

Original Article

Epidemiology and Characteristics of Episodic Breathlessness in Advanced Cancer Patients: An Observational Study

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Abstract

Context. Episodic breathlessness is a relevant aspect in patients with advanced cancer.

Objectives. The aim of this study was to assess the different aspects of this clinical phenomenon.

Methods. A consecutive sample of patients with advanced cancer admitted to different settings for a period of six months was surveyed. The presence of background breathlessness and episodic breathlessness, their intensity (numerical scale 0–10), and drugs used for treatment were collected. Factors inducing episodic breathlessness and its influence on daily activities were investigated.

Results. Of 921 patients, 29.3% ($n = 269$) had breathlessness and 134 patients (49.8%) were receiving drugs for background breathlessness. In the multivariate analysis, the risk of breathlessness increased with chronic obstructive pulmonary disease, although it decreased in patients receiving disease-oriented therapy and patients with gastrointestinal tumors. The prevalence of episodic breathlessness was 70.9% ($n = 188$), and its mean intensity was 7.1 (SD 1.6). The mean duration of untreated episodic breathlessness was 19.9 minutes (SD 35.3); 41% of these patients were receiving drugs for episodic breathlessness. The majority of episodic breathlessness events (88.2%) were triggered by activity. In the multivariate analysis, higher Karnofsky Performance Status levels were significantly related to episodic breathlessness, although patients receiving disease-oriented therapy were less likely to have episodic breathlessness.

Conclusion. This study showed that episodic breathlessness frequently occurs in patients with breathlessness in the advanced stage of disease, has a severe intensity, and is characterized by rapid onset and short duration, which require rapid measures. *J Pain Symptom Manage* 2016;51:17–24. © 2016 American Academy of Hospice and Palliative Medicine. Published by Elsevier Inc. All rights reserved.

Key Words

Episodic breathlessness, dyspnea, advanced cancer, palliative care, opioids

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Introduction

Breathlessness is defined as a subjective experience of breathing discomfort, commonly known as dyspnea, which consists of qualitatively distinct sensations that vary in intensity.¹ In the last days of life, breathlessness often becomes more severe and refractory to traditional medical management. Breathlessness is a disabling and distressing symptom reported by patients with advanced cancer, particularly in the last three months of life and in patients with lung cancer,² although it occurs in 46% of all cancer outpatients.³ Breathlessness is associated with significant suffering both for patients and their caregivers. This symptom is the most common chief complaint for admission to hospital in patients with lung cancer.⁴

Breathlessness is a multifactorial problem generated through different modalities and pathways, requiring complex and multiple interventions according to the specific individual situation and the clinical context. It may be caused by cancer itself, and preexisting or concomitant comorbid conditions.⁵ This symptom may resemble the characteristics of pain according to some temporal characteristics. Although breathlessness may be a continuous phenomenon present for most hours of the day, clearly distinguishable episodes of intensified breathlessness may overlap the background condition (episodic breathlessness). As breathlessness is a complex entity difficult to manage, it is of paramount importance to gather data about this phenomenon to optimize treatment and provide better and individualized therapeutic options.

The aim of this observational prospective study was to assess the prevalence of breathlessness and episodic breathlessness, their characteristics, and possible factors implicated in their development in patients with advanced cancer. The secondary aim was to assess common treatments in a large number of patients.

Patients and Methods

A consecutive sample of patients with advanced cancer admitted to seven different centers, which included oncology, home care, palliative care unit, or hospice settings, during a period of six months (April 2014 to September 2014) was prospectively assessed for this survey. All patients able to provide information about breathlessness were eligible, and no patient was excluded a priori.

Informed consent and institutional approval from the University of Palermo were obtained. At the time of admission, the epidemiological characteristics, stage of disease, concomitant comorbidities, and oncologic treatments were recorded. A specific form was designed and filled in during the initial

assessment visit. The researcher asked about the presence of breathlessness, its intensity on a numerical scale from 0 to 10 (where 0 = none and 10 = worst imaginable) over the past 24 hours, and drugs used for its treatment, as part of the assessment. Patients also were asked if they had episodic breathlessness that was well distinguished from background breathlessness over the past 24 hours; possible factors associated with episodic breathlessness; and if it influenced daily activities or specific positions. Given the multicenter nature of the study, a standardized definition for episodic breathlessness (after agreement of the Home Care Italy [HOCAL] study group) was used: “a predictable or unpredictable increase in breathlessness occurring intermittently, clearly distinguishable in intensity from continuous breathlessness, if present.” When episodic breathlessness occurred, intensity (on a numerical scale from 0 to 10 [where 0 = none and 10 = worst imaginable]) and duration were recorded. Finally, patients were asked if they were receiving drugs for relieving such episodes.

Statistical Analysis

According to previous studies, at least 900 patients were necessary to gather data for more than 150 patients with episodic breathlessness. The statistical analysis, to assess an association pattern between breathlessness and clinical comorbidities, was carried out by chi-square tests of statistical association, with a confidence level of 5%. No correction for Type I error was provided at this level because of its explorative intent. Afterward, a logistic regression with outcome variables, breathlessness, and episodic breathlessness was performed adjusting for age and gender, providing the odds ratios of clinical and statistical importance. Model fitting was assessed by a likelihood ratio test at a 5% Type I error level. Descriptive statistics of the variables considered are provided. The analysis was done with STATA version 13 (StataCorp LP, College Station, TX).

Results

A total of 921 patients were surveyed. The mean age was 70.3 (SD 12.7) years, and 445 patients were male. The primary tumors were, in a rank order, as follows: lung 206 (22.6%), gastrointestinal 304 (33.4%), breast 94 (10.3%), hematological 83 (9.1%), urological 57 (6.2%), gynecological 51 (5.6%), brain 42 (4.6%), prostate 35 (3.8%), head and neck 20 (2.2%), others 19 (2.1%), and unavailable data 10 (1%). Four hundred seventeen patients (45.3%) were receiving disease-oriented therapy, including chemotherapy, hormonal therapy, or targeted therapy.

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