Impact of radiation-induced nausea and vomiting on quality of life

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Introduction

Radiotherapy-induced nausea and vomiting is a common side effect of radiotherapy. Although it is well-established that nausea and vomiting have a negative impact on quality of life (QOL), but the relative influence of each of symptom is reported infrequently. This study aimed to compare the effects of nausea and vomiting on QOL in advanced cancer patients receiving palliative radiotherapy.

Materials and Methods

The Functional Living Index-Emesis (FLIE) is an 18-item QOL questionnaire developed in the chemotherapy-induced nausea and vomiting setting. Three prospective studies conducted at our center used the FLIE to evaluate the efficacy of various anti-emetic medications during and after palliative radiotherapy. FLIE data from these three studies were combined for the present analysis. Univariate and multivariate analyses were conducted to assess the relationships between nausea and vomiting, time of FLIE completion, and patient-reported QOL.

Results

Table 1. Patient Demographics

Number of Patients	N = 136
Treatment Group	
Palonosetron Study	87 (64.0%)
Ondansetron Study	30 (22.1%)
Aprepitant/Granisetron Study	19 (14.0%)
Age at Enrollment (years)	
N	106
Median (inter-quartiles)	74.0 (65.0, 81.0)
KPS Categories	
40	1 (1.9%)
50	6 (11.3%)
60	15 (28.3%)
70	9 (17%)
80	15 (28.3%)
90	5 (9.4%)
100	2 (3.8%)
Gender	
Male	86 (63.2%)
Female	50 (36.8%)
Primary Cancer Site	
Prostate	50 (36.8%)
Breast	27 (19.9%)
Lung	14 (10.3%)
Bladder	11 (8.1%)
Other	28 (20.6%)
Unknown	6 (4.4%)
Fractions for the Radiation Site	
1	87 (64.0%)
5	38 (27.9%)
10	11 (8.1%)

136 patients were included in this study (Table 1). Nausea and vomiting both decreased patients' QOL ($p<0.0001$ for both).

Multivariate modeling showed that both symptoms significantly impaired patients' ability to enjoy meals (Tables 2 and 3; $p<0.0001$ for all).

Nausea was also significantly associated with increased hardship for the patient ($p<0.01$), while vomiting imposed more difficulty on the patients' loved ones ($p<0.01$).

Table 2. Multivariable Model for Nausea and Nausea-Related QoL Scores

Time-Varying Independent Variable	During Treatment			During Follow-Up		
	Coefficient	SE	p	Coefficient	SE	p
Intercept	0.06291	0.05200	0.2285	-0.00038	0.1343	0.9977
Day	0.01102	0.01286	0.3950	0.02427	0.02203	0.2740
Ability to Enjoy Meals	0.7464	0.05934	<0.0001*	0.5159	0.08993	<0.0001*
Hardship on Patient	0.2061	0.06751	0.0034*	0.3739	0.09470	0.0002*

* $p<0.006$ was considered statistically significant in multivariate analysis

Table 3. Multivariable Model for Vomiting and Vomiting-Related QoL Scores

Time-Varying Independent Variable	During Treatment			During Follow-Up		
	Coefficient	SE	p	Coefficient	SE	p
Intercept	0.02673	0.03050	0.3824	-0.07647	0.09968	0.4453
Day	-0.00558	0.007859	0.4808	0.02340	0.01651	0.1608
Ability to Enjoy Meals	0.5974	0.05846	<0.0001*	0.4784	0.08970	<0.0001*
Hardship on Patient's Loved Ones	0.2662	0.07125	0.0004*	0.3502	0.1015	0.0009*

* $p<0.006$ was considered statistically significant in multivariate analysis

Conclusion

Nausea and vomiting both significantly influence QOL. Nausea seems to impact patients themselves, whereas vomiting affects those closest to the patient. Patients and their families may benefit from more individualized care and support services based on their nausea and vomiting symptoms.

Selected References

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