Rev Port Cardiol. 2016;35(9):485–494

Revista Portuguesa de
Cardiologia
Portuguese Journal of Cardiology
www.revportcardiol.org

REVIEW ARTICLE

Organization and implementation of a cardio-oncology program☆

Manuela Fiuza[a,*], Leonor Ribeiro[b], Andreia Magalhães[a], Ana Rita Sousa[b], Miguel N. Menezes[a], Marília Jorge[c], Luís Costa[b], Fausto J. Pinto[a]

[a] *Serviço de Cardiologia, Hospital de Santa Maria, Centro Hospitalar Lisboa Norte – EPE, Centro Académico Medicina de Lisboa / Centro Cardiovascular, Universidade de Lisboa, Lisboa, Portugal*
[b] *Serviço de Oncologia, Hospital de Santa Maria, Centro Hospitalar Lisboa Norte – EPE, Centro Académico Medicina de Lisboa, Lisboa, Portugal*
[c] *Serviço de Radioterapia, Hospital de Santa Maria, Centro Hospitalar Lisboa Norte – EPE, Lisboa, Portugal*

Received 10 December 2015; accepted 13 April 2016
Available online 10 August 2016

KEYWORDS
Cancer;
Cardiotoxicity;
Cardio-oncology;
Chemotherapy;
Radiation;
Heart failure

Abstract Considerable advances in cancer therapies in recent decades have reshaped the prognosis of cancer patients. There are now estimated to be over 20 million cancer survivors in the USA and Europe, numbers unimaginable a few years ago. However, this increase in survival, along with the aging of the patient population, has been accompanied by a rise in adverse cardiovascular effects, particularly when there is a previous history of heart disease. The incidence of cardiotoxicity continues to grow, which can compromise the effectiveness of cancer therapy. Cardiotoxicity associated with conventional therapies, especially anthracyclines and radiation, is well known, and usually leads to left ventricular dysfunction. However, heart failure represents only a fraction of the cardiotoxicity associated with newer therapies, which have diverse cardiovascular effects. There are few guidelines for early detection, prevention and treatment of cardiotoxicity of cancer treatments, and no well-established tools for screening these patients. Echocardiography is the method of choice for assessment of patients before, during and after cancer treatment.

It therefore makes sense to adopt a multidisciplinary approach to these patients, involving cardiologists, oncologists and radiotherapists, collaborating in the development of new training modules, and performing clinical and translational research in a cardio-oncology program. Cardio-oncology is a new frontier in medicine and has emerged as a new medical subspecialty that concentrates knowledge, understanding, training and treatment of cardiovascular

☆ Please cite this article as: Fiuza M, Ribeiro L, Magalhães A, Sousa AR, Menezes MN, Jorge M, et al. Organização e implementação de uma consulta de cardio-oncologia. Rev Port Cardiol. 2016;35:485–494.

* Corresponding author.
E-mail address: manuela.fiuza@gmail.com (M. Fiuza).

comorbidities, risks and complications in patients with cancer in a comprehensive approach to the patient rather than to the disease.

PALAVRAS-CHAVE
Cancro;
Cardiotoxicidade;
Cardio-oncologia;
Quimioterapia;
Radioterapia;
Insuficiência cardíaca

Organização e implementação de uma consulta de cardio-oncologia

Resumo A taxa de sobrevivência dos doentes (dts) com cancro aumentou consideravelmente nas últimas décadas, havendo atualmente mais de 20 milhões de sobreviventes nos EUA e na Europa, números inimagináveis até há poucos anos. Para tal, muito contribuiu o aparecimento de novos fármacos (terapêuticas biológicas).

No entanto, estes benefícios na sobrevivência e o envelhecimento da população foram acompanhados de um aumento da taxa de efeitos adversos cardiovasculares, sobretudo se já havia doença cardíaca prévia. De facto, a incidência de cardiotoxicidade (CTX) tem sido continuamente mais evidente, comprometendo a eficácia das terapêuticas oncológicas (TO). São conhecidos os efeitos adversos cardíacos das TO tradicionais (antraciclinas e radioterapia torácica), como a insuficiência cardíaca. Contudo, esta representa apenas uma fração das manifestações de CTX, pois muitas das novas terapêuticas têm efeitos cardiovasculares diversos. As orientações clínicas existentes para fazer a deteção precoce, a prevenção e o tratamento da CTX dos tratamentos oncológicos, não abrangem todas as manifestações de CTX e ainda são poucas as ferramentas para a avaliação destes dts. A ecocardiografia é atualmente o método de escolha para avaliar os dts nas fases pré, durante e após a TO.

Dada a dimensão e relevância desta questão, faz todo o sentido falar de cardio-oncologia, uma nova subespecialidade médica. O número crescente de dts oncológicos com problemas cardíacos implica uma abordagem que deve ser partilhada entre cardiologistas, oncologistas e radioterapeutas.

Esta nova área do conhecimento médico deve também incluir uma componente formativa clínica, sendo também desejável a implementação de projetos de investigação clínicos e transacionais.

Introduction

Cardiovascular disease and cancer together account for around 60% of deaths in the western world. In Portugal, data from the National Institute of Statistics for 2013 show that the leading cause of death is cardiovascular disease (29.5%), followed by cancer (24.3%).[1]

Nevertheless, survival rates for both diseases have increased in recent decades, as a result of significant advances in treatment. Five-year survival in the USA improved from 50% of patients diagnosed with cancer between 1975 and 1977 to 68% in those diagnosed between 1999 and 2005, and there are currently over 14 million cancer survivors, numbers unimaginable a few years ago.[2,3] However, as survival improves, the late adverse cardiovascular effects of these therapies have become increasingly important.

It therefore makes sense to adopt a multidisciplinary approach to these patients, involving cardiologists, oncologists and radiotherapists in a cardio-oncology program. Interestingly, cardiovascular disease and cancer have risk factors in common, such as obesity and diabetes, and are often found in the same patient.

Cardiotoxicity is a common and well-known adverse effect of many conventional cancer therapies, especially anthracyclines and chest radiation, but may also occur with new biological therapies. It can affect survival and quality of life independently of cancer prognosis.

The most frequent adverse cardiovascular effects of cancer treatments include left ventricular dysfunction (symptomatic or asymptomatic), hypertension, arrhythmias, prolonged QT interval, thromboembolism and myocardial ischemia.[4,5] Renal failure can also occur.

Unlike the cardiotoxicity associated with conventional cancer therapies (type I), that associated with biological therapies such as trastuzumab (type II) is usually reversible with discontinuation of treatment[6,7] or treatable by medical therapy, such as hypertension associated with angiogenesis inhibitors such as sunitinib and bevacizumab.[8,9] Furthermore, as therapeutic options evolve, conventional treatments are likely to be associated with one or more biological therapies, increasing the probability of cardiotoxicity.