

Mediastinal dose time trends in young women treated for lymphoma: a single institutional cohort study

Introduction

- Recent improvements in lymphoma treatment have reduced doses and created a large population of long-term survivors[1].
- All treated young women in the UK are referred to high risk screening irrespective of breast dose.
- We evaluated breast and other mediastinal organ-of-interest doses over 17 years.

Aim Investigate dose trends with time to organs-of-interest in mediastinal lymphoma patients.

8.8Gy Mean breast dose 0.23Gy Mean breast dose

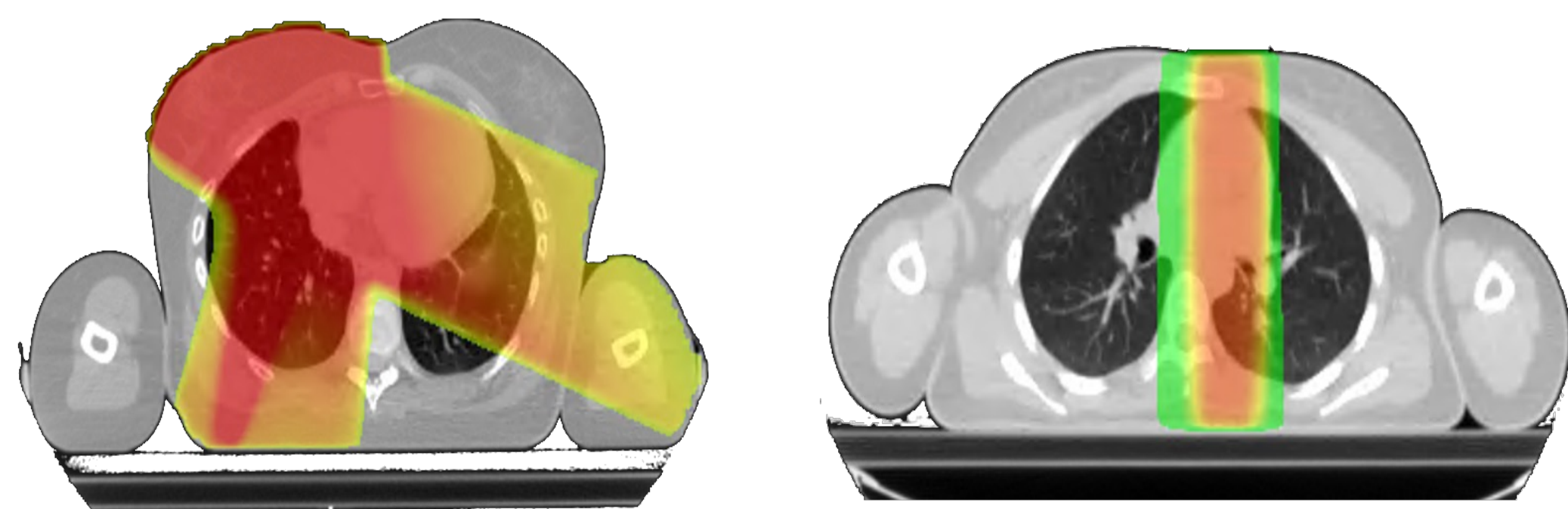


Fig. 1. Not all women receive the same breast dose and are therefore at different risks of late effects such as second primary cancers. Currently, all women in the UK are classified as 'very high risk' if any dose to the breast is received, regardless of how much.

Materials and methods

- Included women under 36 treated for lymphoma between 2005-2021.
- Generated autocontours for right, left, and combined breasts, lungs, oesophagus, thyroid, heart, and cardiac substructures.
- Assessed mean dose and breast metrics using Spearman's and ordinary least squares.

Results

- 112 patients received 3DCRT.
- Reductions were observed in the oesophagus and the lungs,
 - possibly due to improvements in imaging and introduction of deep-inspiration breath-hold.
- No evidence of reduction for any other OOI
- Median breast dose was 1.93Gy.
- High inter-patient variation was observed.

Conclusions

- Unexpectedly, mediastinal organ-of-interest doses did not decrease for most OOI between 2005-2021
- Average mean breast dose was below 2Gy, considerably lower than reported for older techniques[2].
- Decrease in oesophagus and lung dose may be driven by DIBH from 2019.
- Future work will include patients treated more recently with intensity modulation.

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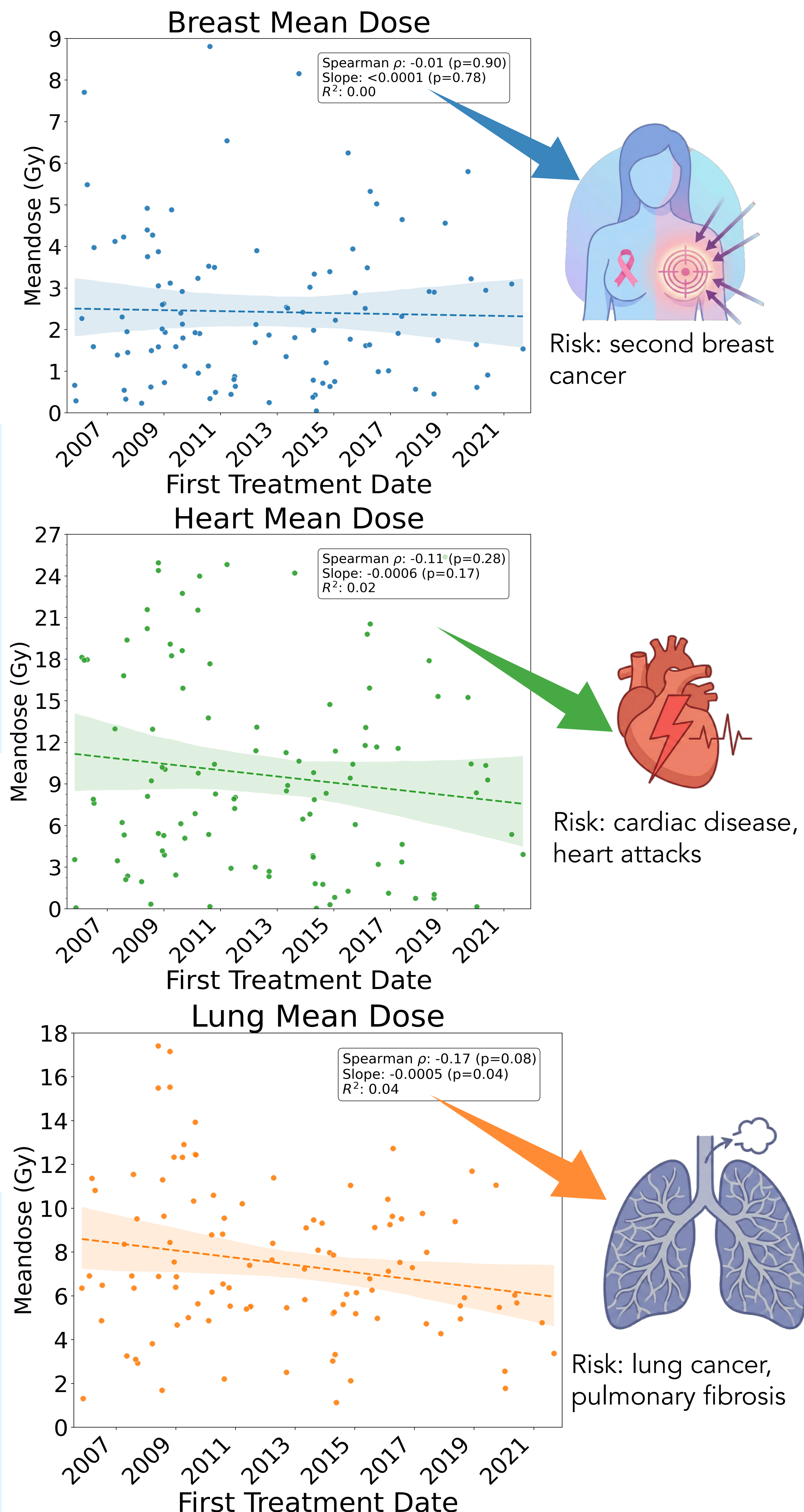


Fig. 2. Trends over time for percentage volume of breast, heart, and lung between 2005-2021. No trend was observed for breast or heart. Lung had significant ordinary least squares ($p=0.04$) but not Spearman's ρ . Oesophagus (not plotted) was also evidenced to have a decrease. Not plotted, with no trends: breast metrics (V2-V30 Gy (%)); thyroid, cardiac substructures (LAD, left and right ventricles, aorta, left and right atria, cardiac avoidance area).