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Does prepectoral placement delay adjuvant therapies compared to retropectoral immediate implant-based breast reconstruction? A retrospective analysis

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Summary *Background:* Prepectoral (PP) immediate implant-based breast reconstruction (IBBR) is becoming increasingly popular compared to retropectoral (RP) reconstruction. This study compares the timing of administration of different adjuvant therapy (ATs) after PP or RP IBBR.
Patients and methods: A monocentric retrospective analysis was conducted on patients undergoing mastectomy and IBBR from January 2018 to December 2023. Preoperative characteristics, mastectomy procedure type, PP or RP implant placement, postoperative outcomes, AT type, and time between surgery and AT administration were collected and analyzed.
Results: 167 patients (206 breasts) were included. 123 underwent PP IBBR and 44 RP IBBR. The mean time between surgery and first AT administration was similar in the PP group (45.7 days, SD 39.3) compared to the RP group (37.4 days, SD 33.1) (p-value 0.2100). No significant differences were found in the timing of endocrine therapy (ET), chemotherapy (CT), or radiotherapy (RT) initiation between the PP and RP groups. Patients with seroma had a delayed

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initiation of CT (83.67 days, SD 123.7) versus those without seroma (42.1 days, SD 29.7) (p-value 0.0298).
Conclusions: The average time between surgery and administration of the first AT following PP IBBR was similar compared to RP IBBR. Postoperative seromas were associated with delayed CT in the overall population.

Breast cancer is the most prevalent malignancy among women worldwide and the leading cause of oncological mortality in the female population.[1,2] Treatment approaches are multimodal and include surgery, chemotherapy (CT), radiotherapy (RT), and endocrine therapy (ET), which can be administered before the surgery as neoadjuvant treatment or after the surgery as adjuvant treatment (AT).[2] For many mastectomy patients, breast reconstruction (BR) is a crucial component of post-mastectomy care, significantly enhancing psychological well-being and quality of life (QoL).[3] Reconstruction can be performed immediately after mastectomy or delayed, in one stage or two stages, with the placement of an expander after mastectomy.[4] The final reconstruction can be performed using a breast implant or autologous tissue, including a pedicled or free flap.[5]

Immediate implant-based breast reconstruction (IBBR) has recently gained popularity due to numerous advantages, including avoiding a second operation, shorter hospital stays, reduced postoperative recovery period, and cost savings.[6] Immediate breast reconstruction (IBR) using alloplastic BR can be achieved by retropectoral (RP) and prepectoral (PP) placement of the implant.[7] RP reconstruction involves positioning the implant beneath the pectoralis major muscle if it is spared during mastectomy. This method provides robust implant coverage, potentially reducing the risks of capsular contracture, implant visibility, and palpability.[7] However, the procedure necessitates extensive dissection and manipulation of the pectoralis muscle, which can lead to significant postoperative pain, muscle spasms, and longer recovery period.[7,8] PP reconstruction, an increasingly popular alternative, involves placing the implant above the pectoralis muscle, directly beneath the skin and subcutaneous tissue.[8,9] This technique spares the pectoralis muscle, thereby potentially reducing postoperative pain and shortening recovery times.[9] In addition, by avoiding muscle dissection as in RP reconstruction without the muscle split technique, PP reconstruction may result in fewer animation deformity and muscle weakness, although this technique increases the capsular contracture risk.[7]

The timing of adjuvant therapy (AT) initiation is crucial for the management of breast cancer, and there is apprehension that IBR could delay AT, potentially affecting oncological outcomes and hence overall survival negatively.[10] Thus, understanding whether the choice of reconstruction technique influences the timeline from surgery to AT is essential for optimizing patient outcomes.

Nowadays, when AT is planned, especially when postoperative RT is planned due to a lower long-term complication rate, delayed autologous-based BR is preferred.[6–11] However, a recent study by Popowich et al. reviewing ten guidelines from American, Canadian, Australian, and European sources showed a clear heterogeneity of BR techniques offered to patients for whom ATs are planned.[12] For this reason, given that IBBR reconstruction is increasingly being offered to patients receiving AT, we conducted this retrospective study comparing the timing of administration of AT and the type of RP or PP IBBR. The aim of our study was to determine whether IBBR techniques, PP or RP implant placement, delayed AT administration in order to provide information able to improve overall patient prognosis and QoL based on the type of IBBR.

Patients and methods

A retrospective chart review including patients undergoing mastectomy followed by IBBR in the context of breast cancer from January 2018 to December 2023 was conducted. Exclusion criteria included the use of other surgical techniques for BR other than IBBR with PP or RP prosthesis placement – including expander placement, prophylactic mastectomy, absence of adjuvant treatment, missing data concerning the procedure, or the type and timing of AT. Demographic data including age, smoking status, BMI (body mass index), and ASA (American Society of Anesthesiology) scores were assessed. Operative details including mastectomy type, operative time, weight of resection, and implant placement were analyzed. AT, including ET, CT, and RT, and the time between surgery and the start of ATs were assessed. Postoperative outcomes were also extracted from patients' medical records – including anemia (defined as hemoglobin levels < 80 g/l), hematoma (assessed clinically and/or radiologically), seroma (assessed clinically and/or radiologically), skin complications (encompassing skin flap necrosis, scar necrosis, or wound dehiscence), and infection (assessed clinically and with bacterial cultures). Informed consent was obtained from all patients. Ethics approval for the study was granted by the "Commission Cantonale d'Ethique de la Recherche sur l'être humain (CCER)" (project ID: 2024-00944).

Surgical procedure

The procedure consistently followed a single-stage approach in two steps. Mastectomy along with a sentinel lymph node biopsy and axillary dissection when needed was conducted by the gynecological team first, and the reconstructive plastic surgery team then performed the BR. The skin incision varied depending on patient's morphology,

history, and type of mastectomy, either using a previous scar, a periareolar approach, or the inframammary fold. In the case of PP IBBR, the implant was then either placed directly under a skin flap and placed anteriorly to the pectoralis major muscle or posteriorly to the mammary gland. Alternatively, in the case of an RP implant placement, the dissection was continued until the inferior edge of the pectoralis major muscle was reached, allowing for RP plane release and final placement of the implant. Implant type selection and placement in the PP or RP plane were decided preoperatively according to the preference of each reconstructive plastic surgeon. All reconstructions were performed with silicone implants (Motiva Implants, Establishment Labs Holdings Inc., Alajuela, Costa Rica, or Mentor, Worldwide LLC, Irvine, USA).

Adjuvant therapies

Treatment plan was discussed preoperatively at a multidisciplinary tumor board and postoperatively to determine the nature and timing of AT. ET included antiestrogen or aromatase inhibitors such tamoxifen and letrozole, respectively. Different CT regimens were used, according on the patient's cancer type, stage, pathological and immunohistochemical analysis, and tolerance. Decision on who should receive postmastectomy RT depend on the baseline risk for recurrence. Various regimens were used, but the most common was the classic one, which consisted in administration of two Gy in 25 sessions (total 50 Gy).

The nature and time between surgery and first administration of each AT for every patient were recorded. The time between surgery and the start of each AT separately both in the PP and RP groups was analyzed. A subgroup analysis comparing patients who presented a complication and patients who did not in the overall population and in the PP and RP groups was performed.

Statistical analysis

Categorical variables were reported in number and proportions and compared using the two-sided chi-square or Fisher's exact test, as appropriate. Continuous variables were reported as mean and standard deviation and compared using Student's T-test. Significance was set at a p-value < 0.05. Data were recorded in an Excel spreadsheet (version 16.30, Microsoft Corp., Redmond, WA, USA), and statistical analysis was performed using StatPlus (AnalystSoft Inc., Brandon, USA).

Results

Demographic data

167 patients (206 breasts) who underwent mastectomy and immediate IBBR were included. The study cohort was separated into two groups, according to implant placement, with 123 patients in the PP IBBR group and 44 patients in the RP IBBR group. There were no significant differences across groups in terms of baseline characteristics (Table 1).

Surgical characteristics

During the study period, 167 patients (206 breasts) underwent mastectomy and immediate IBBR. Skin sparing mastectomy (SSM) was significantly more frequent in the RP group with 41 breasts (54.5%) vs. 70 breasts (48.6%) in the PP group (p-value 0.0200), while nipple sparing mastectomy (NSM) was more frequent in the PP group with 74 breasts (51.4%) vs. 21 breasts (33.9%) (p-value 0.02). There was significantly more bilateral procedure performed in the RP group compared to the PP group, with 20 patients (45.5%) and 21 patients (17.1%), respectively (p-value 0.0002). The mean resection weight per

Table 1 Baseline characteristics.

	Prepectoral	Retropectoral	
	n = 123	*n = 44*	*p-value*
Age [years], mean (SD)	45.7 (39.4)	45.7 (10.0)	0.9960
BMI [kg/m^2], mean (SD)	24.48 (4.3)	23.6 (3.6)	0.2249
Active smokers, n (%)	30 (24.4%)	8 (18.2%)	0.4013
ASA, mean (SD)	1.96 (0.4)	1.93 (0.3)	0.6171
ASA categories, n (%)			
ASA I	10 (8.1%)	3 (6.8%)	0.9608
ASA II	107 (87%)	41 (93.2%)	0.2671
ASA III	6 (4.9%)	0	1
Surgical Indication			
Breast cancer, n (%)	123 (100%)	44 (100%)	1
Operative characteristics			
unilateral, n (%)	102 (82.9%)	24 (54.5%)	*0.0002**
bilateral, n (%)	21 (17.1%)	20 (45.5%)	*0.0002**
Type of operation			
SSM, n (%)	70 (48.6%)	41 (66.1%)	*0.02**
NSM, n (%)	74 (51.4%)	21 (33.9%)	*0.02**
Mean resection weight per breast [grams], (SD)	410.9 (263.7)	331.5 (172.3)	0.0648
Mean operative time [minutes], (SD)	208.7 (98.5)	237.0 (60.2)	0.0757

*$p < 0.05$.

breast was higher in the PP group, but the difference was not significant with an average of 410.9 g (SD 263.7) per breast vs. 331.5 g (SD 172.3) in the RP group (p-value 0.0648). There was no difference in mean operative time across groups, with a mean of 237 min (SD 60.2) in the RP group compared to a mean of 108.7 min (SD 98.5) in the PP group (p-value 0.0757) (Table 1).

Hospital stays and complications

The mean hospital length of stay was significantly higher in the RP group with a mean stay of 8.2 days (SD 3.1) compared to 6.5 days (SD 3.2) in the PP group (p-value 0.003). The overall complication rate was higher in the RP group with 18 patients (40.9%) developing postoperative complications compared to 24 patients (19.5%) in the PP group (p-value 0.0124). There were no differences in hematoma, anemia, skin complications, and infection rates across groups. However, the seroma rate was higher in the RP group with seven patients (15.9%) versus 2 patients (1.6%) in the PP group (p-value = 0.0003). Seromas were managed with US-guided aspiration in all cases, and no surgical seroma evacuation was required. The most frequent reason for re-operation was scar revision in the PP cohort and implant removal due to infection in the RP cohort. The reoperation rate between the two groups was similar, but implant removal due to infection was significantly more frequent in the RP group (p-value 0.0261) (Table 2). A subgroup analysis of patients who developed postoperative complications and patients who did not was subsequently performed. 34 patients (27.6%) in the PP group and 18 patients (40.9%) in the RP group presented a complication and 89 patients (72.4%) in the PP group and 26 patients (59.1%) in the RP group did not (p-value 0.0124) (Table 3).

Adjuvant therapy

When we compared the PP and RP groups, ET was the most frequent AT in the PP group with 90 patients (73.2%) and RT the most frequent in the RP group with 26 patients (59.1%). The mean time between surgery and administration of the first AT was similar in the PP group with an average of 45.7 days (SD 39.3) vs. 37.4 days (SD 33.1) in the RP group (p-value 0.21). However, when comparing each AT modality separately, there were no differences in the mean time between surgery and RT, CT, or ET administration between the PP and RP groups (Table 3). In patients who presented complications, there was a higher proportion of patients who received ET in the PP group with 26 patients (76.5%) versus 7 patients (38.9%) in the RP group (p-value 0.0074). We did not observe any difference in time to commencing ET, CT, or RT treatment or any AT after surgery between these subgroups (Table 4). In the subgroup of patients without complications, we did not observe any difference in time to AT initiation or any specific AT subgroup between the PP and RP groups (Table 5).

When comparing patients with and without complications, we observed that ET was more frequent in patients who presented no complications (p-value 0.0155). Moreover, time to initiation of AT was longer, albeit non-significant in patients who presented complications with 49 days (SD 57.0) versus 41 (SD 24.4) in patients without complications (p-value 0.1902) (Table 6).

In both the PP and RP groups, there were no differences between the patients with and without postoperative complications in terms of AT initiation (Tables 7 and 8).

The only significant difference in postoperative complications between the PP and RP groups was the seroma rate, which was higher in the RP group with 15.9% vs. 1.9% in the PP group (p-value 0.0003) (Table 2). The average time to AT initiation was longer in patients who developed a seroma, but the difference was only significant in the time to commencing CT with an average time of 83.7 days (SD 123.7) in patients with a postoperative seroma compared to 42.1 days (SD 29.7) in patients with no seroma (p-value 0.0298) (Table 9).

Discussion

In this retrospective study, we investigated whether the placement of prothesis in the PP or RP plane influenced the

Table 2 Postoperative early complications.

	Prepectoral	Retropectoral	
	n = 123	*n = 44*	*p-value*
No complication, n (%)	89 (72.4%)	26 (59.1%)	*0.0124**
> 1 complication, n (%)	24 (19.5%)	18 (40.9%)	*0.0124**
Hematoma, n (%)	13 (10.6%)	5 (11.4%)	*0.7624*
Anemia, n (%)	6 (4.9%)	2 (4.5%)	*0.9374*
Skin complication, n (%)	10 (8.1%)	2 (4.5%)	*0.4294*
Infection, n (%)	2 (1.6%)	2 (4.5%)	*0.2771*
Seroma, n (%)	2 (1.6%)	7 (15.9%)	*0.0003**
Reoperation, n (%)	9 (7.3%)	4 (9.1%)	*0.7062*
Reason for reoperation			
Hematoma evacuation, n (%)	3 (2.4%)	1 (2.3%)	*0.9500*
Scar revision, n (%)	5 (4.1%)	0 (0.0%)	*0.1800*
Implant removal due to infection, n (%)	1 (0.8%)	3 (6.8%)	*0.03**
Mean hospitalization time [days], SD	6.5 (3.2)	8.2 (3.1)	*0.003**

*Indicates significant values.

Table 3 Adjuvant therapy.

	Prepectoral	Retropectoral	
	n = 123	*n = 44*	*p-value*
Overall adjuvant therapy, n (%)	123 (100%)	44 (100%)	*1*
Mean time after surgery for first adjuvant therapy, [days], (SD)	45.7 (39.3)	37.4 (33.1)	*0.2100*
Endocrine therapy, n (%)	90 (73.2%)	25 (56.8%)	*0.0444**
Mean time after surgery, [days], (SD)	99.8 (113.6)	94 (20.4)	*0.8005*
Chemotherapy, n (%)	51 (41.5%)	19 (43.2%)	*0.8428*
Mean time after surgery, [days], (SD)	49.4 (50.9)	35.4 (20.4)	*0.2519*
Radiotherapy, n (%)	52 (42.3%)	26 (59.1%)	*0.0550*
Mean time after surgery, [days], (SD)	113.7 (95.0)	110.9 (88.2)	*0.9029*

*Indicates significant values.

Table 4 Adjuvant therapy in a population with postoperative complications.

	Prepectoral	Retropectoral	
	n = 34	*n = 18*	*p-value*
Overall adjuvant therapy, n (%)	34 (100%)	18 (100%)	*1*
Mean time after surgery for first adjuvant therapy, [days], (SD)	54.7 (63.4)	38.3 (43.5)	*0.3303*
Endocrine therapy, n (%)	26 (76.5%)	7 (38.9%)	*0.0074**
Mean time after surgery, [days], (SD)	116.9 (155.9)	71.3 (97.6)	*0.4705*
Chemotherapy, n (%)	16 (47.1%)	10 (55.6%)	*0.5599*
Mean time after surgery, [days], (SD)	62.1 (78.7)	30.3 (11.9)	*0.2198*
Radiotherapy, n (%)	13 (38.2%)	13 (72.2%)	*0.0197**
Mean time after surgery, [days], (SD)	140.5 (63.4)	121.9 (80.7)	*0.5176*

*Indicates significant values.

Table 5 Adjuvant therapy in a population without complications.

	Prepectoral	Retropectoral	
	n = 89	*n = 26*	*p-value*
Overall adjuvant therapy, n (%)	89 (100%)	26 (100%)	*1*
Mean time after surgery for first adjuvant therapy, [days], (SD)	42.3 (24.4)	36.9 (24.4)	*0.3223*
Endocrine therapy, n (%)	65 (73%)	18 (69.2%)	*0.7034*
Mean time after surgery, [days], (SD)	92.1 (93.0)	102.8 (106.4)	*0.6757*
Chemotherapy, n (%)	36 (40.4%)	9 (34.6%)	*0.5918*
Mean time after surgery, [days], (SD)	32.0 (43.7)	41.1 (26.6)	*0.5525*
Radiotherapy, n (%)	38 (42.7%)	13 (50%)	*0.5096*
Mean time after surgery, [days], (SD)	78.5 (104.5)	100 (97.2)	*0.5180*

Table 6 Adjuvant therapy in the overall population with or without postoperative complications.

	With complications	Without complications	
	n = 52	*n = 115*	*p-value*
Overall adjuvant therapy, n (%)	52 (100%)	115 (100%)	*1*
Mean time after surgery for first adjuvant therapy, [days], (SD)	49.0 (57.0)	41.0 (24.4)	0.1902
Endocrine therapy, n (%)	33 (63.5%)	93 (80.9%)	*0.0155**
Mean time after surgery, [days], (SD)	107.2 (145.4)	95.1 (94.8)	*0.5228*
Chemotherapy, n (%)	26 (52%)	45 (39.1%)	*0.1883*
Mean time after surgery, [days], (SD)	49.9 (63.4)	43.2 (30.7)	*0.3579*
Radiotherapy, n (%)	26 (52%)	51 (18.3%)	*0.4974*
Mean time after surgery, [days], (SD)	131.2 (107.9)	103 (82.7)	*0.2100*

*Indicates significant values.

Table 7 Adjuvant therapy in the PP population with or without postoperative complications.

	With complications	Without complications	
	n = 34	*n = 89*	*p-value*
Overall adjuvant therapy, n (%)	34 (100%)	89 (100%)	*1*
Mean time after surgery for first adjuvant therapy, [days], (SD)	54.7 (63.4)	42.3 (24.4)	*0.1158*
Endocrine therapy, n (%)	26 (76.5%)	65 (73%)	*0.6976*
Mean time after surgery, [days], (SD)	116.9 (155.9)	92.1 (93.0)	*0.3529*
Chemotherapy, n (%)	16 (47.1%)	36 (40.4%)	*0.5069*
Mean time after surgery, [days], (SD)	62.1 (78.7)	43.7 (31.95)	*0.2300*
Radiotherapy, n (%)	13 (38.2%)	38 (42.7%)	*0.6533*
Mean time after surgery, [days], (SD)	140.5 (63.4)	104.4 (77.8)	*0.1400*

Table 8 Time to adjuvant therapy initiation in RP IBBR patients with or without complications.

	With complications	Without complications	
	n = 18	*n = 26*	*p-value*
Overall adjuvant therapy, n (%)	18 (100%)	26 (100%)	*1*
Mean time after surgery for first adjuvant therapy, [days], (SD)	38.3 (43.5)	36.9 (24.4)	*0.8899*
Endocrine therapy, n (%)	7 (38.9%)	18 (69.2%)	*0.1023*
Mean time after surgery, [days], (SD)	71.3 (97.6)	102.8 (106.4)	*0.5034*
Chemotherapy, n (%)	10 (55.6%)	9 (34.6%)	*0.1679*
Mean time after surgery, [days], (SD)	30.3 (11.9)	41.1 (26.6)	*0.2597*
Radiotherapy, n (%)	13 (72.2%)	13 (50.0%)	*0.1405*
Mean time after surgery, [days], (SD)	121.9 (80.65)	100.0 (97.2)	*0.5387*

time from surgery to AT initiation. Indeed, AT reduces recurrence risks and improves survival in patients with locally advanced breast cancer.[13] However, guidelines on BR type, timing, and AT initiation are lacking.[14] Historically, it was believed that IBR could delay AT, worsening the prognosis. The literature on this subject is heterogeneous with varying practices.[15] Some studies recommend delaying autologous BR to reduce the reconstructive failure risk, especially when adjuvant RT is planned.[16,17] Other studies found no differences in outcomes between immediate, delayed, or two-stage autologous BR and alloplastic BR.[18,19] Nevertheless, many authors agree that IBR presents a greater reconstructive failure risk with adjuvant RT.[20,21] For this reason, some advocate that the type of reconstruction should be dictated by patient's individual choice and offer an IBBR if the patient prefers IBR.[20] Some surgeons recommend single-stage IBBR to avoid AT delays, considering that a delay of 8 weeks between expander placement and the start of adjuvant RT is generally required.[21,22] Riggioet al. favor single-stage IBBR when AT is planned due to a higher complication rate with expanders compared to IBBR post-RT. The authors note, however, that neoadjuvant or adjuvant CT had no impact on the complication rate in either group.[23] The literature on implant placement in IBBR and AT initiation is sparse, but time to commencing AT been shown to have an impact on overall survival.[24]

Our study found no significant difference in the time to first AT administration between the PP and RP groups. This result corresponds with the literature. Elder et al. studied and compared expander placement in IBR in the PP or RP plane, in which no differences were found between the groups.[25] Separating our cohort into those with and without complications revealed no significant differences in time to AT initiation between the PP and RP groups. This suggests

Table 9 Time to adjuvant therapy initiation in IBBR patients with or without seromas.

	Seroma	No seroma	
	n = 9	*n = 158*	*p-value*
Overall adjuvant therapy, n (%)	9 (100%)	158 (100%)	*1*
Mean time after surgery for first adjuvant therapy, [days], (SD)	66.0 (101.9)	42.2 (30.9)	*0.0648*
Endocrine therapy, n (%)	5 (55.5%)	111 (70.3%)	
Mean time after surgery, [days], (SD)	181.4 (236.8)	94.8 (102.5)	*0.0880*
Chemotherapy, n (%)	6 (66.7%)	65 (41.1%)	*0.1319*
Mean time after surgery, [days], (SD)	83.7 (123.7)	42.1 (29.7)	*0.0298**
Radiotherapy, n (%)	8 (88.9%)	69 (43.7%)	*0.0081**
Mean time after surgery, [days], (SD)	163.5 (161.6)	106.84 (80.5)	*0.1002*

*Indicates significant values.

that placement of the prosthesis in the PP or RP plane has no impact on the time between surgery and AT administration, in line with the literature comparing PP and RP expander BR.[9,26,27] Some authors like Haddock et al. recommend PP expander BR allowing for a faster expansion process, with comparable postoperative complication rates between the PP and RP groups.[17,28] Safran et al.'s study supported implant placement in the PP plane when IBBR was performed with adjuvant RT due to a capsular contracture rate three times lower than in patients with RP BR.[8,29]

Our study found a significantly higher complication rate in the RP group (40.9%) compared to the PP group (19.5%). When comparing the time to AT initiation in patients who developed postoperative complications and those who did not in the entire cohort, patients with complications started AT nonsignificantly later. This delay was also not observed in the PP and RP groups when comparing patients with and without complications. This could be link to the small size of our cohort. Meta-analysis of patients who underwent IBR linked postoperative complications to delayed AT, as found by Balasubramanian et al. They reported an average initiation delay of 8.7 days due to complications, which aligns with our findings.[26] While only 65.5% of the population in their meta-analysis had undergone IBR, other studies have reported that postoperative complications result in an increase in time to AT after IBBR.[23,25] However, several authors note that this delay in treatment does not impact local recurrence rates or overall survival.[25] In contrast, others report that delay of more than 8–12 weeks between surgery and the initiation of RT or CT results in increased local recurrence rates.[3,30–34] The work of Chavez-MacGregor et al. shows that prognosis is adversely affected when CT is delayed to 91 days or more.[34] Some studies mention that despite potential delays in AT initiation with IBR, these delays have no clinical impact, making IBR suitable even with adjuvant RT or CT.[33–35]

The complication rate was significantly higher in patients who underwent RP IBBR. Interestingly, the only significantly different complication between the PP and RP groups was the seroma rate. This had already been observed in a meta-analysis by Montorfano et al. with a seroma rate of 5% vs. 8.6% in the PP and RP populations, respectively.[36] In the subgroup analysis between patients who developed a seroma and those who did not, the delay to adjuvant CT was significantly higher, corroborating findings by Smith-Graziani et al., who observed a significant delay in patients who had postoperative complications, including seroma.[37]

Retrospective and nonrandomized nature of our study and a small sample size limited the ability to draw definitive conclusions. Moreover, our study compared two groups of unequal size, with 123 patients in the PP group compared to 44 in the RP group, reflecting the enthusiasm already noted by several authors for PP IBBR.[6,38] The impact of age and the timing of symmetrization procedures have not been considered and may play a role in the outcomes.[39,40]

Finally, the study population presented may not be representative of the broader patient population, limiting the generalizability of our findings; thus, larger studies on this topic are warranted.

Our study is nevertheless noteworthy because it addresses a relatively undocumented topic, comparing PP and RP IBBR and the impact it has on AT initiation. Our work shows no difference in time to administration of AT in patients having undergone PP and RP IBBR. However, our work also shows that in patients developing postoperative seroma, adjuvant CT initiation was delayed.

Conclusions

Our retrospective comparative analysis highlights no differences in time to AT initiation between patients undergoing PP and RP IBBR. The time between surgery and administration of different AT was similar in patients undergoing PP and RP IBBR. In the overall cohort, seroma was identified as a risk factor for delayed initiation of adjuvant CT.

With the increasing adoption of IBBR techniques, understanding how surgical approaches affect postoperative outcomes and time to initiation of AT is crucial. These insights can guide clinical decisions, improve patient management, and ultimately enhance care of breast cancer patients. Further research is needed reduce complications and minimize AT delays, ensuring optimal treatment timelines and outcomes for all patients.

IRB

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Conflict of interest

One of the authors is an editor for JPRAS and was not involved in the editorial review or the decision to publish this article. All the remaining authors declare no conflict of interest.

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