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EDITORIAL COMMENT

Cardio-oncology: The future is now!

Cardio-oncologia: o futuro é agora!

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Every year more than 20 million people worldwide and 60 000 in Portugal are diagnosed with cancer.[1] Outstanding recent advances in cancer treatment have led to an incredible increase in survival, with mortality rates persistently declining. However, not everything is perfect: the increase in survival is associated with higher cardiovascular risk and a greater number of comorbidities, including cardiovascular ones.

In fact, heart disease and cancer are closely linked: they are currently the two most common causes of mortality in the developed world, and they share multiple risk factors (including age, smoking, hypertension, obesity and sedentarism). On the other hand, the presence of heart disease can condition or contra-indicate the choice of cancer treatment. Also, most cancer therapies are associated with adverse cardiovascular effects (including exacerbation of previous disease) and cardiotoxicity. Fortunately, in most cases, when detected and addressed early, cardiotoxicity is reversible. Still, it is one of the principal reasons to withhold cancer therapy and, in some cases, it can lead to irreversible lesions. The multiplicity of cancer therapies currently used can lead to a multiplicity of cardiotoxicity forms, that go beyond left ventricle dysfunction and heart failure (the classic cardio-oncologic presentation), and include arrhythmic or thrombotic events, valvular, and coronary disease.

It is in this particular clinical and epidemiologic setting that cardio-oncology (the new kid on the block) can see its place being sedimented. It is a new cardiology subspeciality that aims to improve patient care before, during and after cancer therapy. In practice, the goals are to screen patients at high risk of cardiotoxicity thus enabling clinical optimization and tailored oncology treatment plans; to detect early and treat cardiovascular complications, minimizing irreversible toxicity and ultimately avoiding the discontinuation of cancer therapy; and to perform adjusted clinical follow-up in cancer survivors.

By fulfilling these purposes, cardio-oncology consultations (COC) can decisively change the prognosis of patients with cancer. However, to provide good cardio-oncology services, patient care needs to be organized in a structured manner. The challenges of creating COC are multiple and demanding. First, there is the need to create a dedicated and specialized multidisciplinary team (cardiologists, oncologists, hematologists, sonographers, and nurses) in a highly demanding healthcare system, with lack of human resources. Secondly, there is the need to keep up to date in a new field, with new therapies that are not familiar to the general cardiologist, which highlights the importance of post-graduate training. Third, there is the need to provide a quick response to colleagues and to patients – oncology treatments ought not to wait and oncologic patients are followed in several different specialties, with multiple hospital visits in a physical and emotionally fragile population. Hence the advantage of walk-in-clinics, with same day electrocardiogram, echocardiogram, nurse and cardiologist evaluation. Last but not least, there is the importance of sharing experience with other centers, aiming for the diffusion of COC. There are several reports[2–7] in the literature about how to set up a COC and how to screen and follow these complex patients; although very useful, they might prove to be difficult to implement in clinical practice.

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In the current issue of RPC, Fiúza M. et al.[8] present the experience of one of the first dedicated cardio-oncology programs in Portugal.

At this clinic, over a four-year period, 520 patients were observed, at a total of 1447 patient visits (average of two to three per patient). The most common disease was breast cancer in female patients (also the most common disease in other COC reports). More than 45% of patients underwent treatment with anthracyclines alone or in combination with radiotherapy or HER2-antagonists (therapies with known cardiovascular risks). Twenty percent of patients were referred for pre-chemotherapy screening; nevertheless, most referrals were for suspected cardiac illness (heart failure symptoms, asymptomatic decreased left ventricular ejection fraction, arrythmias and coronary disease). The included population illustrates well the Portuguese and cardio-oncology reality accurately, with 79% of patients presenting with one or more cardiovascular risk factors.

Of note, in this patient cohort, 77% completed cancer treatment and only 16% had to discontinue therapy for cardiac reasons (84% for LV dysfunction); 3% of the total patients had an assumed cardiac-related death (anthracycline-induced heart failure). Remarkably, it was possible to optimize cardiovascular medication in 28% of patients. Also, a significant number of invasive procedures/therapeutics were performed including cardiac resynchronization therapy device implantation, percutaneous coronary intervention, atrial fibrillation catheter ablation and transcatheter aortic valve implantation. These are very interesting data, as previous reports have stated that only half of the patients with cancer and cardiovascular disease are treated with guideline-directed medical therapy.[9]

To optimize or initiate cardiovascular therapy and, with that intervention, enable the successful conclusion of cancer treatments, is one of the main benefits of COC. As, an example, in an analysis of a breast cancer female population from the COC at our center,[10] although 10% of patients developed cardiotoxicity, an aggressive therapeutic and surveillance strategy led to treatment interruption in only 22% (temporary in most cases). Of note, most of the patients (94%) presented full cardiac function recovery on follow up.

Still much is unknown in cardio-oncology, mostly derived from the lack of understanding of the fundamental underlying mechanisms of cardiotoxicity, the late diagnosis of myocardial damage (with difficulty to prevent irreversible damage) and absence of specific and effective therapies. Therefore, continuous research to address these gaps in evidence and to further enhance cardiac patient care is of utmost importance. Despite the known difficulties in maintaining clinical activity alongside bedside science, it is important for reference COCs to add this mission to their clinical routine. Fiúza et al. did so by creating a clinical and translational research program.

Clinical experience sharing and continuous education for cardiology and oncology fellows and residents is one of the most effective ways to spread the knowledge in such a vast field as cardio-oncology. Fiúza et al. are an established presence in cardio-oncology sessions at major cardiology meetings, and they have developed a dedicated pre and post-graduate education program.

The authors should be congratulated on their excellent work and for sharing their experience, in order to stimulate the creation/development of similar structures in other centers of the country. This triad of a clinic, research and education program should be regarded as an example of success and one that can be replicated.

Despite its rapid evolution, cardio-oncology still has a long way to go and multiple challenges to overcome. Several questions come to our minds: will there be a role for new early markers of cardiotoxicity? What part will multimodality imaging play in cardio-oncology? Will global longitudinal strain directed therapy have a place in the new European Society of Cardiology recommendations? Will new discoveries lead to better screening and new therapeutic targets? What will translational medicine bring us – cell therapy and mitochondria transplantation? What is the role of cardiac rehabilitation in COC? And what about primary prevention?

The future is exciting as we await the answers. Meanwhile, as cardio-oncologists, let us use Fiuza's example to improve the cardiac care of the oncological patients of today, to prevent them from becoming our cardiac patients of tomorrow.

Conflicts of interest

The authors have no conflicts of interest to declare.

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