Conflict of Interest Disclosure

Selina Chow, BHSc(C)

Has no real or apparent

conflicts of interest to report.

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Introduction

- Breast cancer patients often experience multiple symptoms which negatively impact their quality of life (QOL)

- Patient-reported scores on symptom screening tools are used by healthcare professionals to manage QOL

- Patients are encouraged to complete the Edmonton Symptom Assessment Scale (ESAS) at Sunnybrook Odette Cancer Centre

Edmonton Symptom Assessment Scale

- Validated 9-item cancer symptom assessment form
- Pain, tiredness, nausea, depression, anxiety, drowsiness, loss of appetite, dyspnea, sense of wellbeing
- 0-10 numerical scale at time of assessment
  - 0 = absence of symptom / best well-being
  - 10 = worst possible severity / worst well-being

Introduction

- Previous studies have shown that breast cancer patients may experience different symptom profiles based on age, cancer stage, or treatment regimens

- However, few studies have investigated the time-course of the impact of ESAS symptoms in patients receiving radiation therapy

  – The relationship between patient's individual symptoms and overall wellbeing remains unknown

Objective

- To examine which symptoms from the ESAS are most predictive of overall wellbeing (QOL) in breast cancer patients over the course of radiation therapy (RT)

Methods

- Study population: 1224 non-metastatic breast cancer patients receiving RT between January 2011 and June 2017
- ESAS, disease characteristics, systemic treatments, and radiation were collected
- Included patients with ESAS completed:
  - Before RT (average: 28 days pre-RT)
  - Within 1 week after RT completion
  - After RT (average: 142 days post-RT)
- Conducted univariate and multivariable (backward stepwise selection) linear regression analyses to select the most significant ESAS symptoms related to overall QOL at each time point

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SUMMARY OF PATIENT, DISEASE, AND TREATMENT CHARACTERISTICS

Study Population

- N = 1224
- Median age (inter-quartiles) in years at baseline: 58 (50, 68)
- Radiation
  - 63% of patients received 25 fractions
  - 37% of patients received 16 fractions
- Systemic treatments
  - 78% of patients received hormone therapy
  - 49% of patients received chemotherapy

Study Population by Stage

- Stage 0 (pre-cancer/DCIS)   137 (11%)
- Stage 1   538 (44%)
- Stage 2   425 (35%)
- Stage 3   114 (9%)
- Stage 4d (inflammatory)   10 (1%)

Baseline Mean ESAS Scores (Before RT)

- Pain   1.52
- Tiredness   2.71
- Nausea   0.41
- Depression   1.62
- Anxiety   2.36
- Drowsiness   1.41
- Loss of appetite   1.31
- Dyspnea   1.05
- Wellbeing   2.66

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RESULTS

Univariate Linear Regression Analysis with Predictive Factors of Overall Wellbeing

Analysis	Before RT				End of RT				After RT			
	Coefficient	SE	p-value	MSE	Coefficient	SE	p-value	MSE	Coefficient	SE	p-value	MSE
Univariate												
Pain	0.480	0.026	<.0001	0.42	0.507	0.050	<.0001	0.36	0.540	0.024	<.0001	0.39
Tiredness	0.591	0.022	<.0001	0.34	0.681	0.046	<.0001	0.28	0.648	0.021	<.0001	0.31
Nausea	0.454	0.044	<.0001	0.50	0.336	0.079	<.0001	0.46	0.519	0.042	<.0001	0.49
Depression	0.543	0.023	<.0001	0.37	0.520	0.047	<.0001	0.35	0.558	0.023	<.0001	0.37
Anxiety	0.514	0.023	<.0001	0.38	0.536	0.046	<.0001	0.33	0.564	0.022	<.0001	0.36
Drowsiness	0.477	0.025	<.0001	0.42	0.443	0.050	<.0001	0.38	0.530	0.024	<.0001	0.40
Loss of appetite	0.473	0.025	<.0001	0.42	0.427	0.055	<.0001	0.40	0.503	0.027	<.0001	0.43
Dyspnea	0.401	0.029	<.0001	0.47	0.367	0.064	<.0001	0.44	0.441	0.029	<.0001	0.46

Multivariable Linear Regression Analysis with Predictive Factors of Overall Wellbeing

Analysis	Before RT				End of RT				After RT			
	Coefficient	SE	p-value	MSE	Coefficient	SE	p-value	MSE	Coefficient	SE	p-value	MSE
Multivariable												
Intercept	0.290	0.027	<.0001	0.27	0.222	0.054	<.0001	0.23	0.288	0.026	<.0001	0.25
Pain	0.138	0.024	<.0001		0.199	0.046	<.0001		0.171	0.024	<.0001	
Tiredness	0.315	0.025	<.0001		0.454	0.049	<.0001		0.314	0.028	<.0001	
Anxiety	0.191	0.027	<.0001		0.266	0.044	<.0001		0.172	0.028	<.0001	
Depression	0.159	0.029	<.0001		NS				0.106	0.028	<.0001	
Loss of appetite	0.113	0.024	<.0001		NS				0.110	0.024	<.0001	
Drowsiness	NS				NS				0.073	0.026	<.0001	

SE: Standard error. MSE: Mean square error. NS: Non-significant in the multivariable analysis.

Predictors of Overall Wellbeing Over the Course of RT

Before RT	End of RT	After RT
Pain	Pain	Pain
Tiredness	Tiredness	Tiredness
Anxiety	Anxiety	Anxiety
Depression		Depression
Loss of appetite		Loss of appetite
		Drowsiness

Conclusion

- Depression and loss of appetite strongly correlated with wellbeing both before and after RT
- Pain, tiredness, and anxiety correlated with overall wellbeing at all time points
  - Tiredness, followed by anxiety, consistently had the highest coefficients

Conclusion

- To ensure optimal symptom management in breast cancer patients receiving RT:
  - Special attention should be paid to manage symptoms that are most predictive of overall QOL
  - Tiredness and anxiety should be targeted early, and considered even before initiation of RT

Limitations

- Not all non-metastatic breast cancer patients completed the ESAS

- Of the 1224 patients who completed the ESAS before and after RT, only 310 patients completed the ESAS within 1 week of the end of RT

- Patient-reported scores for the ESAS may not be due to RT alone

  - 78% of patients also received hormone therapy

  - 49% received chemotherapy

  - Pain reported might not be confined to the breast alone

Acknowledgements

Symptoms predictive of overall quality of life using the Edmonton Symptom Assessment Scale in breast cancer patients receiving radiotherapy

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[a]Odette Cancer Centre, Sunnybrook Health Sciences Centre, University of Toronto, Toronto, Ontario, Canada
[b]London Regional Cancer Program, London Health Sciences Centre, University of Western Ontario, London, Ontario, Canada

THANK YOU FOR YOUR ATTENTION