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Quality of life among Korean gastrointestinal cancer survivors

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ABSTRACT

Purpose: The number of gastrointestinal (GI) cancer survivors has been steadily increasing owing to early diagnosis and improved cancer treatment outcomes. The quality of life (QoL) of cancer survivors can provide distinct prognostic information and represent their functioning. This study aimed to investigate the levels of symptoms, psychological distress, and QoL of GI cancer survivors, and identify factors associated with QoL.
Method: A cross-sectional survey was conducted among 145 survivors of gastric or colorectal cancer in a university-affiliated hospital, Seoul, South Korea. The questionnaire consisted of the M. D. Anderson Symptom Inventory Gastrointestinal Cancer Module, Distress Thermometer, and brief version of the World Health Organization Quality of Life Assessment Instrument. Quantile regression was used to assess the associated factors of QoL. The 10th, 25th, 50th, 75th, and 90th conditional quantiles were considered.
Results: The most common symptoms were fatigue (24.9%), numbness or tingling (17.2%), feeling bloated (17.2%), dry mouth (15.9%), and difficulty remembering (11.8%). Thirty-two percent (47/145) of the participants reported severe distress. A level of symptoms was significantly associated in the 10th and 25th quantiles, representing poor QoL. Economic burden was a significant influencing factor in all quantiles.
Conclusion: Our results indicate that high burden from symptoms might be associated with lower QoL in GI cancer survivors, and higher economic burden from cancer treatment was associated with lower QoL. These results suggest that symptom management and support for economic difficulties should be included in the strategies to enhance the QoL of GI cancer survivors.

1. Introduction

The number of cancer survivors has been steadily increasing due to advances in early detection and improved cancer treatment outcomes. In Korea, gastrointestinal (GI) cancer survivors account for 34% of all cancer survivors. The prevalence rates of gastric and colorectal cancers are relatively high (13.4% and 12.3% of all, respectively), but the survival rate has risen to more than 70% (Oh et al., 2016). As more people survive from cancer, the quality of life (QoL) of cancer survivors has become the center of cancer survivorship.

The QoL of cancer survivors represents their treatment experience, and physical and psychosocial functions; can be used to

identify subgroups of patients who require further monitoring; and guides approaches for patient-centered interventions after cancer treatment completion (Trask et al., 2009). Recent studies have suggested that QoL can provide distinct prognostic information as a predictor of survival duration in various cancers (Kim et al., 2016; Movsas et al., 2009). Movsas et al. (2009) reported that non-small-cell lung cancer patients with lower QoL scores had an approximately 70% higher mortality rate than those who with higher scores.

Although most cancer survivors can maintain their levels of physical, psychological, and social functions at a similar status as that before cancer treatment, certain subgroups of survivors are likely to be at risk of decreased QoL, even after more than 5 years since cancer diagnosis and at a disease-free state (Lee et al., 2014). Moreover, it was reported that the subjective overall health status was poor in 41.3% and 31.5% of cancer survivors in Korea and the

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United States, respectively (Kim and Kim, 2017; Underwood et al., 2012). A study reported that colorectal cancer survivors had worse health status and limited activity compared with their non-cancer controls, and breast and prostate cancer survivors (LeMasters et al., 2013), while other studies showed no significant difference in global QoL between Korean GI cancer survivors and the general population (Bae et al., 2006).

Studies on factors associated with impaired QoL in GI cancer survivors found that age, comorbidity, cancer recurrence, type of surgery, and physical activity impacted QoL (Huang et al., 2007; Rodriguez et al., 2015). Cancer-related symptoms and psychological distress have also been associated with the QoL of cancer survivors (Russell et al., 2015; Yu et al., 2016). Patients who have completed GI cancer treatments could experience symptoms caused by surgery, including swallowing difficulty or feeling bloated, and symptoms caused by chemo- or radiotherapy, including diarrhea, urination or bowel dysfunction, sexual dysfunction, or numbness or tingling (Kim et al., 2012; Phipps et al., 2008; Russell et al., 2015). Among cancer survivors, 10—40% experience significant and lasting psychological distress caused by fear of recurrence, worries about health, physical change, social isolation, or economic burden (Hoffman et al., 2009; Zabora et al., 2001). These late effects may have a profound impact on the QoL of GI cancer survivors.

Understanding factors associated with the QoL of GI cancer survivors could be the first step toward developing health promotion interventions and helping to identify patients who would be at risk of decreased functioning and then to prioritize delivery of a customized care. Despite that the prevalence of GI cancer and survival rates of patients with GI cancer have grown steadily, little is known about the actual condition of the QoL among these patients.

Considering that the QoL of GI cancer survivors could be influenced by various factors, specific determinants that have strong impacts on a certain QoL status should be identified in order to provide more-effective and customized interventions, especially identifying cancer survivors with high risks of impaired QoL. Most studies have attempted to determine factors associated with QoL by estimating effects on the mean with conventional least squares regression methods. This analysis has a risk of sample selection bias, which is generated from lack of representativeness, as results are subject to the influence of outliers. For this reason, a more detailed feature of covariate effects should be provided by estimating conditional status to identify factors associated with the QoL level by using a quantile regression method (Koenker and Hallock, 2001).

In this study, we investigated levels of symptoms, psychological distress, and QoL among GI cancer survivors and examined factors that contribute to their QoL by using quantile regression.

2. Methods

2.1. Study design

This study used a descriptive and cross-sectional design, aimed at investigating the relationships between symptoms, distress, and QoL in GI cancer survivors and examining factors that impact QoL depending on its level. This study was conducted with approval of the institutional review board (IRB No. 4-2015-0723) of a university-affiliated hospital in Seoul, South Korea.

2.2. Study population

We approached to the patients who visited colorectal cancer clinics for their follow-ups after completing cancer treatments and asked several questions for initial screening and intention to participate in survey between October 2, 2015—November 26, 2015. The inclusion criteria were as follows: (1) survivors of gastric or colorectal cancer who were off any cancer treatment such as surgery, chemotherapy, or radiotherapy; (2) no evidence of cancer recurrence or metastasis at the time of survey; (3) at least 20 years old. Informed consent was obtained from all the participants. A total of 151 patients participated in the survey and 6 of them were excluded from analysis due to current undergoing cancer treatment after medical record reviewing or incomplete responds. We included 145 survivors of GI cancer in an analysis.

2.3. Measures

Information on demographic characteristics, disease-related characteristics, symptoms, distress, and QoL was collected by using standardized questionnaires and a medical chart review.

2.3.1. Symptoms

The Korean version of the M. D. Anderson Symptom Inventory Gastrointestinal Cancer Module was used to measure symptom levels (Wang et al., 2010). This 24-item questionnaire contains 13 items on general symptoms, 5 items on GI symptoms, and 6 items on interference. All item scores range from 0 to 10, with higher scores indicating greater severity of symptoms and disturbance. Scores of ≥ 5 indicate moderate to severe symptom severity in this study. Cronbach's α was 0.80 in a previous study (Wang et al., 2010) and 0.89 in this study.

2.3.2. Distress

To measure distress, the Korean version of the Distress Thermometer developed by the National Comprehensive Cancer Network was used (Network NCC, 2007). This measurement is a single item rated from 0 to 10. Scores of ≥ 4 points indicate severe distress.

2.3.3. Quality of life

QoL was measured by using the Korean version of the brief World Health Organization Assessment Instrument (WHOQOL-BREF) (The WHOQOL Group, 1998). This instrument is composed of 26 items with the following five subcategories: physical heath, psychological, social relationship, environmental, and overall domains. It uses a 5-point Likert scale ranging from 1 (never) to 5 (always) to rate each item, with higher scores indicating more positive response, except for three reversed items. The total score ranges from 26 to 130 points. Cronbach's α was 0.82 in this study.

2.4. Statistical analyses

The demographic and disease-related characteristics of the participants were analyzed by using frequency, percentages, means, and standard deviations. Symptoms, distress, and QoL were estimated as means and standard deviations. Differences in symptoms, distress, and QoL depending on the participants' characteristics were analyzed by using the t-test and analysis of variance by conducting a Scheffé test for the post hoc analysis. A quantile regression analysis was performed to identify influencing factors according to QoL level. General multiple linear regression is usually performed, focusing on the relationship between the outcome and covariates of the fixed mean value, not allowing identification of predictors depending on the variation of an outcome variable if it shows a skewed distribution or has outliers. This method has the limitation of searching determinants while considering various characteristics of individuals in social science research because it is difficult to identify factors that influence a certain status of outcome that is far from the mean (Austin and