

## Cardio-oncology in 2022

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Cardio-oncology is a multidisciplinary, collaborative specialty that focuses on the cardiac care of cancer patients before, during and after their cancer treatment. As the incidence of and survival from cancer has increased, the sub-specialty of cardio-oncology has developed, with ever-increasing patient demand and increasing recognition in the literature. Cardiovascular disease (CVD) and cancer share multiple risk factors, with the incidence of CVD mortality being equal to or greater than that of cancer mortality in some cancer types such as Hodgkin's lymphoma, malignant melanoma, testicular cancer and prostate cancer.<sup>1</sup> Generally, CVD is the second most common cause of morbidity and mortality in patients with cancer, second only to recurrent malignancy.<sup>2</sup> The nature of cancer therapy-related cardiac dysfunction (CTRCD) is varied and presents a challenge, particularly for the non-specialist. The majority of oncology patients in the UK do not have access to a specialised cardio-oncology service and patients present to a variety of clinical settings including primary care, the emergency department and the acute medical assessment unit. Therefore knowledge of the differential diagnosis for a variety of cardiac symptoms in oncology patients is crucial for timely diagnosis, treatment and minimisation of unnecessary interruptions to systemic anti-cancer therapy.

Tyebally et al. provide a helpful summary of the many potential causes of chest pain in this patient group.<sup>3</sup> Patients often present a diagnostic challenge with arrhythmias, valvular heart disease, acute coronary syndrome, myocarditis and pericarditis among the differential diagnoses. The authors make particular note of the incidence of coronary artery vasospasm, which occurs in 2–34% of patients receiving fluorouracil (5FU) as chemotherapy and 3–9% of patients receiving capecitabine. The importance of the involvement of the cardio-oncologist and the wider cardio-oncology multidisciplinary team (MDT) in the care of these patients cannot be overstated as decisions to rechallenge patients with previously administered chemotherapy agents are complex and must be made on a case-by-case basis.


Immunotherapy-induced myocarditis is another relatively uncommon form of cardiotoxicity, but is nevertheless an important consideration in any patient receiving checkpoint inhibitor therapy presenting with chest pain. Prompt diagnosis and aggressive management with high-dose

steroids and other immunosuppressants, where indicated, is crucial for an optimum patient outcome. Again, involvement of the cardio-oncology MDT is pivotal to decision-making in these complex patients.

Palpitations are another common presenting symptom in cancer patients and should be approached in the same way as the general population, with a few additional considerations. As stated by Essa et al, patients with cancer are more likely to suffer palpitations due to cardiotoxicity, the underlying cancer and/or anxiety and stress.<sup>4</sup> Several chemotherapeutic drugs are associated with arrhythmias including ibrutinib, which is used in the treatment of a variety of B-cell lymphomas, and arsenic, used to treat some leukaemias and myelomas. Palpitations occurring in patients treated with these agents should prompt a thorough search for an arrhythmia with early involvement of the cardio-oncology team.

Shortness of breath is frequently experienced by patients with cancer, with a multitude of potential causes including anaemia and de-conditioning as well as cardiotoxicity and the underlying cancer.<sup>5</sup> A high index of suspicion for cardiotoxicity must be maintained, particularly in patients treated with anthracyclines – used in the treatment of several cancer types including breast cancers, sarcomas and haematological malignancies – and HER2-directed therapy, such as trastuzumab. These agents are known to cause left ventricular systolic dysfunction, and prompt diagnosis and treatment of any cardiotoxicity is essential to achieving an optimum patient outcome. In many patients, however, no cause will be found for underlying dyspnoea and a holistic approach to their care, involving palliative care where appropriate, is necessary to ensure symptoms are maximally controlled.

It is important to recognise that there is relatively little high quality data in the field of cardio-oncology. The recently published 2022 European Society of Cardiology Guideline on cardio-oncology provides valuable consensus recommendations for all healthcare professionals involved in the care of cancer patients before, during and after their treatment.<sup>6</sup> The guideline includes cardiotoxicity definitions, protocols for baseline risk assessment and cardiovascular surveillance and the management of acute cardiotoxicity.

As the overall survival from cancer improves and increasing numbers of potentially cardiotoxic anti-cancer treatments are developed, the workload for cardio-oncologists is continuously increasing. Much work is required to develop existing cardio-oncology services and support the creation of new services to meet this increasing demand. 

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