

Geriatric Oncology

Helen Hughes¹, Vikram Swaminathan²,
Alice Pellegrini³, Riccardo Audisio⁴

¹FY2, Medicine, Royal Liverpool University Hospital, UK

²CT1, Orthopaedics, Countess of Chester Hospital, UK

³Breast Surgery, S. Orsola-Malpighi Hospital, Bologna, Italy

⁴Consultant Surgical Oncologist, University of Liverpool and St Helens
Teaching Hospital

Abstract: Cancer incidence increases with age. With an ageing population, the burden of cancer in older people is set to increase significantly in the coming decades. This is a heterogeneous group with wide variations in health and functional status separate from chronological age. Data suggest that historically this patient cohort have poorer outcomes and have been under-represented in clinical cancer trials. There is an emerging body of evidence to help guide treatment; however, ongoing research is needed to develop comprehensive evidence-based guidelines and identify treatment regimens, which are suitable for frailer patients. In this article, we review the current field of geriatric oncology. We highlight that age is not a contradiction to cancer treatment but geriatric assessment is needed to identify which treatment a patient may tolerate and benefit from.

Keywords: Geriatric oncology • Elderly • Cancer • Frailty

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Introduction

Cancer incidence increases with age. Over 50% of cancers are seen in the over 65 years of age group with one-third occurring in people over 75 years of age¹. With an ageing population, the global burden of cancer is set to increase significantly in coming decades. Data from World Health Organization suggest that the number of older people in Europe will increase. Specifically, the number of people aged 85 years and older is projected to rise from 14 million to 40 million by 2050².

An arbitrary definition of old age according to United Nations includes persons over the age of 60 years³. This is a heterogeneous group. Life expectancy is highly variable between individuals, mainly due to differences in health status and independent from chronological age. Differences in physiological reserve and comorbid status, including the individuals' cognition, social, nutritional status and polypharmacy, interplay to effect treatment tolerability. This group is also unique in terms of cancer

biology; certain neoplasms and responsiveness to treatments change with age⁴. This gives rise to the need for integration of oncologic and geriatric approaches to the management of these patients.

Cancer outcomes in the geriatric population

The challenge facing healthcare providers is not only to cope with the increased burden on services from an ageing population but also to drive up standards of care. Evidence suggests a tendency towards under treatment of older cancer patients and later diagnosis leading to poorer outcomes independent of comorbid status.

The European Cancer Registry (EUROCORE) study provides the largest population-based data set for comparison of cancer survival rates across Europe. Published in January, EUROCORE 5 highlights survival

* E-mail: raudisio@doctors.org.uk

disparities by age as an important public health issue. It found cancer survival rates are significantly worse in patients aged over 75 years⁵. Joint research by the National Cancer Equality Initiative and Pharmaceutical Oncology Initiative into geriatric oncology care across Europe and Canada concluded that clinicians use age as proxy for other factors such as comorbidities in making recommendations on cancer treatment. This results in some patients receiving less intensive treatment, solely on the basis of chronological age⁶.

Studies into outcomes in specific or single cancers report comparable findings. A US study to assess guideline concordant care in early breast cancer found that the management of patients with an age over 50 years was associated with less guideline concordance, regardless of comorbidity level⁷. EURO CARE 5 reported that poor survival from breast cancer in the UK and Ireland, compared with other European countries, is largely attributed to poor survival in elderly women. This group is reported to be more likely than young patients to receive non-standard treatments, including under utilisation of surgery, failure to perform standard assessments and failure to give radiotherapy after conservative surgery⁵. There is evidence of suboptimal management of older patients with other cancers including ovarian, colon and prostate cancer^{6,8,9}. Eighty percent of patients aged 40–49 years with ovarian cancer had resection compared with less than half of those aged over 50 years⁶. Older men with prostate cancer tend to have more aggressive disease but a minority receive curative chemotherapy; despite evidence that chemotherapy confers survival and quality-of-life benefit. Two thirds of deaths from prostate cancer are in men over 75 years⁹. Other studies demonstrate that elderly patients have not benefitted from advances in cancer management. Improvements in outcomes achieved for the patients below 75 have not been matched by that in the geriatric population. For example, analysis of survival rates in Acute Myeloid Leukaemia between 1977 and 2006 demonstrated that developments in treatment improved overall survival rates; however, survival rates in the 85-year group remained unchanged over 3 decades¹⁰.

Current evidence base in geriatric oncology

Historically, older persons, particularly those at the extremes of age, have been under represented in clinical cancer trials¹¹. In recent years, there has been a move to address this evidence gap.

Recognising shortcomings in the field the International Society for Geriatric Oncology (ISGO)

set up task forces to review current best practice and establish future research priorities. Most recently published recommendations for the use of radiotherapy and update of the management of non-small-cell lung cancer in elderly patients, with a forthcoming update on the management of colorectal and prostate cancer, are expected later this year^{12,13}.

The number of trials specifically enrolling geriatric patients has increased. Data have demonstrated that fit elderly cancer patients are able to tolerate and gain survival advantage from the same treatments offered to their younger counterparts. For example, IFCT 0501 trial compared carboplatin and weekly paclitaxel double chemotherapy with monotherapy in elderly patients with advanced non-small-cell lung cancer (performance status 1–2 aged 70–89 years). Previously, monotherapy was the only recommended regimen for patients over 70 years of age. The double therapy group did experience more side effects, however, had meaningfully increased overall survival compared with the monotherapy group (44% and 22% survival at 1 year, respectively)¹⁴. Conversely, frailer patients may not tolerate aggressive cancer treatment, which is currently recognised as best practice. For this group, research into the development of new approaches and recognition of which regimens are best tolerated is important. Trials in breast cancer care have demonstrated that very high-risk surgical candidates may undergo resection under local or regional anaesthesia^{15,16}. New approaches to radiotherapy including advances in planning and delivery have shown to result in better tolerance and reduced healthy tissue damage widening its use¹².

Progress has been made but ongoing research is needed. In a joint position paper, the European Organisation for Research and Treatment of Cancer, International Society for Geriatric Oncology and the Alliance for Clinical trials set out standards for future trials in geriatric oncology. Key points include the need for trials without upper age limit, flexible design and the use of a comparable form of geriatric assessment across studies¹⁷.

Geriatric assessment

Management of patients with cancer should be guided by an adequate evaluation of global health status. The National Comprehensive Cancer Network (NCCN) and ISGO recommend some form of geriatric assessment in all patients aged 70 years^{18,19}.

Part of this adequate evaluation should include a form of geriatric assessment to minimise the discrepancy of treatment between age groups. The

comprehensive geriatric assessment (CGA) tool involves a multidisciplinary approach. Factors including evaluation of comorbidities, functional status, social status, cognitive function, nutritional status, psychological well being, polypharmacy and geriatric syndromes are evaluated and incorporated into the assessment tool. Trial data have shown that CGA detects previously unrecognised geriatric problems in over 50% of patients; predict prognosis and treatment toxicity; and allow adaption that results in improved quality of life, overall survival and compliance. Despite the evidence, CGA is not widely used in clinical practice. Time constraints, lack of trained staff and financial remuneration are commonly identified as limiting factors. Increasingly, there has been research to validate shorter screening tools. Various tools are available including the G8 and FTRST tools, which have been shown to have prognostic value for function decline and overall survival. Patients with normal results in G8 and FTRST show little functional decline or early death and thus potentially do not need a comprehensive assessment²¹.

Conclusions

Age should not be a barrier to cancer treatment. Geriatric assessment tools are helpful and need to be incorporated more globally into clinical practice to prevent under or over treatment. We need to continue to change attitudes about the value of treating elderly cancer patients and address issues of delayed diagnosis. There has been progress in representation of elderly patients in clinical trials but ongoing research is needed to develop comprehensive evidence-based guidelines and new approaches, which are suitable for frailer patients. This should be translated into clinical practice; only with these measures, we can successfully deliver truly comprehensive geriatric oncology services.

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