Correspondence

Response to Letter to the Editor

To the editor:

We appreciate the interest in our article on Deep Inspiratory Breath-hold and thank Ferini et al. for their knowledgeable comments.

As correctly pointed out that, although the DIBH technique is the most promising and well-studied technique of cardiac sparing in breast cancer radiotherapy, it requires intense coaching and some degree of patient compliance. Therefore, studies have attempted to identify anatomical predictors of cardiac sparing in order to select patients who will benefit more with DIBH [1–3].

We have analysed 11 anatomical parameters and correlated each of them with the Δmean heart dose [1]. The anatomical parameter- 'Chest separation (CS)' mentioned in our study, is an identical parameter to the tangential field distance (TDF) mentioned in the Ferini et al. study [2]. We have not observed any correlation between ΔCS with the Δmean heart dose, though a strong correlation between Δ maximum heart depth (MHD) and Δmean heart dose was observed in both the studies. Similar study with larger sample size investigating on anatomical predictors has not found any correlation between CS and mean heart dose or maximum LAD dose [3].

The statement made by the authors that breast size and chest separation is a better predictor to select DIBH beneficiaries is based on an observation and not on strong statistical correlation.

Moreover, TDF and CTV was not directly correlated with the reduction in mean heart dose and the threshold of TDF/CTV mentioned, was based on observations made in that particular cohort of patients, and therefore should not be generalized. Therefore, we agree with the 1st part of the decision making algorithm for adjuvant radiotherapy in left-sided breast cancer, as suggested by the authors, but not with the last part.

After adequate training, if patients are non-compliant we have to consider other cardiac sparing techniques for these patients, like VMAT or static IMRT. Although the IMRT/VMAT plans reduces the maximum Organ at Risk (OAR) doses, it comes at an expense of increased mean and low doses to the OAR, particularly that of contralateral breast and lung [4]. Partial tangential arc VMAT or tangential IMRT is another alternative which reduced doses to the OAR including heart as well as normal tissue integral dose [5]. PBI can be done only in selected patients (early breast cancer) and not in all cases of left sided breast cancer. Typical problem with electron-photon mixed technique is junction matching which can take longer set up time compared to IMRT [6]. Selection of patients cannot be done on the basis of Heart Chest Wall Length (HCWL) and CS, as none of the studies including ours showed strong correlation of these parameters with Δmean heart dose or with ΔMHD and Δ heart volume in field (HVIF). We need further prospective studies to comment on the applicability of these anatomical parameters as selection criteria for DIBH for left sided breast cancer patients. Till then, as Δ MHD is one such parameter which has shown to be significantly correlated with Δ mean heart dose in most of the studies, we can use this parameter for selecting patients for DIBH.

Declaration of competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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