

Pectoralis muscle wasting during chemotherapy

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Background

- Chemotherapy is often followed by muscle mass loss which has been associated with frailty.
- We explored factors associated with change in pectoralis muscle mass after chemotherapy using it as a surrogate for muscle mass loss.

Objectives

- We hypothesized greater muscle loss with time would be associated with poorer overall survival.

Methods

- Baseline right pectoralis muscle was measured using CORESLICER (figure 1) and indexed to body surface (right pectoralis muscle area [cm²]/ body surface [m²]).
- Participants were broken into quartiles and restricted to those who received a comparison CT within 2 years after starting chemotherapy.
- In a multivariate linear regression, we explored associations of sex, age, BMI, ever-smoking, time since start of chemotherapy, indexed baseline muscle area, stage of cancer, type of diagnosis, and cumulative anthracycline dose with relative change in muscle area.

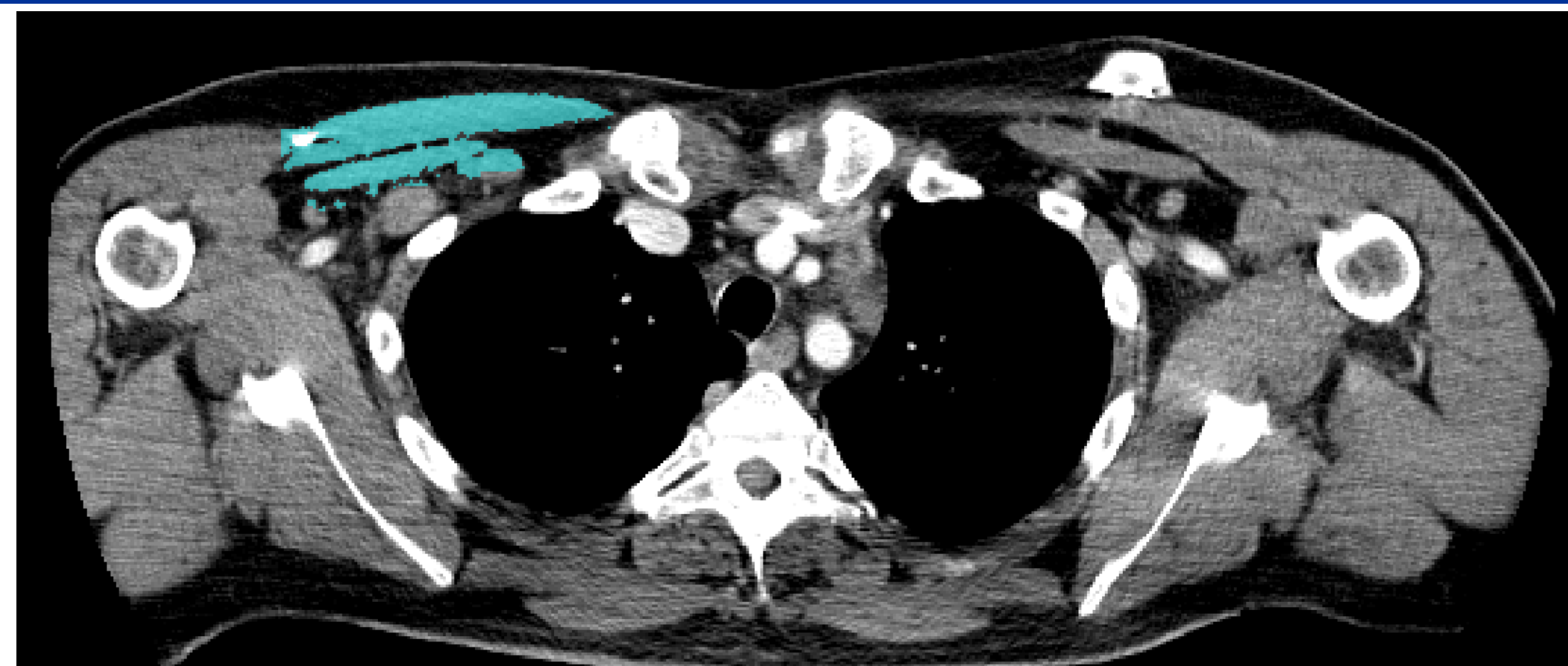


Figure 1: CORESLICER

	Females N = 323 Mean (SD)	Males N = 164 Mean (SD)
Age at baseline CT, years	60.7 (10)	62.3 (10.2)
BMI	28.3 (6.4)	29.3 (5.3)
Right pectoralis, cm ²	14.9 (4.3)	26.3 (8.8)
	N (%)	N(%)
Cancer diagnosis		
- Breast Cancer	195 (60.4)	3 (1.8)
- Sarcoma	81 (25)	107 (65.2)
- Lymphoma	47 (14.6)	54 (32.9)
White, non-Hispanic	302 (93.5)	160 (97.6)
Tobacco use, ever	142 (44)	93 (56.7)

Table 1: Baseline characteristics

Results

- Average loss of muscle area was -10% for women and -12% for men.
- The greatest predictor of muscle loss was larger indexed baseline muscle area (table 2).
- There was no significant association between muscle change and overall survival (median follow up time 4.1 years).

Baseline pectoralis muscle mass area (per m ² body surface), quartiles	Mean % change (SD)
Q1	-2.0 (23.6)
Q2	-8.3 (14.2)
Q3	-10.7 (18.5)
Q4	-20.5 (19.7)

Tables 2: Relative (%) muscle changes by baseline muscle area, N = 477, 2009-14

Conclusion

- In total, being female, larger baseline muscle mass (per m² body surface), ever smoking, and a sarcoma diagnosis were associated with greater relative muscle loss after chemotherapy.
- More data is needed to understand the course of sarcopenia in terms of recovery and survivorship.