

## Stratification of the risk of chemotherapy-induced cardiotoxicity

### *Estratificación del riesgo de cardiotoxicidad inducida por quimioterapia*

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#### To the Editor,

I appreciate the thorough review by Morales Yera *et al*<sup>1</sup> on chemotherapy-induced cardiotoxicity (CIC). At present, vascular and tumor diseases are the leading cause of death in our country; hence, the subset of patients with both diseases is not trivial.

Prevention of unnecessary damages has always been the first strategy of our Health System. The author accurately puts forward that cardiotoxicity damage may appear up to years after chemotherapy is administered. Therefore, risk stratification of CIC is regarded as essential in the follow-up and establishment of prophylactic measures<sup>2</sup>.

For this reason, the Mayo Clinic developed a prognostic stratification scale. The score by Hermann *et al*<sup>3</sup> is as follows:

- Risk score 4: anthracyclines, cyclophosphamide, ifosfamide, clofarabine, herceptin
- Risk score 2: docetaxel, pertuzumab, sunitinib, sorafenib
- Risk score 1: bevacizumab, dasatinib, imatinib, lapatinib
- Risk score 1: myocardial disease, heart failure, coronary artery disease, diabetes mellitus, previous anthracycline treatment, chest radiation, age under 15 or over 65 years and female sex.

Six points or more indicate a high risk of cardiotoxicity. The current classification is subdivided into low (less than 3 points), intermediate (3-4 points),

high (5-6 points) and very high (more than 6 points). Likewise, any subsequent conduct will be based on the CIC risk obtained.

The therapeutic approach will not be modified for low-risk patients nor will treatment be compulsory. Intermediate-risk patients will be evaluated for treatment risk-benefit, before starting. High-risk patients will be treated with angiotensin-converting enzyme (ACE) inhibitors or angiotensin-II receptor blocker (ARB), along with beta-blockers (carvedilol, preferably) and statins. In the case of high-risk CIC patients cytostatics treatment will be postponed for one week to achieve adequate adherence to maximum tolerated dose of the previous treatment.

In my opinion, in the coming years, adequate prophylaxis and early diagnosis of CIC will be will be critically important to reduce or delay the appearance of ventricular dysfunction and clinical heart failure in a large number of the population affected by tumor diseases.

Let us prevent an epidemic.

#### CONFLICTS DE INTERESTS

None

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## Stratification of the risk of chemotherapy-induced cardiotoxicity: Reply

### *Estratificación del riesgo de cardiotoxicidad inducida por quimioterapia: Respuesta*

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### To the Editor,

We agree with Rodríguez Ramos<sup>1</sup> that adequate prophylaxis and early diagnosis of chemotherapy-induced cardiotoxicity (CIC) will be critically important to reduce or delay the onset of ventricular dysfunction and clinical heart failure in a large part of the population affected by tumor diseases.

The improved survival in cancer patients, in general, and in advanced disease; the development of personalized medicine, the incidence of second neoplasms in cancer survivors, therapeutics with long-term medications, the possibility of using new lines of treatment –locations with more than 4 lines–, the development of radiotherapy techniques that allow re-irradiation, the advances in rescue surgery, among other reasons that show the transition of the disease towards chronicity, grant urgency to develop adequate strategies of prevention and treatment of the patient to avoid or delay the damage or myocardial affection generated by the exposure to chemotherapeutic agents.

As we mentioned in the review article<sup>2</sup>, in order for cardiotoxicity to occur due to a drug, factors specific to the agent and the patient must interact. With regard to the drug, the type of agent, the dose applied during each session and the cumulative dose, as well as frequency, route of administration and other combined agents, are factors that affect the form and time of presentation of CIC. Age (children and over 65 years), any previous cardiovascular disease, prior radiotherapy, mainly mediastinal, metabolic alterations and hypersensitivity to different drugs are considered among the factors related to the patient<sup>2,3</sup>.

Chemotherapy-induced cardiotoxicity may appear at any age; however, the probability of presenting complications increases with age. Women have a higher risk of presenting cardiovascular events with the use of chemotherapy, despite the fact that men are more likely to develop atherosclerosis, which should be taken into account by oncologists, cardiologists or doctors who assist these patients. In turn, the higher the cumulative dose, the greater the risk