

Hypofractionated Concurrent Chemoradiation in Stage III Non-small Cell Lung Cancer: Does Planning Target Volume Size Correlate With Prognosis?



Madam — In response to the correspondence by Arun Singh *et al.* [1], we have, since the publication of our previous results [2], analysed planning target volume (PTV) sizes of 98/100 patients and found no significant correlation of survival outcome with $>500\text{ cm}^3$ PTV size. After a median follow-up of 723 days (2 years), the overall survival for patients with PTV size $< 500\text{ cm}^3$ is 51.3 months ($n = 68$) versus 27.7 months for patients with PTV size $> 500\text{ cm}^3$ ($n = 30$); $P = 0.086$ (Figure 1). Two patients' data sets were not recoverable from the original planning systems. Interestingly, our further analyses show a progressively increasing correlation between outcome survival and PTV, starting from 350 cm^3 up to, but not including, 500 cm^3 (PTV $< 300\text{ cm}^3$ versus $> 300\text{ cm}^3$, $P = 0.239$; PTV $< 350\text{ cm}^3$ versus $> 350\text{ cm}^3$, $P = 0.064$; PTV $< 400\text{ cm}^3$ versus $> 400\text{ cm}^3$, $P = 0.023$; PTV $< 450\text{ cm}^3$ versus $> 450\text{ cm}^3$, $P = 0.003$; PTV $< 480\text{ cm}^3$ versus $> 480\text{ cm}^3$, $P = 0.004$). Figure 2 shows the hazard ratio as a function of PTV size. The reduction in hazard ratio at 500 cm^3 is unexpected and not currently explained. It is noted, however, that there are differences between our patient cohort and that of Arun Singh *et al.* Namely, the significantly smaller median PTV sizes (404 cm^3) as compared with the Arun Singh *et al.* cohort (683 cm^3) and the different mix of treatment modalities (27% treated with intensity-modulated radiotherapy in our data compared with their 50.5%). Both these differences may result in different

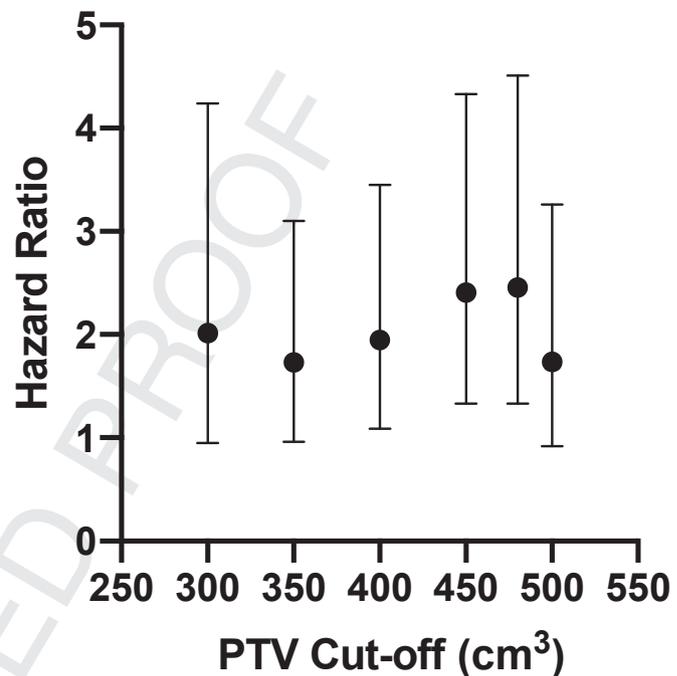


Fig 2. Overall survival hazard ratio as a function of planning target volume size.

prognostic PTV sizes in different data sets. It is also noted that in our data the number of censored points in the time period may influence the statistical significance.

In conclusion, our analyses suggest a correlation between PTV and overall survival and suggest that PTV $>400\text{ cm}^3$ could be used as a prognostic indicator. However, the cut-off value may depend on the data set and so this should be confirmed or determined in a full prospective clinical trial.

Conflict of interest

The authors declare no conflict of interest.

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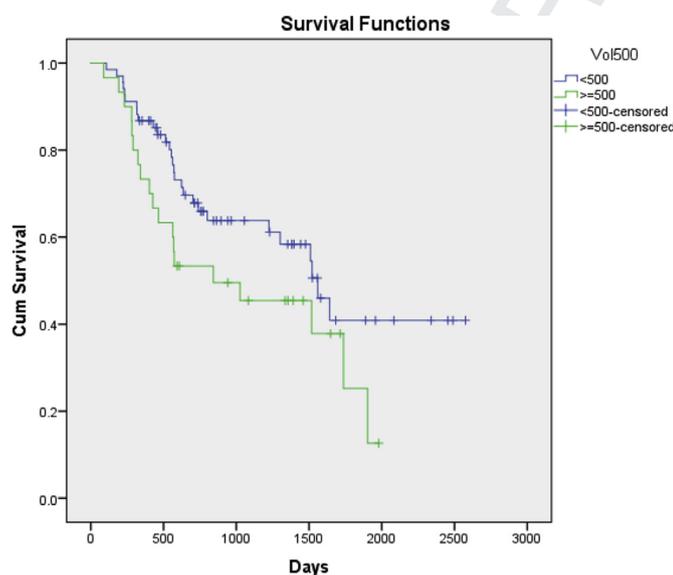


Fig 1. Kaplan–Meier survival curve of planning target volume $>500\text{ cm}^3$ versus $<500\text{ cm}^3$.

References

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