

SUPPORTIVE CARE
MAKES EXCELLENT
CANCER CARE POSSIBLE

2020
25-27 JUNE
SEVILLE

SAVE THE DATE

MASCC/ISOO

Annual Meeting on Supportive Care in Cancer

WWW.MASCC.ORG/MEETING

Prospective Study of Patient-Reported Pain in Breast Radiotherapy

Emily Lam



Follow us on Twitter
[@CancerCareMASCC](https://twitter.com/CancerCareMASCC)



[#MASCC20](https://twitter.com/CancerCareMASCC)

Conflict of Interest Disclosure

Emily Lam, BSc(C)

Has no real or apparent conflicts of interest to report.



Introduction

- Breast cancer patients receiving radiotherapy (RT) commonly report pain, contributing to physical and emotional distress, potentially leading to lower quality of life
- Previous studies have reported that factors such as young age, time since treatment and chemotherapy may contribute to increased late breast pain
- However, few studies have previously reported on acute breast pain related to breast RT and risk factors that predispose patients to developing pain during RT treatment

Objectives

- To prospectively identify trends in patient-reported overall pain and breast pain before, during and after RT using the Edmonton Symptom Assessment Scale (ESAS) and study-specific Skin Symptom Assessment (SSA)
- To assess predictive factors associated with the development of acute pain related to breast RT

Study Assessments

- Patients receiving cancer treatment at the Sunnybrook Odette Cancer Centre are encouraged to complete the Edmonton Symptom Assessment Scale (ESAS)
 - Validated 9-item assessment to assess common cancer treatment symptoms
 - Pain, fatigue, drowsiness, nausea, appetite, shortness of breath, depression, anxiety and sense of well-being
 - 0-10 numerical scale at time of assessment (0=none to 10=worst possible)
- A study-specific Skin Symptom Assessment (SSA), originally developed for the Ontario Clinical Oncology Group trial of node-negative patients receiving hypofractionated RT
 - 6-item assessment to assess skin in the irradiated region
 - Pruritus, pain/soreness, blistering/peeling, erythema, pigmentation, edema and trouble fitting brassieres
 - 0-4 Likert scale (0=“not at all” to 4=“very much”)

Methods

- Patients completed the ESAS and SSA at baseline (before RT), once a week during RT, up to 6 weeks after the completion of RT, and 1-3 months post-RT
- Patients who completed at least one assessment before, during and after RT were included in the analysis
- Previous chemotherapy, surgery type, RT dose, RT technique and use of a boost were recorded
- To compare the proportion of patients reporting pain between each time point and baseline, generalized linear regression analysis was conducted for the multinomial distribution of pain severities
- In the analysis of age categories, generalized linear regression analysis was conducted for the binomial distribution of any pain

Study Population

- N = 426
- Median age (inter-quartiles) at baseline (years) = 58.5 (49.8, 68.2)
- Previous chemotherapy
 - 44 % received either neoadjuvant or adjuvant chemotherapy
- Radiation
 - 84 % received 42.56 Gy in 16 fractions
 - 15 % received 50 Gy in 25 fractions
 - 41 % received an additional boost to the tumor bed



ESAS and SSA Pain Severities

Time Point	ESAS Pain Severity				Any Pain ^a n (%)	p-value ^b
	None n (%)	Mild n (%)	Moderate n (%)	Severe n (%)		
Baseline (N=426)	244 (57.28%)	110 (25.82%)	50 (11.74%)	22 (5.16%)	182 (42.72%)	ref
During RT Week 1 (N=321)	162 (50.47%)	113 (35.20%)	33 (10.28%)	13 (4.05%)	159 (49.53%)	0.0232
During RT Week 2 (N=358)	168 (46.93%)	131 (36.59%)	44 (12.29%)	15 (4.19%)	190 (53.07%)	0.0004
During RT Week 3 (N=327)	113 (34.56%)	142 (43.43%)	54 (16.51%)	18 (5.50%)	214 (65.44%)	<.0001
During RT Week 4 (N=189)	54 (28.57%)	90 (47.62%)	28 (14.81%)	17 (8.99%)	135 (71.43%)	<.0001
Post RT Week 1 (N=165)	35 (21.21%)	63 (38.18%)	45 (27.27%)	22 (13.33%)	130 (78.79%)	<.0001
Post RT Week 2 (N=215)	79 (36.74%)	80 (37.21%)	38 (17.67%)	18 (8.37%)	136 (63.26%)	<.0001
Post RT Week 3 (N=202)	95 (47.03%)	60 (29.70%)	34 (16.83%)	13 (6.44%)	107 (52.97%)	0.0057
Post RT Week 4 (N=215)	104 (48.37%)	74 (34.42%)	24 (11.16%)	13 (6.05%)	111 (51.63%)	0.0139
Post RT Week 5 (N=187)	84 (44.92%)	71 (37.97%)	20 (10.70%)	12 (6.42%)	103 (55.08%)	0.0011
Post RT Week 6 (N=191)	90 (47.12%)	67 (35.08%)	26 (13.61%)	8 (4.19%)	101 (52.88%)	0.0080
FU Appt (N=272)	119 (43.75%)	102 (37.50%)	36 (13.24%)	15 (5.51%)	153 (56.25%)	<.0001
	SSA Breast Pain Severity					
Baseline (N=426)	211 (49.53%)	185 (43.43%)	27 (6.34%)	3 (0.70%)	215 (50.47%)	ref
During RT Week 1 (N=327)	205 (62.69%)	105 (32.11%)	15 (4.59%)	2 (0.61%)	122 (37.31%)	<.0001
During RT Week 2 (N=353)	172 (48.73%)	151 (42.78%)	29 (8.22%)	1 (0.28%)	181 (51.27%)	0.7995
During RT Week 3 (N=330)	133 (40.30%)	148 (44.85%)	41 (12.42%)	8 (2.42%)	197 (59.70%)	0.0041
During RT Week 4 (N=178)	50 (28.09%)	94 (52.81%)	24 (13.48%)	10 (5.62%)	128 (71.91%)	<.0001
Post RT Week 1 (N=160)	39 (24.38%)	71 (44.38%)	36 (22.50%)	14 (8.75%)	121 (75.63%)	<.0001
Post RT Week 2 (N=209)	73 (34.93%)	85 (40.67%)	38 (18.18%)	13 (6.22%)	136 (65.07%)	0.0002
Post RT Week 3 (N=198)	91 (45.96%)	79 (39.90%)	22 (11.11%)	6 (3.03%)	107 (54.04%)	0.3652
Post RT Week 4 (N=220)	112 (50.91%)	88 (40.00%)	15 (6.82%)	5 (2.27%)	108 (49.09%)	0.7218
Post RT Week 5 (N=186)	99 (53.23%)	73 (39.25%)	11 (5.91%)	3 (1.61%)	87 (46.77%)	0.3634
Post RT Week 6 (N=186)	100 (53.76%)	75 (40.32%)	7 (3.76%)	4 (2.15%)	86 (46.24%)	0.2857
FU Appt (N=290)	137 (47.24%)	110 (37.93%)	38 (13.10%)	5 (1.72%)	153 (52.76%)	0.5125

Relationship Between Pain and Previous Chemotherapy in Patients with Breast-Conserving Surgery or Mastectomy

Outcome: ESAS Any Pain	Coefficient	SE	p-value	OR	95% CI of OR	
<i>In BCS Patients Only</i>						
Time (baseline-FU Appt)	0.0295	0.0121	0.0147	1.030	1.006	1.055
Previous chemotherapy (Yes vs. No)	0.0542	0.1610	0.7363	1.056	0.770	1.447
<i>In Mastectomy Patients Only</i>						
Time (baseline-FU Appt)	0.0042	0.0250	0.8659	1.004	0.956	1.055
Previous chemotherapy (Yes vs. No)	0.7841	0.3287	0.0170	2.191	1.150	4.171
Outcome: SSA Breast Any Pain						
<i>In BCS Patients Only</i>						
Time (baseline-FU Appt)	0.0200	0.0118	0.0914	1.020	0.997	1.044
Previous chemotherapy (Yes vs. No)	-0.2017	0.1547	0.1923	0.817	0.604	1.107
<i>In Mastectomy Patients Only</i>						
Time (baseline-FU Appt)	-0.0355	0.0214	0.0971	0.965	0.926	1.007
Previous chemotherapy (Yes vs. No)	0.5251	0.3080	0.0883	1.691	0.924	3.092
*ESAS: Edmonton Symptom Assessment Scale, SSA: Skin Symptom Assessment, BCS: breast-conserving surgery, SE: standard error, OR: odds ratio, CI: confidence interval, FU Appt: follow-up appointment						
*p-value <0.05 was considered as statistically significant.						

Relationship between Pain and Age at Treatment Start

Outcome: Any ESAS Pain	Coefficient	SE	p-value	OR	95% CI of OR	
Time (baseline-FU Appt)	0.0266	0.0110	0.0153	1.027	1.005	1.049
Age categories (overall effect)			0.0016			
<40 vs. >=60	0.2108	0.3439	0.5398	1.235	0.629	2.422
40-49 vs. >=60	0.6757	0.1747	0.0001	1.965	1.395	2.768
50-59 vs. >=60	0.3416	0.1644	0.0377	1.407	1.020	1.942
<40 vs. 40-49	-	-	0.1949	0.628	0.311	1.269
<40 vs. 50-59	-	-	0.7116	0.877	0.439	1.756
40-49 vs. 50-59	-	-	0.0847	1.397	0.955	2.042
Outcome: Any SSA Breast Pain						
Time (baseline-FU Appt)	0.0106	0.0105	0.316	1.011	0.990	1.032
Age categories (overall effect)			0.0009			
<40 vs. >=60	0.4135	0.2977	0.165	1.512	0.844	2.710
40-49 vs. >=60	0.6233	0.1704	0.0003	1.865	1.336	2.605
50-59 vs. >=60	0.4407	0.1522	0.004	1.554	1.153	2.094
<40 vs. 40-49	-	-	0.508	0.811	0.436	1.509
<40 vs. 50-59	-	-	0.929	0.973	0.533	1.778
40-49 vs. 50-59	-	-	0.330	1.200	0.832	1.733

Limitations

- Patients were included in our analysis if data was available at baseline, at least once during and at least once after RT completion, therefore individual patients were not necessarily represented at every time point
- Analgesic use was not included and might have been indicative of reduced pain severity scores over time
- The use of endocrine therapy was not included
- Factors such as axillary surgery-type, presence of lymphedema and other co-morbidities were not included in our analysis

Conclusion

- Patient-reported overall pain and breast pain peaked 1 week after RT completion
- Younger age (40-49 and 50-59 years old) was associated with significantly more acute overall pain and breast pain compared with older age (≥ 60 years old)
- Previous chemotherapy (adjuvant or neoadjuvant) in mastectomy patients was associated with increased overall pain compared with mastectomy patients without previous chemotherapy
- These results provide support for closer monitoring of acute pain associated with breast RT in younger patients

Acknowledgements

Self-reported pain in breast cancer patients receiving adjuvant radiotherapy

Emily Lam BSc(C), Emma McCurdy-Franks, Victoria McCarvell, Alyson McCarvell,
Gina Wong BSc(C), Yasmeen Razvi BSc(C), Irene Karam MD, Liying Zhang PhD, Edward Chow
MBBS

Odette Cancer Centre, Sunnybrook Health Sciences Centre, University of Toronto, Toronto,
Ontario, Canada