Gynecologic Oncology 125 (2012) 14–18

Contents lists available at SciVerse ScienceDirect

Gynecologic Oncology

journal homepage: www.elsevier.com/locate/ygyno

Rapid Communication

Disparities in hospice care among older women dying with ovarian cancer☆,☆☆

Kathleen M. Fairfield [a,b,*], Kimberly M. Murray [a], Heidi R. Wierman [c], Paul K.J. Han [a], Sarah Hallen [c], Susan Miesfeldt [a], Edward L. Trimble [d], Joan L. Warren [e], Craig C. Earle [f]

[a] Center of Outcomes Research and Evaluation, Maine Medical Center Research Institute, 39 Forest Avenue, Maine Medical Center, Portland, ME, 04102, USA
[b] Department of Medicine, Maine Medical Center, 22 Bramhall Street, Portland, ME, 04102, USA
[c] Department of Geriatrics, Maine Medical Center, 66 Bramhall Street, Portland, ME, 04102, USA
[d] Cancer Therapy Evaluation Program, National Cancer Institute, 9000 Rockville Pike, Executive Plaza North (mail stop), Bethesda, MD, 20892, USA
[e] Applied Research Program, National Cancer Institute, EPN 4005, 6130 Executive Blvd, MSC 7344, Bethesda, MD, 20892-7344, USA
[f] Institute for Clinical Evaluative Sciences, Sunnybrook Health Sciences Centre, G1 06, 2075 Bayview Avenue, Toronto, ON, Canada M4N 3M5

ARTICLE INFO

Article history:
Received 7 September 2011
Accepted 21 November 2011
Available online 1 December 2011

Keywords:
Hospice
End-of-life
Ovarian cancer

ABSTRACT

Background. Timely hospice referral is an essential component of quality end-of-life care, although a growing body of research suggests that for patients with various types of cancer, hospice referrals often occur very late in the course of care, and are marked by sociodemographic disparities. However, little is known about the ovarian cancer patient population specifically. We examined the extent and timing of hospice referrals in ovarian cancer patients over age 65, and the factors associated with these outcomes.

Methods. We used the Surveillance, Epidemiology, and End Results (SEER)-Medicare database to identify 8211 women aged 66+ with ovarian cancer who were diagnosed between 2001 and 2005 and died by December 31, 2007. We excluded women who were not eligible for Medicare A continuously during the 6 months prior to death. Outcomes studied included overall hospice use in the last 6 months of life and late hospice enrollment, defined as within 3 days of death. We examined variations in these two measures based on year of diagnosis and sociodemographic characteristics (age, race, marital status, rural residence, income, education) and type of Medicare received (fee-for-service vs. managed care).

Results. Among 8211 women in the cohort who died from ovarian cancer, 39.7% never received hospice care (3257/8211). Overall hospice care increased over the period of observation, from 49.7% in 2001 to 74.9% in 2005, but the proportion of women receiving hospice care within 3 days of death did not improve. Among those who received hospice care, 11.2% (556/4954) and 26.2% (1299/4954) received such care within 3 and 7 days of death, respectively. A higher proportion of black women (46.5% vs. 38.4% among whites), women in the lowest income group (42.8% vs. 37.0% in the highest income group), and those receiving fee-for-service Medicare (41.3% vs.33.5% for women in managed care) never received hospice care. In multivariable models, factors associated with lack of hospice care included age younger than 80 years (OR 1.27, 95% CI 1.15–1.40), non-white race (OR 1.44, 95% CI 1.26–1.65), low income (OR 1.17, 95% CI 1.04–1.32) and enrollment in fee-for-service Medicare compared with managed care (OR 1.39, 95% CI 1.24–1.56).

Conclusion. More older women with ovarian cancer are receiving hospice care over time, however, a substantial proportion receive such care very near death, and sociodemographic disparities in hospice care exist. Our data also support the need to target lower-income and minority women in efforts to increase optimally timed hospice referrals in this population. Our finding that ovarian cancer patients enrolled in managed care plans were more likely to receive hospice care suggests the importance of health care system factors in the utilization of hospice services.

Introduction

Advanced ovarian cancer in elderly women is a disease with a poor prognosis. In the United States, from 2000 to 2007, women aged 65 and older accounted for 46% of ovarian cancers with an incidence rate per 100,000 that was 7 times higher (28.8) than for women under age 65 (4.4). Among elderly women with ovarian cancer, 72% were diagnosed with distant disease. Two-year cause-specific survival for elderly women with advanced ovarian cancer is 40.8% [1].

☆ Preliminary findings from this work were reported in a podium presentation at the May 2011 Society of General Internal Medicine Meeting in Phoenix, AZ.

☆☆ Supported by Research funding from Maine Medical Center's RSP Grant Program (to Dr. Fairfield). The funder had no role in the conduct of this research or preparation of the article.

* Corresponding author at: Center for Outcomes Research and Evaluation, Maine Medical Center, 22 Bramhall Street, Portland, ME 04102, USA. Fax: +1 207 662 3110.
E-mail addresses: fairfk@mmc.org (K.M. Fairfield), wiermh@mmc.org (H.R. Wierman), halles@mmc.org (S. Hallen), trimblet@ctep.nci.nih.gov (E.L. Trimble), joan_warren@nih.gov (J.L. Warren), craig.earle@ices.on.ca (C.C. Earle).

0090-8258/$ – see front matter © 2011 Elsevier Inc. All rights reserved.
doi:10.1016/j.ygyno.2011.11.041

For patients with diseases such as advanced cancer, high quality end-of-life (EOL) care should focus on alleviating symptoms and respecting patient preferences for intensity of health care and place of death. Many elderly patients report preferring a focus on palliation at the end of life, rather than extending life [2]. There has been considerable effort in defining and validating measures of high quality EOL care for cancer patients. Specific quality measures for EOL cancer care proposed by Earle and others [3] include: short interval between last chemotherapy date and death, short interval between starting a new chemotherapy regimen and death, high proportion of deaths in hospital versus home, frequent emergency room visits, high number of hospital and ICU days near EOL, low proportion of patients enrolled in hospice, and hospice enrollment within 3 days of death. These measures were selected based on existing literature, patient and family focus groups, and an expert panel using a modified Delphi approach. Proposed benchmarks for EOL cancer care using claims data have also been described based on similar measures using Medicare claims [4]. These measures have been validated and used in studies demonstrating that EOL cancer care is often characterized by unwanted and overly aggressive interventions including chemotherapy within 14 days of death, no hospice referral, and hospice admission only within 3 days of death [5].

Hospice is a model of end-of-life care that focuses on symptom palliation and patient autonomy [6]. Hospice care in general is associated with better pain and symptom control, regardless of diagnosis [7]. Timely hospice referral is beneficial to patients by avoiding unduly aggressive late-life interventions (such as hospital and ICU admissions) and improving symptom palliation [8,9]. Appropriate use of hospice care across the cancer population may help improve quality of care at EOL for individual patients, but also may be beneficial to society by avoiding inappropriate resource use.

Variation and disparities in hospice use and timing have been explored in a number of settings [10]. Considerable variation of duration of hospice care has been reported, (even among various cancer diagnoses) [9]. However, little work has been done to describe patterns of hospice care utilization in patients with ovarian cancer.

We therefore sought to describe enrollment, timing, and disparities in hospice care for older women with ovarian cancer in this Medicare population. We also examined whether hospice use had changed over time for older patients with ovarian cancer, an important malignancy affecting women.

Methods

Data sources

Data for this analysis came from the linkage of the Surveillance, Epidemiology, and End Results (SEER) registries with health care claims reported to Medicare. The population-based registries participating in the SEER program represent defined geographic areas and have changed over time. The registries included in our analysis range from 14% of the US population (1998–2000) to 26% of the US population (2001–2005) [11]. An estimated 97% of incident cancer cases are captured by cancer registrars within the SEER regions [12], which are representative of the US population [13]. For each reported malignancy, SEER registries collect data on age at diagnosis, sex, race and ethnicity, marital status, stage, histologic type, month and year of diagnosis, whether cancer-directed surgery was completed, and date and cause of death. SEER registrars follow detailed manuals for tumor reporting http://seer.cancer.gov/registrars/. Sociodemographic data, such as education and income, from the 2000 Census are linked with the cases at the Census tract-level. The SEER data include information about whether patients reside in an urban or rural location and are based on Rural/Urban Continuum Codes from the Economic Research Service, Department of Agriculture.

Medicare data included claims for hospital, outpatient, physician services, and hospice care. For a patient to receive the hospice benefit via Medicare, a physician must certify that they are terminally ill with a life expectancy of 6 months or less. Under Medicare, hospice services are primarily home-based.

SEER and Medicare data are linked periodically for research purposes to ascertain treatment and outcomes not captured by SEER, with a match rate of 94% [14]. The linked dataset for the current analysis included claims from January 1, 2000 through December 31, 2007 for ovarian cancer cases diagnosed from 2001 to 2005.

Approval was obtained from the Human Subjects Committee at Maine Medical Center for this data analysis. No patient identifiers were included. Because the SEER-Medicare data are de-identified and based on registry data, it is not possible to seek informed consent from participants, and we therefore received a Waiver of Consent.

Cohort definition

The study cohort included women in the SEER-Medicare database who were diagnosed with ovarian cancer and aged 66 and older between 2001 and 2005 (inclusive) while living in a SEER area. All histologic subtypes of ovarian tumors were included, as were all stages of tumors. After excluding 2720 women who did not die during the period of observation (before 12/31/2007), and 178 women who were not eligible for Medicare Part A during the 6 months prior to death, 8211 women remained available for analysis.

Patient factors

We categorized women into age groups based on age at diagnosis (66–69, 70–74, 75–79, 80+). Race was defined as white or non-white, and marital status as married or not married. Disease stage was obtained from SEER records using the American Joint Committee on Cancer (AJCC) classification. We performed a sensitivity analysis to examine the role of various comorbidities on hospice enrollment. Comorbidities were ascertained using inpatient and physician visit claims for diagnostic billing codes [15] for the 6 months prior to death using the Deyo implementation [16] of the Charlson comorbidity score [17]. Rurality using the SEER data on residence was grouped into three categories: 250,000 or greater, 20,000–250,000, or <20,000. US Census data for median household income and educational attainment were used as a proxy for economic status.

Outcomes

Our analysis included two outcomes—any hospice care, and whether the hospice care occurred within 3 days of death. Hospice care was defined from the presence of any hospice claims appearing in the Medicare data through 2007. Length of stay in hospice was defined as the number of days between admission and death, inclusive.

Statistical analysis

We used chi-square tests and Student's t-tests as appropriate to compare proportions and continuous variables. Logistic regression models were developed to obtain effect estimates for outcomes of interest. The first model, which had receipt of any hospice care as the dependent variable, included all cases. The second model, with hospice care within 3 days of death, included only the 4954 patients who had hospice claims. Our models included patient factors including age group (<80 vs. 80 and older), tumor stage, race, marital status, rurality of residence area, and Census tract variables for median household income and education. Because income and education were collinear, we included only income (tertiles) in our final models. We created two-way interaction terms to look for interactions between each of the variables in the final model.