Health Related Quality of Life Following Radical Cystectomy: Comparative Analysis from the Medicare Health Outcomes Survey

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Purpose: Health related quality of life after radical cystectomy and ileal conduit is not well quantified at the population level. We evaluated health related quality of life in patients with bladder cancer compared with noncancer controls and patients with colorectal cancer using data from SEER (Surveillance, Epidemiology and End Results)-MHOS (Medicare Health Outcomes Survey).

Materials and Methods: SEER-MHOS data from 1998 to 2013 were used to identify patients with bladder cancer and those with colorectal cancer who underwent extirpative surgery with ileal conduit or colostomy creation, respectively. A total of 166 patients with bladder cancer treated with radical cystectomy were propensity matched 1:5 to 830 noncancer controls and compared with 154 patients with colorectal cancer. Differences in Mental and Physical Component Summary scores as well as component subscores were determined between patients with bladder cancer, patients with colorectal cancer and noncancer controls.

Results: SEER-MHOS patients were more commonly male and white with a mean ± SD age of 77 ± 6 years. Patients treated with radical cystectomy had significantly lower Physical Component Summary scores, select physical subscale scores and all mental subscale scores compared with noncancer controls. These findings were similar in the subset of 40 patients treated with radical cystectomy who had available preoperative and postoperative survey data. Global Mental Component Summary scores did not differ significantly between the groups. No significant differences were observed in global Mental Component Summary, Physical Component Summary or subscale scores between patients with bladder cancer and patients with colorectal cancer.

Abbreviations and Acronyms

BC = bladder cancer

CRC = colorectal cancer

HRQOL = health related quality of life

MA = Medicare Advantage

MCS = Mental Component Summary

MHOS = Medicare Health Outcomes Survey

NCC = noncancer control patient

PCS = Physical Component Summary

QOL = quality of life

RC = radical cystectomy

SEER = Surveillance, Epidemiology and End Results

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Conclusions: Patients with bladder cancer who undergo radical cystectomy have significant declines in multiple components of physical and mental health related quality of life vs noncancer controls, which mirror those of patients with colorectal cancer. Further longitudinal study is required to better codify the effectors of poor health related quality of life after radical cystectomy to improve patient expectations and outcomes.

Key Words: urinary bladder neoplasms, cystectomy, colostomy, quality of life, Medicare

BLADDER cancer is a common malignancy with significant treatment morbidity. RC is considered the standard of care for muscle invasive disease, which is fraught with high complication and readmission rates.[1] Efforts to quantify HRQOL in patients with BC after RC have been limited by heterogeneous populations, the lack of long-term followup and myriad QOL instruments with variable reliability.[2] Multiple bladder cancer specific HRQOL instruments exist, including FACT-BL (Functional Assessment of Cancer Therapy Scale Bladder Cancer), QLQ-BLM (EORTC [European Organisation for Research and Treatment of Cancer] Invasive Bladder Cancer Module), BIS (Body Image Scale) and BCI (Bladder Cancer Index)[3,4] as well as general HRQOL instruments such as SF-36®, VR-12® and QLQ-C30 (EORTC Quality of Life Core Questionnaire).[4,5] This makes comparisons across institutions, data sets and populations challenging. Further, randomized data are limited,[6] often pertaining to individual aspects of bladder cancer treatment such as diversion type[7–10] or ERAS (enhanced recovery after surgery) pathways[6,11] and not global HRQOL.

In 1998 CMS (Center for Medicare and Medicaid Services) began to gather valid, reliable and clinically meaningful data on HRQOL outcomes, designating this effort MHOS.[12] These data are drawn from surveys of managed care and MA organization enrollees, accounting for about 19% of Medicare beneficiaries or approximately 8.3 million patients. MHOS data were subsequently linked to the SEER data set as SEER-MHOS, enabling providers to examine specific cancer diagnoses and treatments relative to HRQOL.

We examined SEER-MHOS, looking specifically at patients with BC who underwent RC and received an ileal conduit, to quantify HRQOL relative to NCCs. Due to similarities between patients with CRC who undergo colectomy and colostomy (major intra-abdominal surgery with ostomy) we also performed an exploratory analysis comparing patients with BC to patients with CRC.

MATERIALS AND METHODS

Data Source and Patient Population

The MHOS 95-item core questionnaire is administered yearly in a random sample of approximately 1,000 to 1,200 patients from MA organizations. Patients receive an initial baseline survey and followup survey 2 years later.[12] We queried the SEER-MHOS data set from 1998 to 2013 for all patients older than 65 years who had BC, underwent RC and had postoperative survey data available for analysis. The procedure codes examined were drawn from SEER with the first survey date evaluated relative to the date of diagnosis. Patient selection was limited to 166 patients who underwent RC with an ileal conduit and those with another or an unknown diversion type were excluded (30).

The primary analysis compared patients with BC to 830 propensity matched NCCs. Additionally, we compared a subset of 40 patients with BC with available preoperative and postoperative survey data to 200 matched NCCs. To compare patients with BC with other patients with cancer who underwent major intra-abdominal surgery with an ostomy we evaluated 154 patients with CRC who underwent colostomy.

Individuals who participate in MHOS have provided informed consent. As SEER-MHOS is considered a limited data set, requiring investigators to sign a data use agreement prior to use, this analysis did not require institutional review board approval (https://healthcaredelivery.cancer.gov/seer-mhos).

To account for measurable confounding we performed propensity matching at 1:5 BC to NCC with regard to survey demographics, including age, gender, race and marital status, and comorbid conditions, including smoking status, hypertension, angina, coronary artery disease, congestive heart failure, myocardial infarction, stroke, lung conditions (emphysema, asthma and chronic obstructive pulmonary disorder), bowel conditions (Crohn's disease, inflammatory bowel disease and ulcerative colitis), elevated blood sugar (diabetes mellitus, any elevated blood sugar and glucosuria), arthritides and the overall number of comorbid conditions (0 to 4). Patients with BC and patients with CRC were subsequently compared using the same covariates in the modeling stage of the analysis.

Medicare Health Outcomes Survey Components

HRQOL in MHOS is measured by PCS and MCS scores based on validated SF-36® and VR-12® surveys,[5,13] which have been equilibrated using published algorithms.[14] PCS and MCS scores range in scale from 0 to 100 with 50 representing the American population mean with a SD of 10 and a change of 2 points for summary score (MCS and/or PCS) and 3 points for subscale score considered clinically meaningful.[15,16] Physical and mental subscales have questions targeting specific aspects of HRQOL, including physical functioning, role-physical, bodily pain, general health, vitality, social functioning,