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Pain is prevalent and persisting in cancer survivors: Differential factors across age groups



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ARTICLE INFO

Article history:

Received 18 July 2013

Received in revised form

22 August 2013

Accepted 31 December 2013

Available online 17 January 2014

Keywords:

Cancer survivorship

Pain

Depression

ABSTRACT

Objective: The Institute of Medicine documents a significant gap in care for long term side effects of cancer treatment, including pain. This paper characterizes age differences in the prevalence and predictive characteristics of pain to guide clinicians in identification and treatment.

Materials and Methods: A sample of 170 adults with head and neck, esophageal, gastric, or colorectal cancers were recruited from two regional Veterans Administration Medical Centers. Face to face interviews were conducted 6, 12, and 18 months after diagnosis with the PROMIS scale to assess pain and PHQ-9 scale to assess depression. Descriptive statistics characterized incidence and prevalence of pain impact and intensity ratings. Multivariate linear hierarchical regression identified clinical characteristics associated with pain in older versus younger age groups.

Results: Clinically significant pain was endorsed in one third (32%) of the sample, with younger adults reporting higher levels of the impact of pain on daily activities and work, and also higher pain intensity ratings than older adults. In younger adults, pain ratings were most associated with lower social support and higher depression, as well as advanced cancer stage. In older adults, pain was multifactorial, associated with baseline comorbidities, adjuvant treatment, and both combat post-traumatic stress disorder (PTSD) and depression.

Conclusions: Pain is a significant persisting problem for one in three cancer survivors, requiring ongoing assessment, even months later. Important differences in pain's determinants and impact are present by age group. Identification and treatment of pain, as well as associated conditions such as depression, may improve the quality of life in cancer survivors.

Published by Elsevier Ltd.

Prior presentations. Portions of this manuscript have been presented at the 120th Annual Meeting of the American Psychological Association, Orlando, FL. August 2012.

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1. Introduction

Persisting pain after cancer treatment is drawing increasing attention given the growing numbers of cancer survivors,¹ and the documented challenges identifying and treating long term consequences of treatment.² Pain can be complex to understand and treat as it is multifactorial, with physiological, psychological, and social determinants.³ In particular, across illnesses those with more medical comorbidities,⁴ higher levels

of depression and anxiety,^{5,6} and lower social support⁷ report higher levels of pain.

Pain is a predominant concern among individuals with cancer. The American Cancer Society reports that approximately 30% of patients newly diagnosed with cancer, 30–50% of patient undergoing treatment, and 70–90% of patient with advanced disease experience pain.⁸ After treatment, many cancer survivors continue to experience pain,^{9,10} although it is less well understood.

Pain is recognized as one of the most distressing long term side effects of cancer treatment and has been linked to poorer health outcomes and decreased quality of life among survivors.^{11,12} The Institute of Medicine's (IOM) seminal report "From Cancer Patient to Cancer Survivor: Lost in Transition"² emphasizes the significant gap in identifying and treating long term side effects of cancer. Under-treatment of pain is a particularly concerning issue for cancer survivors who may experience hospital admissions related to uncontrolled pain.^{13,14}

1.1. Age Differences in Pain

The literature on age differences in cancer pain is scarce and conflicting with several studies finding no differences and a few studies finding that older adults report less pain than younger adults.^{4,11,15,16} It is critical to understand pain in older cancer survivors, as greater than 60% of new cancers occur in people aged 65 and older.¹ However, reports of pain vary widely, between 20 and 85% of older adults following cancer.^{4,15,17,18} Our knowledge of the expected prevalence and predictors of pain in cancer survivors is limited by differences in methodology in cancer survivor research (e.g., design, sampling, measurement).¹⁹ A common clinical measure of pain intensity is the Numeric Ratings Scale (NRS) that utilizes a 0–10 scale.²⁰ This measurement approach has the advantage of being efficient, but questions remain about its accuracy.²¹ Pain can also be measured in terms of the impact on valued activities. This measurement approach is useful because it defines pain in terms of function — although it may complicate comparisons of younger and older adults, as these age groups may have different baseline functional levels and expectations. For example, younger adults may be more likely to be employed. Older adults may have multiple morbidities leading to chronic pain, creating background "noise" when assessing the marginal decrease in functioning associated with additional pain from a new condition. Therefore, it is especially important to consider how pain may differentially present and impact functioning older versus younger adults. In this paper we describe age differences in pain reports and delineate the variables differentially associated with pain in older versus younger survivors of oral–digestive cancers who are enrolled in care in the Veterans Health Administration (VHA).

2. Materials and Methods

2.1. Study Design and Setting

Participants were identified at the time of diagnosis from the tumor registries from VA Medical Centers in Boston

and Houston, and recruited beginning at 6 months after diagnosis for an observational cohort study. Complete protocol methods including non-responder information are described elsewhere.²²

2.2. Participants and Data Sources

Eligibility criteria included a diagnosis of one of three cancer types: head and neck (HN), esophageal and gastric (GI), or colorectal (CRC); receiving surgery, chemotherapy, and/or radiation treatment. Using a broad definition of cancer survivor consistent with the National Cancer Institute (NCI), who states that "an individual is considered a cancer survivor from the time of diagnosis, through the balance of his or her life", we recruited participants of all cancer stages as long as the individual was not in end of life care, defined as being in hospice care. Participants who had a dementia disorder or psychotic spectrum disorder were also excluded. Participants completed face to face interviews 6, 12 ($N = 145$), and 18 ($N = 122$) months following their cancer diagnosis.

2.3. Variables, Data Sources, and Measurement

2.3.1. Demographics

Participants reported their age, gender, ethnicity (Hispanic/Latino or not), race, and level of education. For the purposes of data analyses, age was dichotomized using a common standard of age 65, as older (age 65 or more, $N = 79$) and younger (age 64 or less, $N = 91$).

2.3.2. Comorbidity Score

A comorbidity score was created using electronic medical record extraction. We obtained ICD-9 data for each participant. One point was assigned for each of the 22 chronic medical conditions utilized in the Charlson Comorbidity method to create a total comorbidity score for each participant. These conditions included congestive heart failure, cerebrovascular disease, chronic lung disease and moderate to severe kidney disease. We did not mortality-adjust these conditions using the Deyo method, but rather used a total comorbidity score.

2.3.3. Social Support

Participants' ratings of social support were taken from responses to four items on the family (e.g., my family is close) and social support (e.g., I am aware of love and support from other people) subscales of the Benefit Finding Scale. Participants reported if the item "describes me" on a 3-point Likert scale ranging from 0 (no) to 2 (a lot). Family and social items were combined to create a total perceived social support scale with an internal-consistency reliability of $\alpha = .59$.

2.3.4. Cancer Information

To obtain information about the cancer site, stage, and treatments, patients' reports were confirmed in the medical record. Participants reported if they received surgery, chemotherapy, and/or radiation. For the purpose of data analyses AJCC stage ratings were dichotomized as early (stage I–II) versus advanced (stage III–IV), while treatments were dichotomized as surgery only versus surgery plus either adjuvant radiation or chemotherapy.

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