Setup Accuracy and Efficiency of Postural Video Function for Right-Sided Locoregional Breast Cancer

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SGRT at Oslo University Hospital

- 16 linacs at two sites
- In 2017 the first AlignRT system was installed
- Gradually the AlignRT system was installed at all the linacs
- In 2020/2021 we conducted a prospective study comparing setup procedures using SGRT and skin marks/tattoos

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Original Article

Surface-guided positioning eliminates the need for skin markers in radiotherapy of right sided breast cancer: A single center randomized crossover trial

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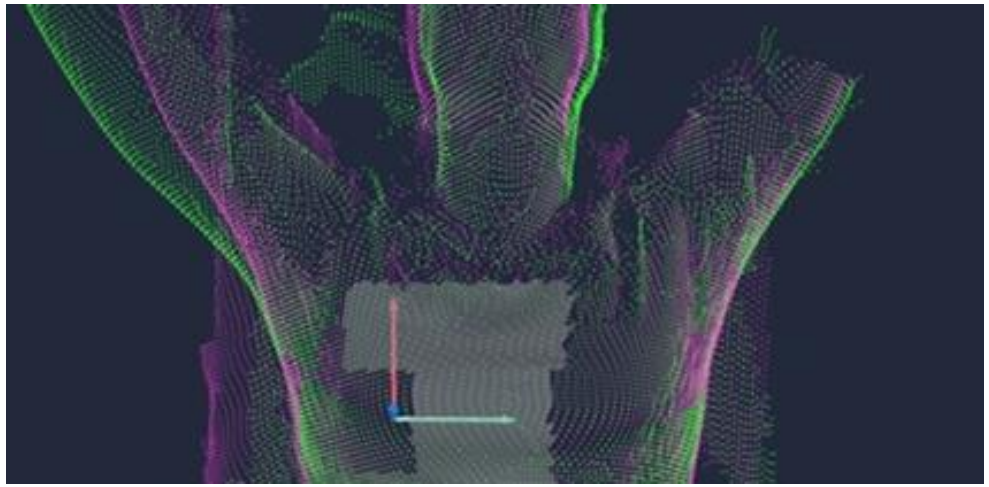
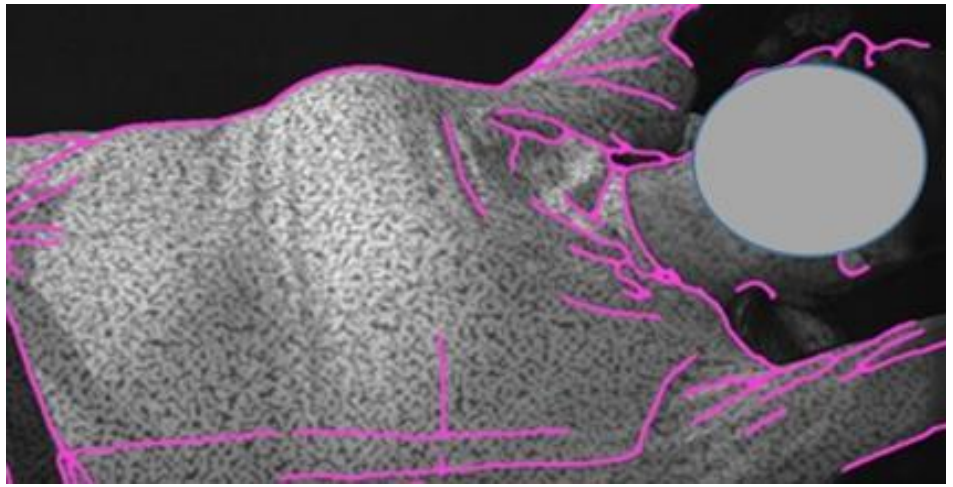
Introduction of Postural Video (PV) function

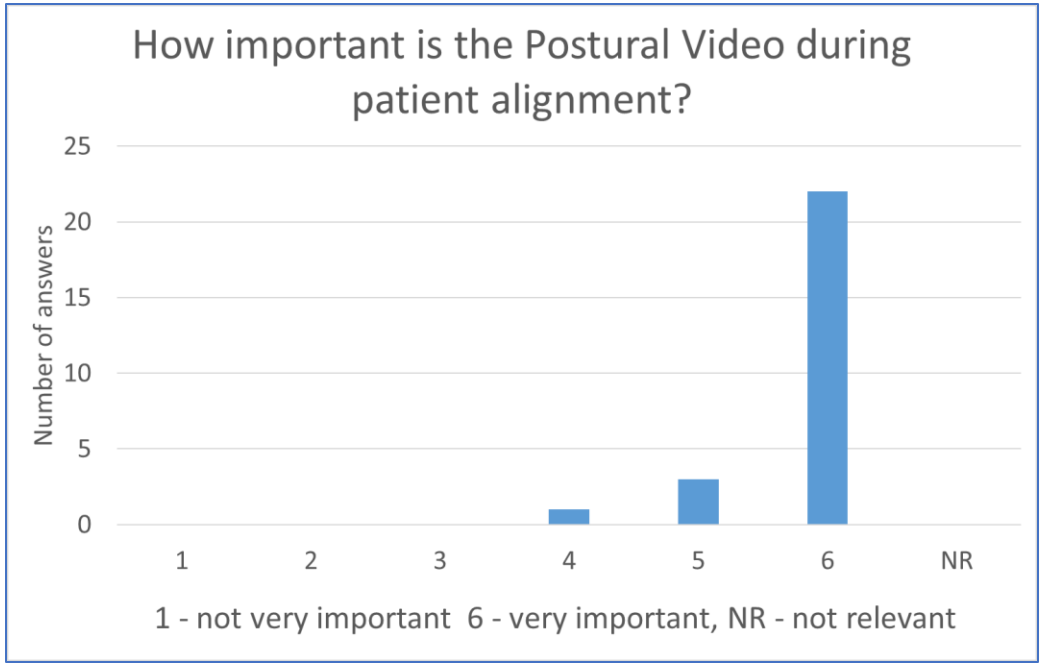
- In September 2021 AlignRT Advance was installed at one of the sites
- A test license for Postural Video was included, valid for 6 months





Evaluation of Postural Video function

- 26 RTTs working at linacs with PV function replied to a survey
- Strong opinions that the PV function reduced the treatment time and increased the accuracy



Business case

- 26 RTTs working at linacs with PV function replied to a survey
- Strong opinions that the PV function reduced the treatment time and increased the accuracy
- If we can show that using PV will **reduce** the setup procedure with **1 minute per patient**, we can reduce our activity with **one evening shift**
- It was decided to run a prospective trial comparing the setup procedure with and without the PV function for right-sided locoregional breast cancer

Study design, randomised crossover

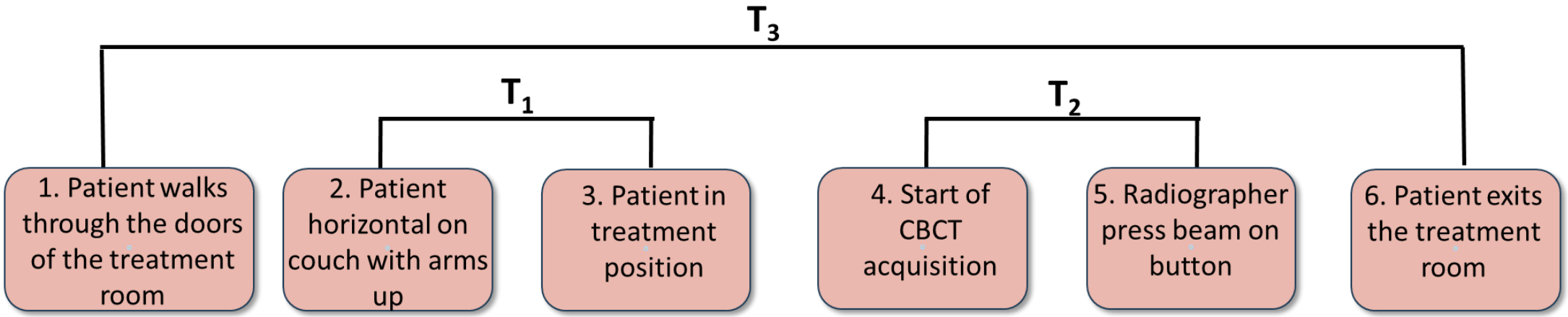
The order is randomised

Not included in the analysis

	Fx.1	Fx.2	Fx.3	…	…		Fx.7	Fx.8	Fx.9	…	…				Fx.15	
Patient 1	X	X	X	X	X	X	X	X								PV function
									X	X	X	X	X	X	X	Without PV function
Patient 2	Fx.1	Fx.2	Fx.3	…	…		Fx.7	Fx.8	Fx.9	…	…				Fx.15	
									X	X	X	X	X	X	X	PV function
	X	X	X	X	X	X	X	X								Without PV function
…….																
Patient N	Fx.1	Fx.2	Fx.3	…	…		Fx.7	Fx.8	Fx.9	…	…				Fx.15	
	X	X	X	X	X	X	X	X								PV function
									X	X	X	X	X	X	X	Without PV function

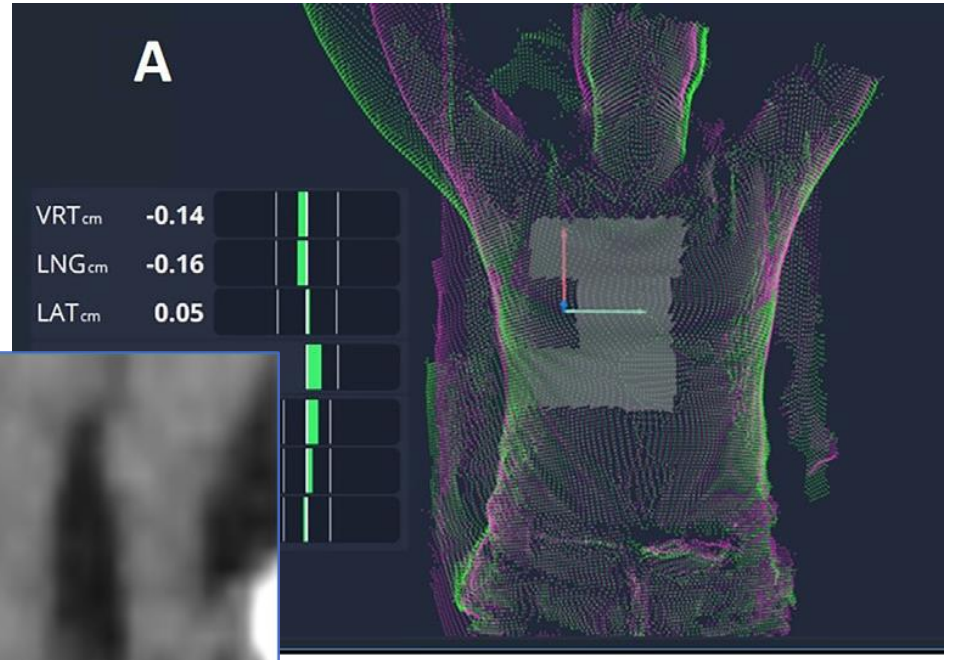
Material and methods

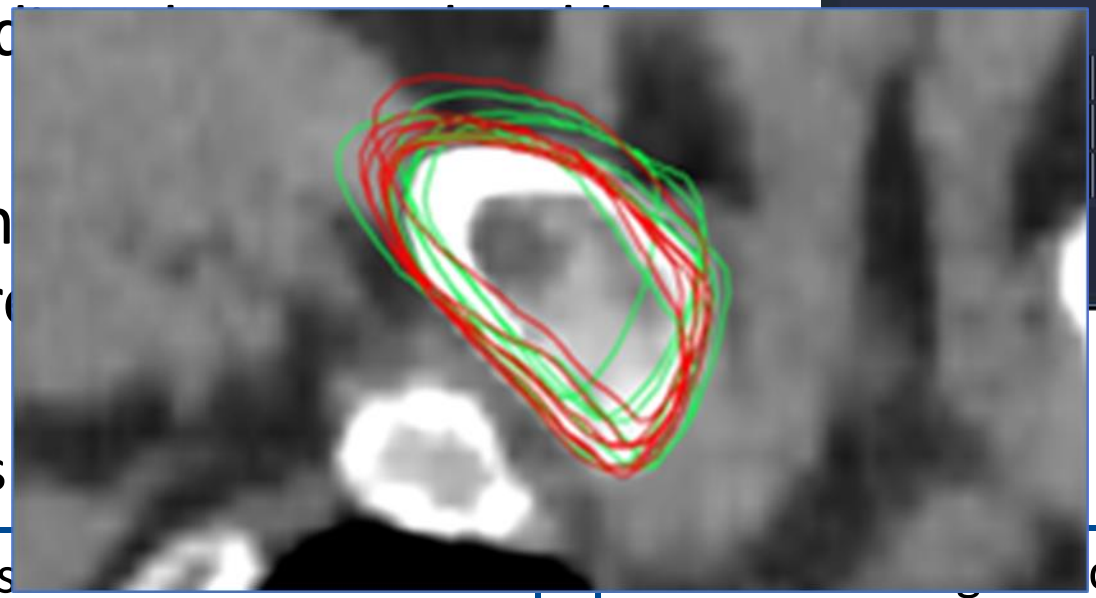
- 26 patients were included
- Pre-treatment Cone Beam (CBCT) was acquired at every fraction
- Couch shifts after CBCT match were used to calculate potential systematic and random errors (if shift had not been corrected)
- Six time points through the procedure were recorded



Material and methods

- A standardised predefined region of interest (ROI) was used for alignment (including stable chest wall and exclu
and breast tissue)
- The position of the n
fraction was compar
planning CT (clavicle
  - Two co-registrations





using coach shifts
from online match

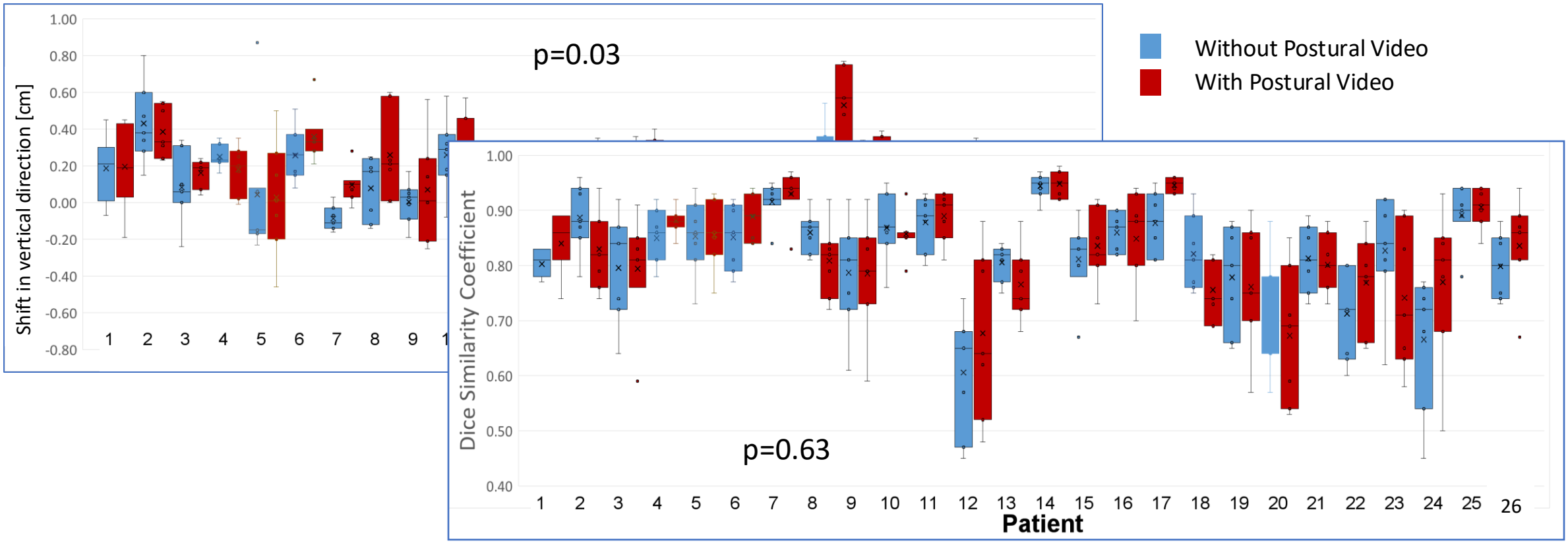
CBCT → planning CT

cle as
matching ROI

CBCT → planning CT

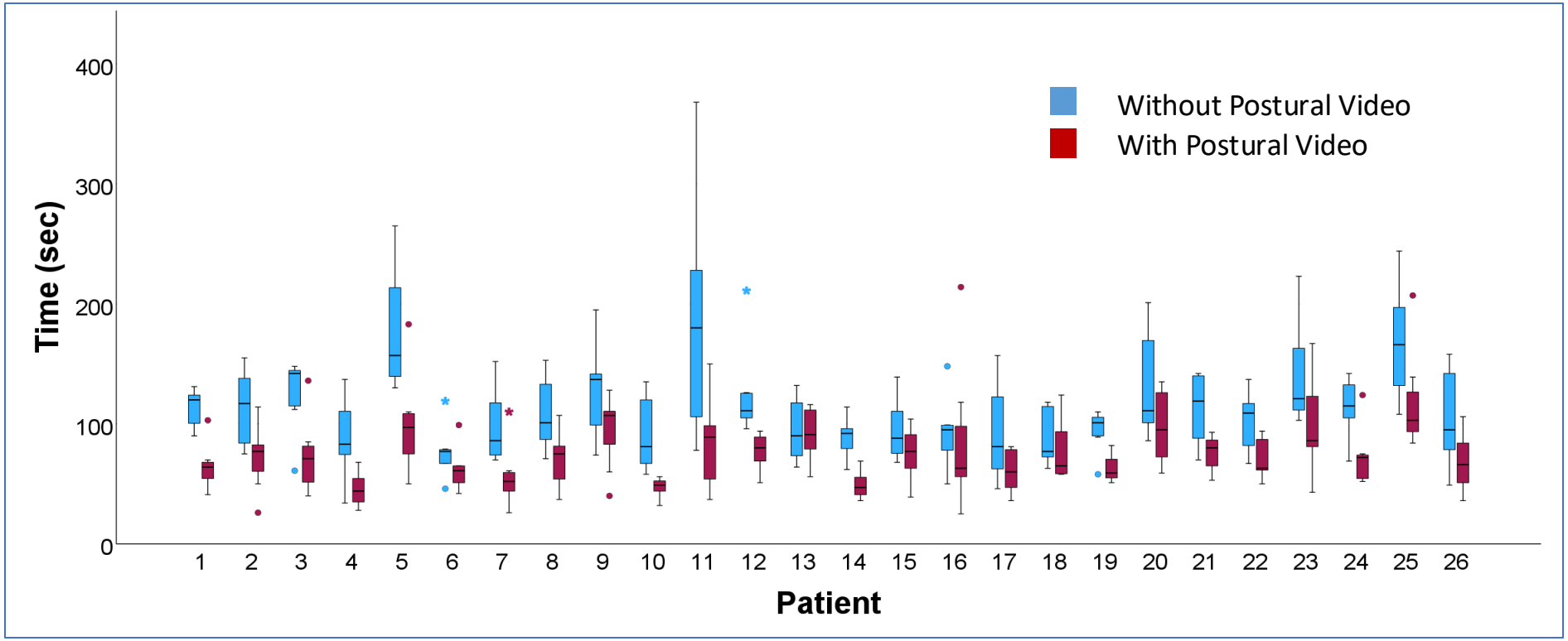
Results

- We only found negligible differences in the setup accuracy



Results

Setup efficiency was significantly improved using Postural Video function with an average reduction of **40 seconds** from patient horizontal on the couch with arms up to patient in treatment position



Conclusion

- By using the Postural Video function during the setup of right-sided locoregional breast cancer patients, one can significantly reduce setup time without compromising setup accuracy
- The business case was approved, and we were allowed to invest in Postural Video function for all our linacs
- The activity was reduced with one evening shift on one linac

- The work was published, *Svestad et al Adv. Radiat Oncol(2025) 10, 101829*

Thanks to the study group

- Jørund Graadal Svestad, Medical physicist
- Stine Gyland Mikalsen, Medical physicist
- Mojgan Heydar, Medical physicist
- Regine Hjort Francke, Radiotherapy technician
- Maziar Hervani, Radiotherapy dosimetrist

Thank you for your attention!