

Cardio-oncology transthoracic echocardiogram pro forma – an evidence-based dataset

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Aims

We innovatively devised a cardio-oncology echocardiogram report pro forma to promote evidence-based reporting, achieve standardisation and incorporate checklist practices.

Methods

The report pro forma was based on the case report form for the ERIC-ONC cardio-oncology cancer cardioprotection trial. It incorporates four-dimensional left ventricular ejection fraction (4D LVEF) measurement and global longitudinal strain (GLS) as a sensitive marker of left ventricular systolic function. The document was designed with senior echocardiology consultant and governance input. The pro forma adheres to principles of good checklist design. We subsequently reviewed the echocardiogram reports in 29 patients (17 female, 59%) who had two echocardiograms before the cardio-oncology service was established (2013–2015) and one after the establishment of the service (2016–2017). For each patient, we verified the method of evaluation of systolic function in both echocardiograms.

Results

In echocardiograms for the period 2013–2015, LVEF was evaluated in 34% of the patients by the Teichholz method, in 20% by visual estimation and in 14% by Simpson's biplane method; the remaining 32% were evaluated by more than one method; there were no patients evaluated with GLS or 4D LVEF. After the implementation of the service in 2016, no patients were evaluated by Teichholz or visual estimation; 62% of the patients were evaluated with GLS and LVEF by Simpson's method; 24% by 4D LVEF and GLS; 41% with 4D LVEF, GLS and Simpson's method. 10% were evaluated only by LVEF by Simpson's method.

Conclusions

Before the establishment of the cardio-oncology service, cancer patients were mostly evaluated based on the visual estimation of the ejection fraction or Teichholz and occasionally by Simpson's method. With the new pro forma for the evaluation of chemotherapy-induced cardiotoxicity since 2016, there has been

a routine measurement of GLS and 4D volume assessment of LVEF where image quality will allow, removing reliance on visual estimation and the Teichholz method, both of which are more prone to measurement and reproducibility errors. The report pro forma reinforces best practice from the cardio-oncology echocardiography evidence base. ■

Conflict of interest statement

The authors have no conflicts of interest to declare.

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