Cardio-Oncology in the real life: dimension of the problem

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The prognosis of cancer has dramatically improved in the last decades: several types of malignancies can be now cured or maintained in remission for a long time and patients can live the remainder of their lives free of disease. However, they are also exposed to chronic complications of antineoplastic treatments. Many classes of chemotherapeutic drugs can impair cardiovascular homeostasis and favor or even trigger cardiovascular disorders. The more the survival of oncological patients increases, the higher is the likelihood that cardiovascular consequences of cancer therapies become the major health problem after tumor elimination is achieved. The most common side effects of anticancer treatment include vasospastic and thromboembolic ischemia, arterial hypertension, arrhythmia, and cardiac dysfunction up to heart failure (HF). This latter is an especially fearful long-term complication of chemotherapy, because it remains a slowly progressing condition that ultimately can only be resolved by heart transplantation. Nevertheless, this procedure can be offered only to a small percentage of subjects due to the limited availability of donor organs. In fact, the number of heart transplants has remained static worldwide and the number of heart transplants performed each year in the United States has plateaued at about 2100 for the past few years (2001 Heart and stroke statistical update. Dallas: American Heart Association, 2000).

Here we first give an updated overview of the main characteristics and mechanisms of chemotherapy-associated cardiac toxicity, since a thorough knowledge of this phenomenon can provide important hints to predict, treat, and prevent it. Special attention is paid for chemotherapy-related cardiac dysfunction, in the light of the clinical and social burden of heart failure that may ensue. Next, we examine the approaches that have already been implemented in clinical practice or are currently being investigated for the prompt diagnosis and effective management of chemotherapy cardiotoxicity.