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REVIEW

Pre-operative assessment of cancer in the elderly (PACE): A comprehensive assessment of underlying characteristics of elderly cancer patients prior to elective surgery

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Summary
Background: Cancer is a disease that particularly affects the elderly and, although surgery is the first treatment choice, many elderly cancer patients do not receive standard surgery because they are considered unfit for treatment due to an inaccurate estimation of operative risk. Pre-operative Assessment of Cancer in the Elderly (PACE) was developed in order to address the need to provide detailed information about the functional reserve of the elderly cancer patient to aid individualised management.
Methods: PACE incorporates a battery of validated instruments including the Comprehensive Geriatric Assessment (CGA), Brief Fatigue Inventory (BFI), Eastern Cooperative Oncology Group Performance Status (ECOG-PS), and American Society Anesthesiologists

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(ASA) grade. An international prospective study was conducted with 460 consecutive elderly cancer patients (216 breast, 146 GIT, 71 GUT, 27 other) receiving PACE prior to receiving elective surgery.
Results: Three hundred and eighty four patients (83.4%) were observed to have at least one co-morbidity; the most common being hypertension ($n = 246$, 53.5%). More than two thirds of the patients had good functional and mental status according to PACE. After adjusting for age, sex and type of cancer, six of the seven items of PACE were found to be significantly associated with co-morbidities (according to the Satariano's Index of Co-morbidities (SIC)). A multivariate analysis identified IADL, BFI and ASA to be the most important instruments in explaining SIC.
Discussion: PACE has been effectively used to describe the functional capacity and health status in an international cohort of elderly cancer patients. The majority of PACE instruments have been found to be significantly associated with co-morbidities (SIC) and can distinguish between type and severity of cancer. PACE represents a useful tool in evaluating onco-geriatric fitness for surgery.

Contents

Introduction

The geriatric population is expanding rapidly. Median life expectancy has increased dramatically in all industrialised countries and is still increasing. In Western Europe, average survival for a 60 years old is 24 years and for an 80 years old it is 6 years [1]. In the United States, the number of patients older than 65 years of age is predicted to increase by 13.3% by 2010 and by 53.2% by 2020 [2]. The incidence of cancer increases substantially with age. In Europe, it has been estimated that approximately 58% of all cancers and 69% of cancer deaths affect people aged over 65 years [3]. Cancer incidence has been reported to be 11 times higher in this age group than in people aged less than 65 years [4]. Despite this, cancer diagnosis and treatment in the elderly has been under researched with elderly patients being frequently excluded from clinical trials [5,6]. The lack of a sound evidence base concerning cancer treatment in the elderly negatively affects clinical practice with a relevant number of elderly patients being excluded from appropriate treatment including surgery, chemotherapy and radiotherapy [7–10].

Elderly patients who present with functional impairment and/or co-morbid conditions have an increased risk of post-treatment complications. However, evidence suggests that many elderly patients are as likely to benefit from standard cancer treatment as younger patients [11]. In spite of this, a reluctance to advise or accept an operation for the elderly cancer patient is often unrelated to the presence of co-existing debilitating conditions or impaired functional status [12].

There is clearly a need for a valid and reliable multi-dimensional instrument to provide detailed information about the functional reserve of the elderly cancer patient to aid individualised management. In response to this need Pre-operative Assessment of Cancer in the Elderly (PACE) was developed [13]; an extension of the Comprehensive Geriatric Assessment (CGA) scale that had been developed and validated by the Italian Group for Geriatric Oncology (GIOGer) [14]. The CGA comprised a number of validated