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The influence of symptoms on quality of life among patients who have undergone oesophageal cancer surgery

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ABSTRACT

Purpose: After oesophagectomy, anatomical changes and loss of function induce various symptoms that may affect quality of life (QoL) in oesophageal cancer patients. The purpose of this study was to identify the factors influencing QoL in Korean patients who have undergone oesophageal cancer surgery.
Method: This was a cross-sectional study of a convenience sample consisting of 120 surgery patients with oesophageal cancer. We used the EORTC QLQ-C30 and EORTC QLQ-OES18 to measure participants' oesophageal cancer-related symptoms and QoL. Multiple regression analyses were applied to analyse to the relationship between cancer-related symptoms and QoL.
Results: The average score of oesophageal cancer-related symptoms was 19.28 points, and the most common symptom was reflux. The mean score for global health status/QoL was 60.55. There were significant differences in the functional and symptom subscales according to financial burden, operation type (procedure), and treatment period. Dysphagia most affected global health status/QoL, and eating problems most affected the functional and symptom subscales.
Conclusion: Dysphagia and eating problems were confirmed to be the most common symptoms affecting the QoL of patients who had undergone oesophageal cancer surgery. These results can be used to aid in the development of strategies to better manage symptoms in these patients.

1. Introduction

Although oesophageal cancer comprises only 1.11% of all cancers in Korea, it is known to be a malignant cancer with a poor prognosis (i.e. death) for more than 50% of the people affected by it. In addition, it is the tenth highest cause of all cancer deaths in Korea (National Cancer Information Center, 2014). Oesophageal cancer occurs more frequently among males, and the ratio of oesophageal cancer incidence by gender is 13:1 (National Cancer Information Center, 2014). Furthermore, people in their 70s have the highest rate of oesophageal cancer (33.2%) followed by people in their 60s (32.0%) and then those in their 50s (21.6%). This demonstrates that oesophageal cancer rarely occurs among younger populations, that the incidence gradually increases with age, and that oesophageal cancer mainly occurs among people aged 60–70 years (National Cancer Information Center, 2014). In Korea, there were 8090 cases of oesophageal cancer in 2013, and the 5-year survival rate (2008–2012) was 31.7%, an improvement of 10.5% compared to the survival rate from 2001 to 2005 (21.2%) (Korea Central Cancer Registry, 2014). This can be accounted for by recent advancements in early cancer diagnosis and the development of medical technology that can determine the precise stage of the cancer, as well as effective intensive care for patients after surgery (Honda et al., 2014; Wikman et al., 2014).

In the treatment of cancer patients, a high quality of life (QoL) is as important a goal as improved survival rates, but QoL may be affected by a wide range of adverse treatment effects (Blazeby et al., 2003). The QoL of cancer patients is known to be affected by a number of factors, such as sequelae after treatment, the possibility of cancer relapse, difficulties in resuming a social life, and the burden placed on the household economy, in addition to physical side effects, such as nausea and vomiting, fatigue, and general weakness that may occur as part of the treatment process (Deshields et al., 2014). The social functioning and overall QoL of patients with oesophageal cancer are reportedly poor due to symptoms experienced as part of treatment and recovery (Chang

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et al., 2014; Scarpa et al., 2013). In particular, symptoms experienced by patients with oesophageal cancer have been reported to be the main factors that influence both QoL and survival rates (Chang et al., 2014; Honda et al., 2014; Scarpa et al., 2013; Tatematsu et al., 2013; Teoh et al., 2011; Wikman et al., 2014).

Oesophageal cancer patients may experience symptoms such as eating difficulties, reflux, heartburn, or back pain (Wu et al., 2015). The most common symptoms include dysphagia, pain when swallowing, and weight loss accompanied by malnutrition as eating becomes uncomfortable and food intake is subsequently reduced (Mariette et al., 2012). Furthermore, dysphagia due to stricture of the anastomosed part (Teoh et al., 2011; Viklund et al., 2006), reflux due to the removal of the gastro-oesophageal junction (Däster et al., 2014; Derogar and Lagergren, 2012; Viklund et al., 2006), oesophageal pain due to acid reflux (Däster et al., 2014; Donohoe et al., 2011; Viklund et al., 2006), discomfort due to stomach capacity reduction (Däster et al., 2014), difficulty speaking due to complications after surgery, and symptoms of suffocating when swallowing (Cho et al., 2007) are commonly reported following oesophageal cancer surgery.

As shown above, addressing gastrointestinal tract-related symptoms experienced by oesophageal cancer surgery patients can improve QoL by alleviating symptoms and maintaining gastrointestinal tract function. This is significant, because impaired gastrointestinal tract function may cause altered dietary habits that lead to nutritional imbalances, ultimately resulting in increased postoperative complications, mortality, and recovery delays, all of which can affect QoL and limit treatment efficacy (Sutcliffe et al., 2008). This may also result in a synergistic reduction of multiple symptoms when a single symptom is treated, and this ultimately contributes to the overall health status and improvement of QoL in cancer patients. Thus, it is very important to identify the most important cancer-related symptoms influencing QoL to provide data that could form the basis of nursing interventions to improve QoL among oesophageal cancer surgery patients.

1.1. Purpose

The purpose of this study was to identify the factors influencing QoL for Korean patients who have undergone oesophageal cancer surgery. The specific aims were to identify 1) cancer-related symptoms and the level of QoL, 2) the differences between cancer-related symptom and QoL according to demographic and clinical characteristics, 3) the relationship between cancer-related symptom and QoL, and 4) the factors influencing cancer-related symptoms and QoL among oesophageal cancer surgery patients.

2. Methods

2.1. Study population

This study targeted patients aged 40 or older who were diagnosed with oesophageal cancer at an advanced general hospital (approximately 2000 beds, 1400 doctors, and 2800 nurses) located in Seoul and who underwent thoracic surgery. Following surgery, all patients received follow-up treatment in the outpatient department. The number of samples required for this study was calculated by the G-power 3.1 program. The significance level, effect size, and power were set to $\alpha = 0.05$, $f = 0.15$, and $1\text{-}\beta = 90$, respectively, based on the regression analysis, which determined that the number of required samples was 116 people. Data from 130 people were collected in consideration of the possible dropout rate, and 120 collected datasets were used in the final analysis. Ten data sets were excluded from the analysis because of insufficient responses. Individuals were eligible for inclusion if they met the following criteria: 1) were adult men and women over 40 years old, 2) had been diagnosed with primary oesophageal cancer and underwent oesophagectomy, 3) had no cognitive deficits and were able to give informed consent, and 4) could communicate and understand the content of the questionnaire and respond to it.

2.2. Instruments

The assessed demographic characteristics of the patients were age, sex, marital status, religion, educational status, and financial burden of treatment. The disease-related characteristics that we assessed included body mass index (BMI), operation type (procedure), time since surgery (in months), cancer stage, and comorbidities.

Oesophageal cancer-related symptoms were measured using the Esophageal Cancer-Specific Core Questionnaire (EORTC QLQ-OES18) developed by the European Organization for Research and Treatment of Cancer (EORTC). The EORTC QLQ-OES18 consists of 18 total items that assess symptoms such as dysphagia (3 items), eating difficulties (3 items), reflux (2 items), oesophageal pain (3 items), difficulty swallowing saliva (1 item), choking when swallowing (1 item), dry mouth (1 item), trouble with taste (1 item), trouble with coughing (1 item), and trouble talking (1 item). The tool uses a 4-point scale (from 1 point: strongly disagree to 4 points: strongly agree), and the total score is converted to a value between 0 and 100 points according to the tool's scoring guidelines. Higher scores indicate more severe symptoms. The reliability of this study was assessed using a Cronbach's alpha, and the obtained value was $\alpha = 0.80$.

Participant QoL was measured using the Korean version of the EORTC Quality of Life Core 30 (QLQ-C30) developed by the EORTC. The EORTC QLQ-C30 is composed of three subscales including the global health status/QoL subscale, the functional subscale, and the symptom subscale. High scores on measures for the global health status/QoL and functional subscales in conjunction with lower scores on the symptom subscale indicate better QoL. The global health status questions consisted of 2 items including 1 general health status item and 1 QoL item that were scored on a 7-point scale (from 1 point: very poor to 7 points: very good). That score was then converted to a value between 0 and 100 points according to the tool's scoring guidelines. The functional subscale was assessed through 15 items, including physical functioning (5 items), role functioning (2 items), emotional functioning (4 items), cognitive functioning (2 items), and social functioning (2 items). These were rated on a 4-point scale (from 1 point: strongly disagree to 4 points: strongly agree). The score was then converted to a value between 0 and 100 points. The symptom subscale included 13 items, such as fatigue (3 items), pain (2 items), appetite loss (1 items), nausea and vomiting (2 items), dyspnoea (1 item), insomnia (1 item), constipation (1 item), and financial difficulties (1 item). This was also rated on a 4-point scale (from 1 point: strongly disagree to 4 points: strongly agree), and this total score was then converted to a value between 0 and 100 points. The Cronbach's α for each subscale was as follows: global health status/QoL subscale $\alpha = 0.841$, functional subscale $\alpha = 0.730$, and symptom subscale $\alpha = 0.773$.

2.3. Data collection

The data for this study were collected between 28 February 2014 and 8 July 2014. The questionnaire was provided to participants after they received outpatient care. The questionnaire was completed in a counselling office located near to where the participants received outpatient care and took about 20 min to complete. The purpose of the study was explained and informed