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## Background

- Cancer-Related Fatigue (CRF) is a common, high-impact symptom
- Pathophysiology poorly understood
- Hypothesis: Cardiac dysfunction contributes to CRF
- Myocardial strain is a sensitive method of measuring left ventricular (LV) function

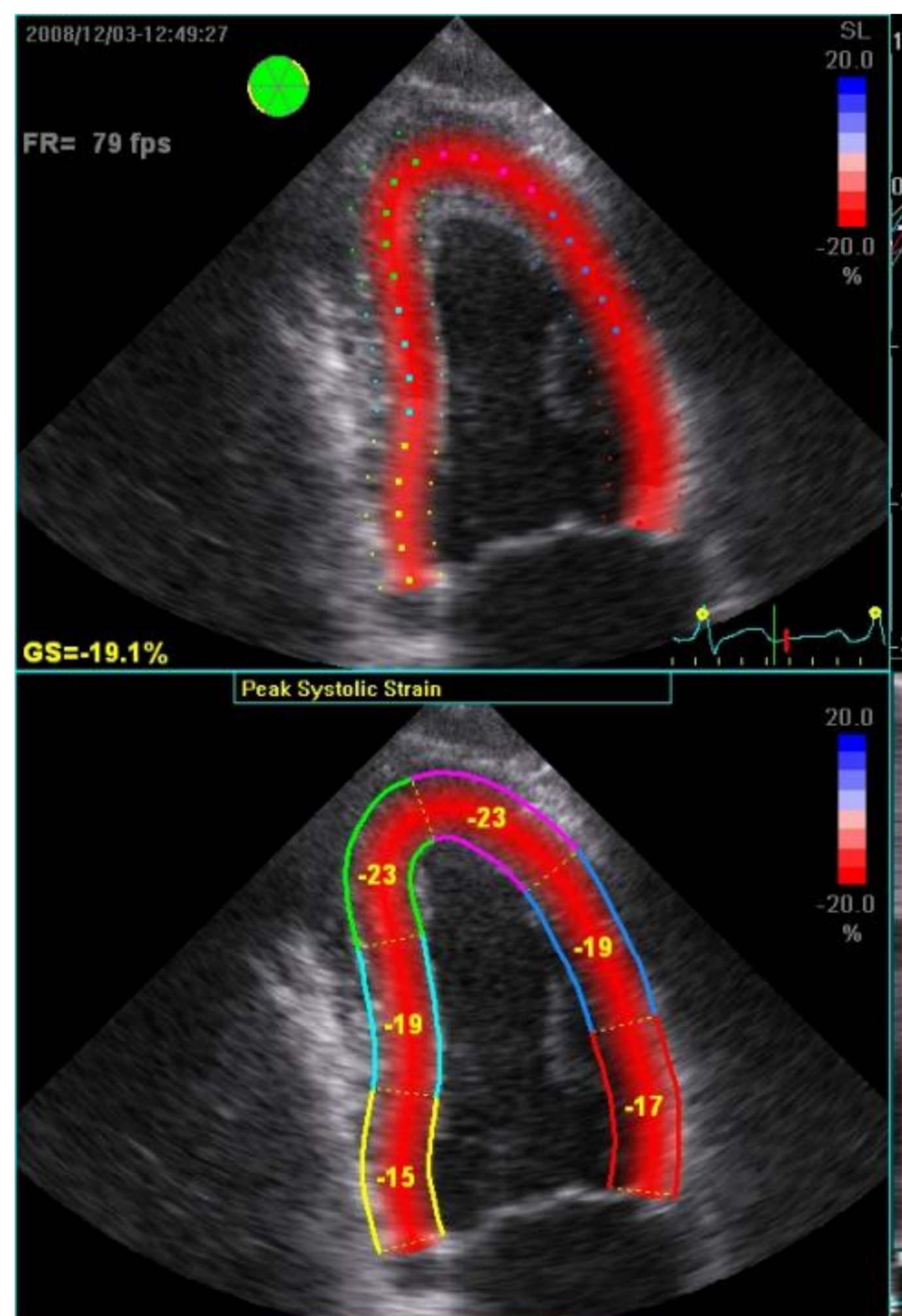
## Aim

Investigate CRF and cardiac function in solid tumours



## Methods

- Prospective observational study
- Inclusion criteria: Consecutive, treatment naïve, oncology outpatients
- Exclusion criteria: previous cancer, known cardiovascular disease
- Participants identified as 'fatigued' based on brief fatigue inventory (BFI) score of  $\geq 3$



Myocardial strain analysis

## Outcome Measures

### FATIGUE

- BFI
- Hand grip strength
- Timed Up and Go (TUG)
- Sit to Stand (STS)

### CARDIAC FUNCTION

- 2D echo:
  - Systolic function: LV ejection fraction (LVEF)
  - Diastolic function: Mitral valve E/A ratio; Isovolumic Relaxation Time (IVRT)
  - Myocardial strain
- Cardiac biomarker: NT-BNP

## Results

N=42; 30♀

Age: Median 57 (range 38-82)

Cancer type:

- Breast 28
- Oesophageal 13
- Prostate 1

Loco-regional disease: 25

BFI: Median 1.7 (range 0-7.7)

BFI  $\geq 3$ : 14/42 (33%)

	Fatigued Median (range) N=14	Non-Fatigued Median (range) N=28
Grip strength (kg force)	21 (7-33)	24 (13-48)
TUG (s)	8 (6-12)	7 (5-10)
STS (number in 30s)	13 (6-16)	14 (8-25)
LVEF (% , normal $\geq 55$ )	68 (63-80)	69 (56-84)
Mitral valve E/A (ratio, normal $>1$ )	0.95 (0.3-1.8)	1.2 (0.7-2.1)
IVRT (ms, normal $80 \pm 12$ )	98 (88-133)	107 (70-124)
	N=10	N=22
Global longitudinal strain (% , normal 16-22)	18 (16-24)	19 (15-25)
	N=7	N=19
NT-BNP (ng/L, normal $<300$ )	26 (8-66)	40 (6-354)

## Conclusions

- High proportion fatigued pre-treatment
- Indicators of diastolic dysfunction present:
  - E/A ratio reduced in fatigued participants
  - Prolonged IVRT in both groups
- No difference in myocardial strain levels between groups