

Cardiotoxicity in Hematological Diseases: Are the Tyrosine Kinase Inhibitors Imatinib and Nilotinib Safe?

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Abstract

Chemotherapy-induced cardiotoxicity is a growing concern. The cardiotoxic impact of new drugs such as tyrosine kinase inhibitors is unknown, especially the ones used for chronic myeloid leukemia. We aim to evaluate nilotinib- and imatinib-induced cardiotoxicity. Single-center prospective study of consecutive patients with chronic myeloid leukemia treated with tyrosine kinase inhibitors was conducted during 2015. Patients underwent an initial clinical, laboratorial and echocardiographic evaluation, repeated after 1 year. Eleven patients were included [60.0 (11) years, 63.6% of males; seven patients treated with imatinib and four with nilotinib]. After 1 year of follow-up, all patients remained in functional NYHA class I, with a similar Minnesota quality of life score. Also there was no difference in the biomarkers evaluated (cystatin-C and NT-proBNP). Likewise, no modification in systolic or diastolic function evaluated by echocardiography was observed. All patients presented normal values of longitudinal, circumferential and radial strain in the baseline study, without changes during follow-up. In addition, there were no differences between the two tyrosine kinase inhibitors used, considering all the aforementioned variables. No clinical, laboratory or echocardiographic evidence of nilotinib- and imatinib-induced cardiotoxicity was observed. However, these results should be confirmed in multicenter studies given the low incidence of chronic myeloid leukemia.

Keywords

Biomarkers; Cancer chemotherapy; Cardio-oncology; Chronic myeloid leukemia; Echocardiographic evaluation of cardiac function