

## Examining the characteristics of unstaged colon and rectal cancer cases

Julie L. Worthington PhD, MPH<sup>a,\*</sup>, Siran M. Koroukian PhD<sup>b</sup>,  
Gregory S. Cooper MD, MA<sup>a</sup>

<sup>a</sup>Division of Gastroenterology, Case Western Reserve University, Cleveland, OH 44106-4952 USA

<sup>b</sup>Department of Epidemiology and Biostatistics, Case Western Reserve University, Cleveland, OH 44106-4952, USA

Accepted 20 August 2008

### Abstract

**Background:** There are only three published studies that have examined unstaged cancers, including breast, prostate and colorectal cancer, but none have specifically examined which aspects of tumor staging were missing. The objective of the study was to identify which stage components were missing, to characterize and to identify predictors of unstaged cancer, and to evaluate prognosis of unstaged in colon and rectal cancer patients. **Methods:** Data on all colon and rectal cancer cases diagnosed during 1991 to 2002 were identified from the Surveillance, Epidemiology and End Results (SEER) database. Information included in the analysis encompassed socio-demographics; tumor size (T); number of lymph nodes (N); metastases (M); SEER summary stage; SEER sites; cancer treatment; month and year of diagnosis; and last date known alive. **Results:** The study included 128,418 colon and 44,616 rectal cancer patients. Overall, 5.1% of colon and 7.8% of rectal cancer patients were unstaged. Compared to staged cases, both unstaged colon and rectal cancer cases were more likely to be older, African American, female, diagnosed in the Northeast and South, and have unknown treatment (all  $p < 0.001$ ). The stage component of M was found to be the factor missing most frequently which attributed most to being unstaged. Survival was significantly higher in unstaged and the overall cohort compared to distant staged colon and rectal cancer patients (both  $p < 0.001$ ) except for patients  $\geq 65$  years old ( $p > 0.99$ ). **Conclusions:** Given that unstaged cases differ from staged, the findings have methodological implications in accounting for unstaged cases in epidemiological and health services research.

© 2008 Elsevier Ltd. All rights reserved.

**Keywords:** Colonic neoplasms; Rectal neoplasms; Antineoplastic protocols; SEER program; Neoplasm staging; Aging; Survival; Regression analysis; Registries; Epidemiology

### 1. Introduction

Unknown stage or unstaged cancer is defined by the Surveillance, Epidemiology and End Results (SEER) as “cancer for which there is not enough information to indicate a stage” [1]. From 1998–2006, 5% of colorectal cancer cases in SEER were unstaged [2]. Even though the percent of unstaged cases is low, the implications of not including them in epidemiologic and health services research studies could be significant for certain demographic categories. Previous studies have suggested that the

proportion of unstaged cases is higher in patients of older age, minority descent, and among those residing in rural areas [3–6], which implies that population-based studies could potentially be biased if unstaged cases are excluded.

To include unstaged cancer cases, studies have often categorized the unstaged with distant-staged cases [7,8]. While several studies did not explain why unstaged were categorized as such [7,8], one study found that the survival of the unstaged cases was not significantly different from those diagnosed with distant metastases [9]. However, 5-year relative survival rates SEER recently published were 34.6% for unstaged and 9.8% for distant-staged colorectal cancer patients [2]. A more favorable survival in patients with unstaged cancer compared to those diagnosed with

\* Corresponding author. Tel.: +1 216 368 6937; fax: +1 216 368 1674.  
E-mail address: Julie.Worthington@case.edu (J.L. Worthington).

distant metastases indicates that unstaged cases are different. Therefore, it is very important to understand and document the characteristics of unstaged cancer cases and how they differ from staged cases.

Studies examining characteristics of unstaged cancer cases are lacking. To our knowledge, there are only three published studies that have examined unstaged cancers, including breast, prostate and colorectal cancer [3,4,6], but none have specifically examined which aspects of tumor staging were missing. Stage components including tumor size (T), number of lymph nodes (N) and metastases (M) are needed to derive a patient's stage and are critical to understanding why patients are unstaged. The objective of the study was to identify which stage components were missing, to characterize and to identify predictors of unstaged cancer, and to evaluate prognosis of unstaged in colon and rectal cancer patients.

## 2. Materials and methods

Data on all colon and rectal cancer cases diagnosed during 1991–2002 were identified from the SEER database [2].

### 2.1. Data sources

Considered the standard for quality among cancer registries around the world, the SEER program is a comprehensive source of population-based information in the United States that includes stage of cancer at the time of diagnosis and patient survival data. Studies are conducted in SEER areas to continuously evaluate the quality and completeness of the data being reported. Accordingly, training programs address problem areas identified from quality control studies as well as any changes being introduced in data collection procedures. In addition, the data quality profile provides an assessment of the extent to which each registry provides data that meet certain standards on the percent of cases for which a data item is unknown; data reported with delay, and the completeness and accuracy of the patient's vital status. The current study was approved by the Institutional Review Board at University Hospitals, Case Western Reserve University.

### 2.2. Study population

Identified colon and rectal cancer patients from the SEER with previous cancer diagnosis or cancer diagnosed on autopsy or death certificate only were excluded. Information included in the analysis encompassed socio-demographics, stage components and overall staging, SEER sites, cancer treatment, month and year of diagnosis, and last date known alive.

### 2.3. Study measures

The outcome of interest for the current study was whether or not a patient was unstaged or staged. SEER summary stage missing or coded as nine for unknown, unstaged, or unspecified was used to define a case as unstaged. Otherwise, a patient was considered to be staged.

Independent variables included socio-demographics; tumor size (T); number of lymph nodes (N); metastases (M); cancer treatment; SEER sites; month and year of diagnosis; and last date known alive. Socio-demographics included age at diagnosis, race, and gender. Stage components, including tumor size (T), number of lymph nodes (N) and metastases (M), were examined using the SEER extent of disease. The SEER extent of disease and SEER summary stage are based on pathologic, operative and clinical information as detailed in the Collaborative Staging Manual and Coding Instructions [10]. To compute the SEER summary stage, the T, N, and M information are placed into a computer algorithm. In some instances, not all staging factors would be necessary to assign stage. For example, a case may have T regional and M regional but have no information available for N. According to the summary stage algorithm, this case would be staged as regional. Therefore, staged cases may be missing one or more staging factors<sup>1</sup>. Data on treatment included surgery and radiation, both categorized as yes, no or unknown.

Two independent variables, SEER sites and year of diagnosis, were categorized as described below. Because a very large number of cases were diagnosed in the West census region compared to other regions, the additional category of Mountain was created. Therefore, SEER sites were categor-

<sup>1</sup> If interested in more examples, please see the following website for a complete listing of summary stage algorithm for colorectal cancers: [http://web.facs.org/cstage/general/generalextratable\\_rpa.html](http://web.facs.org/cstage/general/generalextratable_rpa.html). Another explanation for a missing staging factor for staged cases would be data completeness and accuracy, which we did not examine in the current study. However, according to the SEER website of <http://seer.cancer.gov/about/uses.html>, SEER has several quality control measures: "Quality control has been an integral part of SEER Program activities since its inception in 1973. Currently, quality control studies of various types, including casefinding, recoding, and reliability, are conducted in even number calendar years. The first two study types are carried out by a group of auditors which includes a qualified staff member from each SEER registry. The auditors travel to registries other than their own in order to collect data. These studies are designed using appropriate statistical procedures that provide for obtaining measures that can be used to assess the performance of a registry. Registries that do well are recognized, and individuals that do well in the reliability studies are recognized as well. In odd numbered calendar years, training programs are conducted at selected SEER registries and in conjunction with the annual meeting of the National Cancer Registrars Association that focus on problem areas identified from the quality control studies as well as any changes being introduced in data collection procedures. Another quality control tool is the Data Quality Profile which is created for each registry. This profile provides an assessment of the extent to which each registry provides data that meet certain standards that pertain to the percent of cases for which a data item is unknown, reporting delay, and the quality of data on vital status. The SEER Program has also developed an extensive set of inter- and intra- field edits that are used to identify and correct errors in the data."

Download English Version:

<https://daneshyari.com/en/article/2108513>

Download Persian Version:

<https://daneshyari.com/article/2108513>

[Daneshyari.com](https://daneshyari.com)