- Postoperative complications may cause delays in initiation of adjuvant therapy (chemotherapy, radiotherapy, and hormonal therapy)

Objectives

- To determine whether postoperative complications of immediate CPM increase risk of delays in initiation of adjuvant chemotherapy, radiotherapy, and hormonal therapy relative to UM alone

Methods

- Retrospective chart review of all breast cancer patients who underwent immediate CPM or UM alone at Columbia University Irving Medical Center from Jan. 2000 – Dec. 2020
- Collected patient demographics, complications, and timing of initiation of adjuvant chemotherapy, radiotherapy, and/or hormonal therapy relative to index therapeutic mastectomy
- 239 UM alone patients propensity score matched to 239 immediate CPM patients
  - Matched variables included age at time of therapeutic mastectomy, body mass index, and comorbidities

Results

Table 1. Postoperative complications in UM and CPM patients.

Table 1A. Postoperative complications in index and contralateral breasts of CPM patients.

	Total compl. in CPM pts	Bilateral compl.	TM compl.	CPM compl.	*P*
Number of patients:	46 (19%)	12 (5.1%)	19 (8.0%)	15 (6.4%)	†0.517
Number of complications:	70		38	32	
Type of complication (number of complications (percentage of total complications for subgroup))					
Wound dehiscence	7 (10%)		2 (5.3%)	5 (16%)	†0.234
Hematoma	4 (5.7%)		2 (5.3%)	2 (6.3%)	†1.000
Seroma	21 (30%)		12 (32%)	9 (28%)	†0.799
Wound infection/ cellulitis	18 (26%)		11 (29%)	7 (22%)	†0.589
Delayed wound healing	6 (8.6%)		3 (7.9%)	3 (9.4%)	†1.000
Flap necrosis	14 (20%)		8 (21%)	6 (19%)	†1.000

Table 1B. Postoperative complications in UM and CPM patients.

	Compl. in UM pts	Compl. in CPM pts	*P*
Number of patients:	41 (17%)	46 (19%)	†0.636
Number of complications:	50	70	
Mean number of complications per patient in patients with complications ± SD:	1.22 ± 0.84	1.52 ± 0.47	***0.039**
Type of complication (number of complications, percentage of complications for subgroup)			
Wound dehiscence	5 (10%)	7 (10%)	†1.000
Hematoma	3 (6.0%)	4 (5.7%)	†1.000
Seroma	15 (30%)	21 (30%)	†1.000
Wound infection/ cellulitis	15 (30%)	18 (26%)	†0.680
Delayed wound healing	4 (8.0%)	6 (8.6%)	†1.000
Flap necrosis	8 (16%)	14 (20%)	†0.639

* Two-sample two-tailed *t*-test assuming unequal variance
† Fisher's exact test

UM, unilateral mastectomy; CPM, contralateral prophylactic mastectomy; compl., complications; pts, patients; TM, therapeutic mastectomy; SD, standard deviation

Table 2. Time to adjuvant therapy for UM and CPM patients.

	All UM pts	All CPM pts	UM pts with compl.	CPM pts with compl.
Mean time to chemotherapy ± SD, days:	54.8 ± 24.3 n = 84	50.5 ± 21.5 n = 93	67.1 ± 41.4 n = 17	47.8 ± 15.8 n = 19
Mean time to radiotherapy, ± SD, days:	134.8 ± 83.0 n = 54	119.2 ± 77.7 n = 65	119.3 ± 75.9 n = 10	121.0 ± 78.3 n = 7
Mean time to hormonal therapy, ± SD, days:	124.9 ± 96.5 n = 115	168.3 ± 173.0 n = 136	146.2 ± 130.6 n = 21	160.6 ± 127.9 n = 21

Single-factor ANOVA for TTC: $p = 0.050$
Two-sample two-tailed *t*-test assuming unequal variance, all CPM pts and CPM pts with complications: $p = 0.535$
Two-sample two-tailed *t*-test assuming unequal variance, all UM pts and CPM pts with complications: $p = 0.128$

Single-factor ANOVA for TTR: $p = 0.745$
Two-sample two-tailed *t*-test assuming unequal variance, all CPM pts and CPM pts with complications: $p = 0.954$
Two-sample two-tailed *t*-test assuming unequal variance, all UM pts and CPM pts with complications: $p = 0.674$

Single-factor ANOVA for TTH: $p = 0.113$
Two-sample two-tailed *t*-test assuming unequal variance, all CPM pts and CPM pts with complications: $p = 0.806$
Two-sample two-tailed *t*-test assuming unequal variance, all UM pts and CPM pts with complications: $p = 0.236$

CPM, contralateral prophylactic mastectomy; UM, unilateral mastectomy; pts, patients; compl., complications; SD, standard deviation; TTC, time to chemotherapy; TTR, time to radiotherapy; TTH, time to hormonal therapy

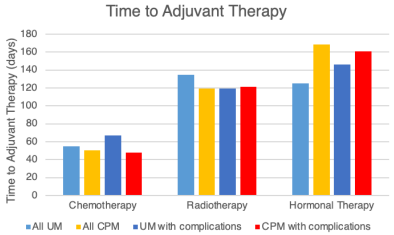

Figure 1. Time to adjuvant therapy for UM and CPM patients.
UM, unilateral mastectomy; CPM, contralateral prophylactic mastectomy

Results

- No significant difference in complications between index (8.0%) and contralateral breasts (6.4%) in immediate CPM patients ($p = 0.517$, Table 1A)
- No significant different in percentage of CPM and UM alone patients experiencing complications (19% vs 17%, $p = 0.636$, Table 1B)
- CPM patients with complications have higher average number of complications relative to UM patients with complications (1.52 vs 1.22, $p = 0.039$, Table 1B)
- No significant difference in time to initiation of adjuvant chemotherapy, radiotherapy, or hormonal therapy between CPM and UM alone patients with complications (Table 2, Figure 1)

Conclusions

- Immediate CPM does not significantly increase likelihood of experiencing postoperative complications (albeit with a higher average number of complications in those with complications)
- CPM does not lead to complication-related delays in adjuvant therapy relative to UM patients
- May help guide patients and providers in planning breast cancer treatment options and their timing

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