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Radical radiotherapy for Non-Small Cell Lung Cancer (NSCLC): Real world outcomes for two accelerated fractionation schedules

Stephen D Robinson, Katie AR Absalom, Amila Lankatilake, Tathagata Das,
Caroline Lee, Patricia M Fisher, Emma Bates, Matthew Q Hatton.
Department of Clinical Oncology, Weston Park Hospital, Sheffield, UK.

Contact: Sdrobinson@doctors.org.uk

INTRODUCTION

Numerous radiotherapy regimes are used for inoperable NSCLC who are not suitable for stereotactic ablative radiotherapy. Our centre has used continuous hyperfractionated accelerated radiotherapy (CHART, 54Gy in 36 fractions over 12 days) and accelerated hypofractionated radiotherapy (55Gy in 20 fractions over 4 weeks) with selection largely down to patient choice (in-patient vs out-patient treatment).

This audit reviews patients treated with radical radiotherapy between 2010 - 2015.

METHODS

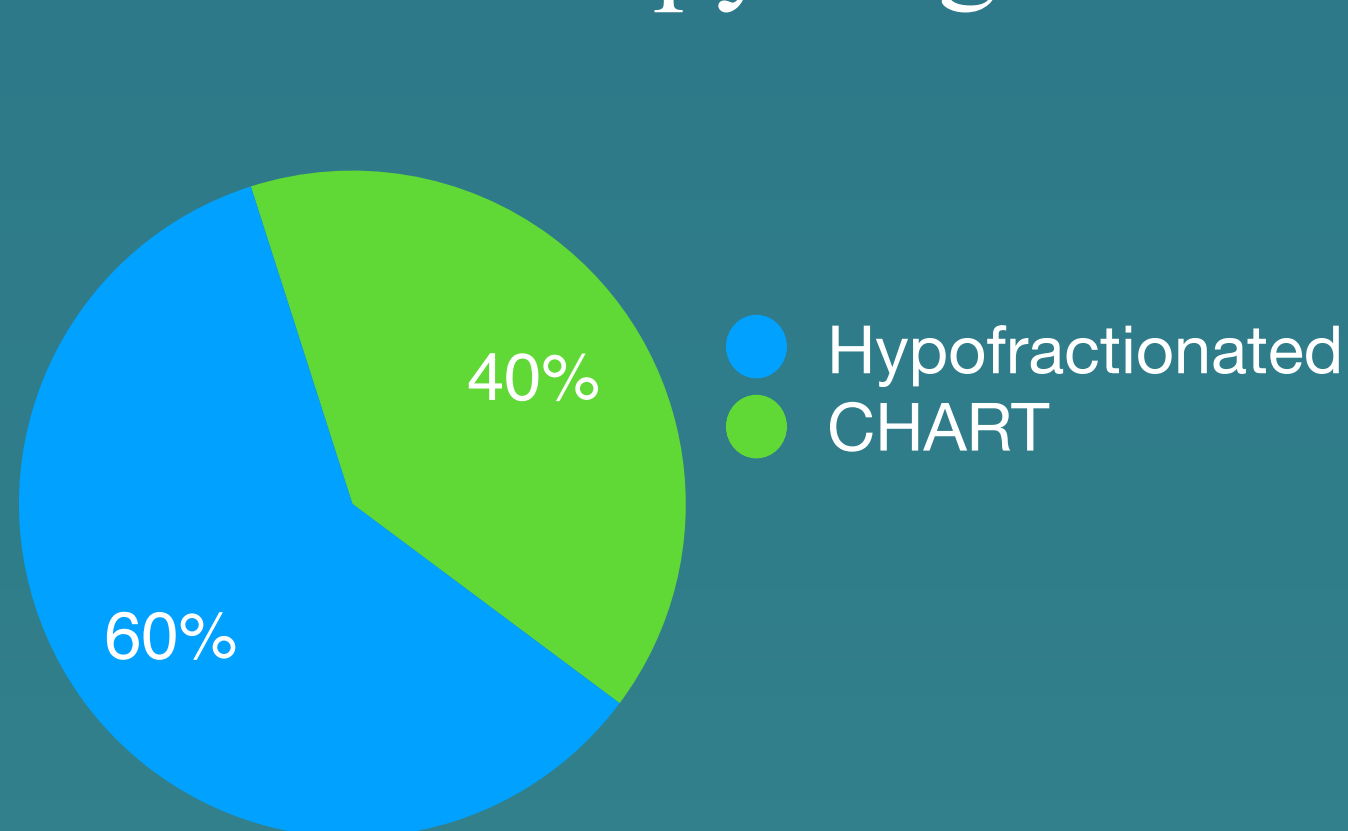
Case notes and radiotherapy records for all patients receiving radical radiotherapy were retrospectively reviewed. Basic patient demographics, tumour characteristics, radiotherapy and survival data were collected. Descriptive statistical analysis and Cox regression analysis was performed using SPSS.

RESULTS - Demographics

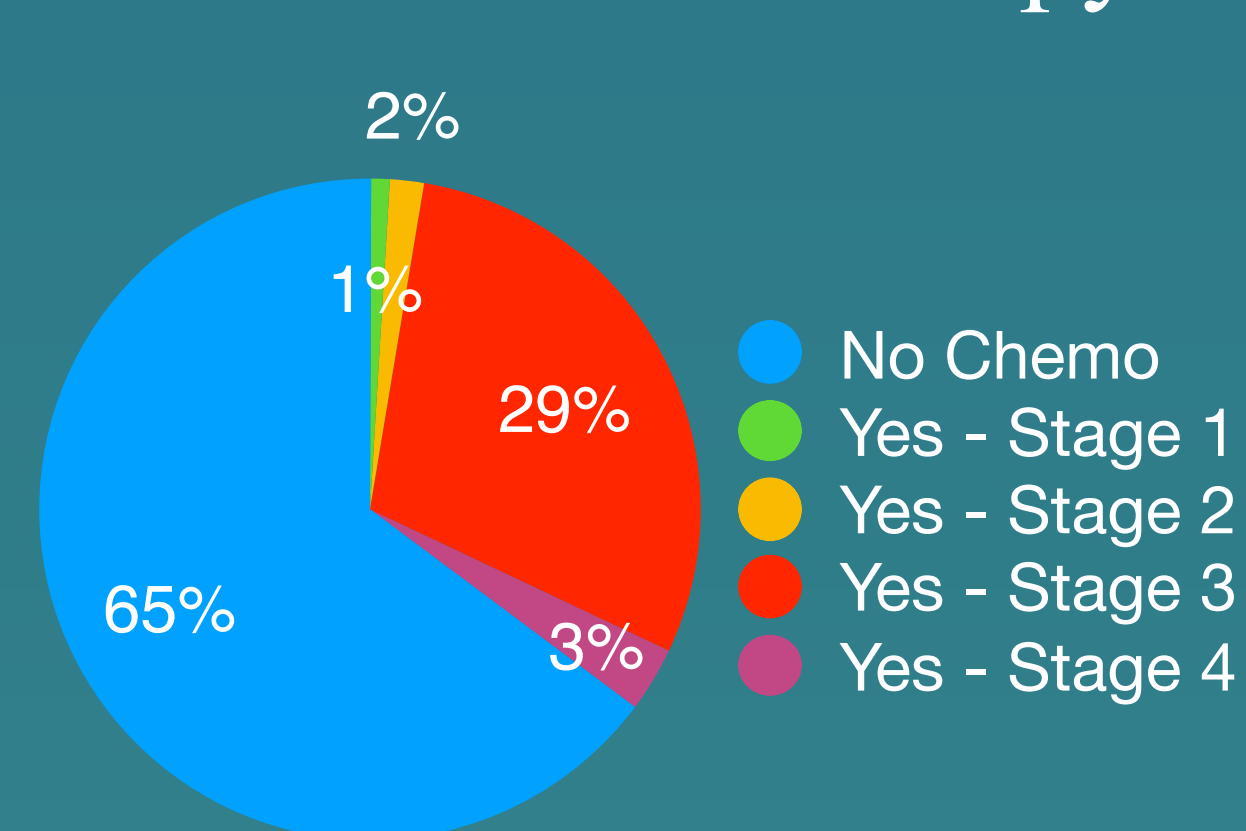
563 patients received radical radiotherapy between 2010-15.

Demographic		Number of patients / Median	Percentage of patients (%) / Range
Gender	Male	316	56.1
	Female	247	43.9
Age	Median; Range	71	36-93
Performance Status	0	94	16.7
	1	203	36.1
	2	123	21.8
	3	9	1.6
	Unknown	134	23.8
FEV1, L	Median; Range	1.6	0.6-3.67
	Unknown	269	47.8
Site of Primary	Central	4	0.7
	Right	308	54.7
	Left	247	43.9
	Unknown	4	0.7
Histology	Squamous Cell	264	46.9
	Adenocarcinoma	144	25.6
	Other histology	38	6.7
	No histology	117	20.8
Stage (TNM v7)	1	171	30.4
	2	77	13.7
	3	281	49.9
	4	33	5.9
	Unknown	1	0.2
PET performed?	Yes	532	94.5
	No	31	5.5

Radiotherapy Regimen



Prior Chemotherapy



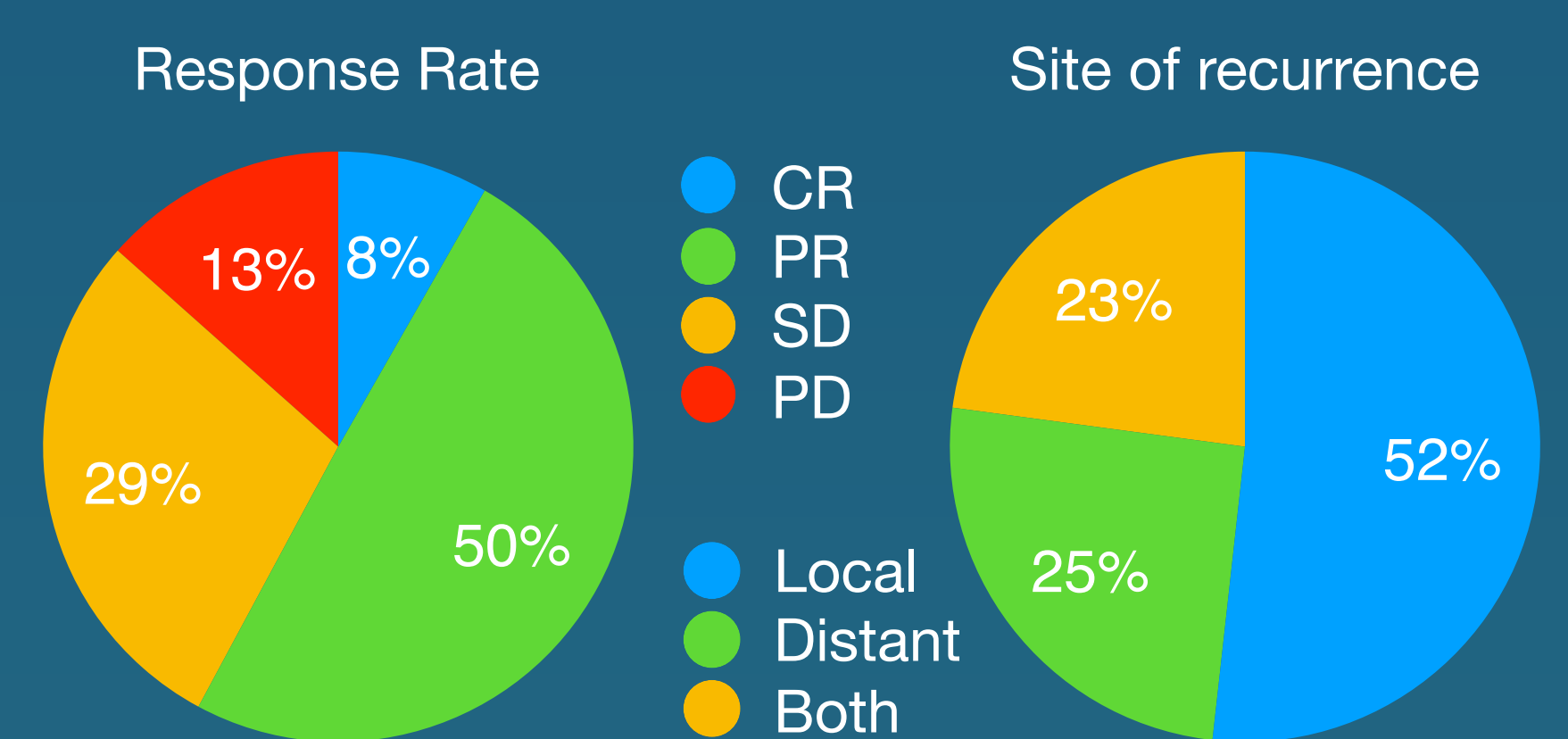
99.1% completed their prescribed radiotherapy treatment.

RESULTS - Outcome

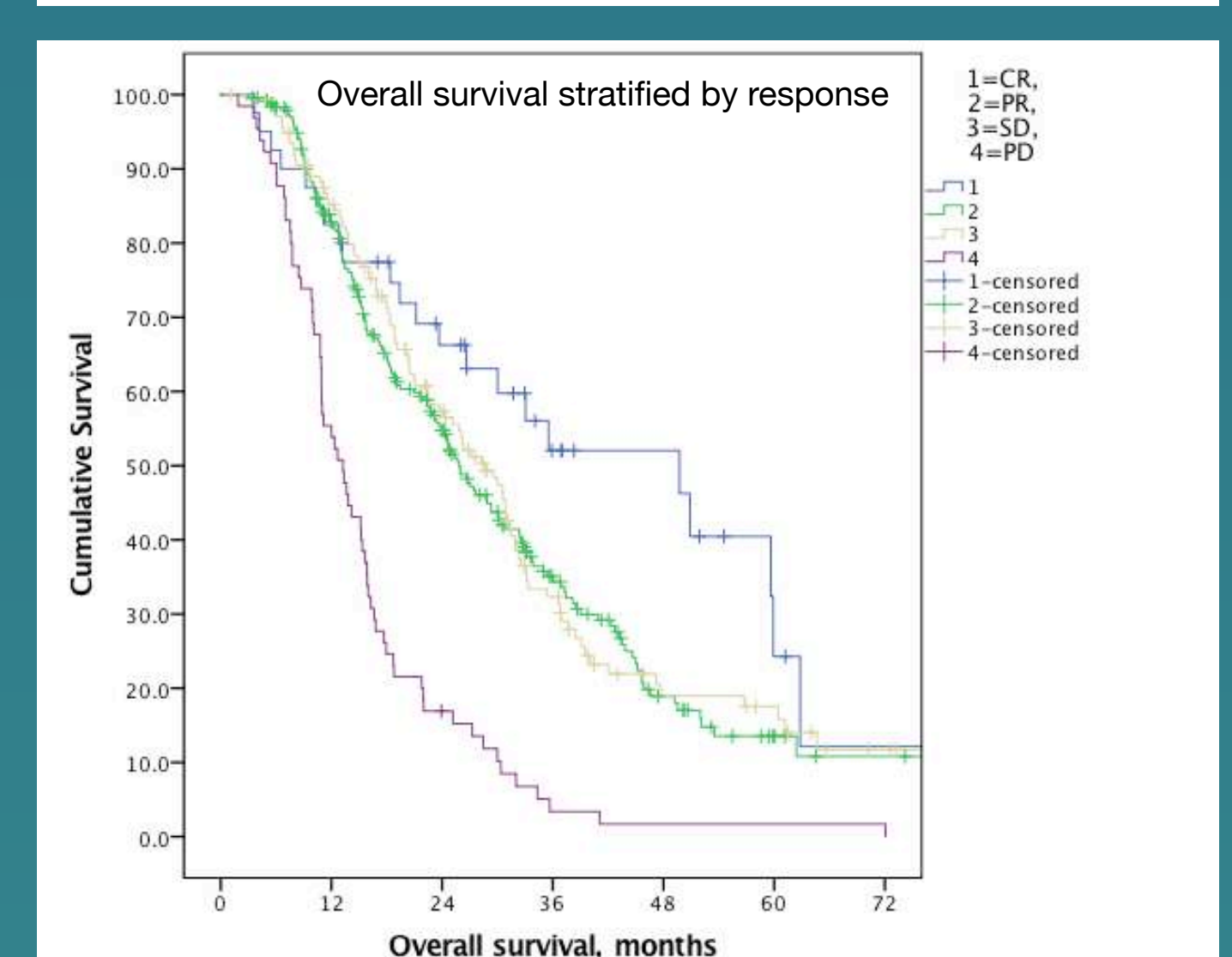
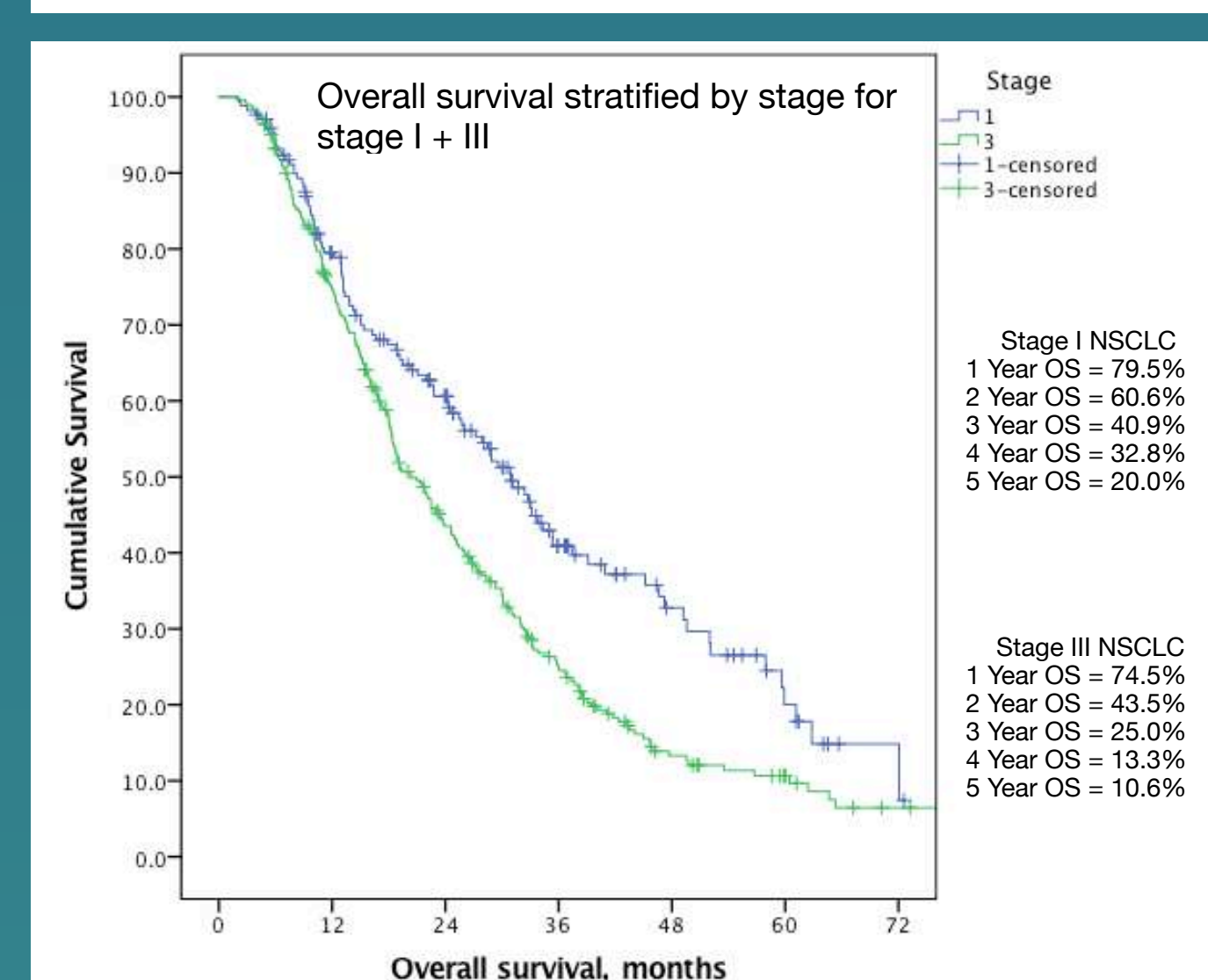
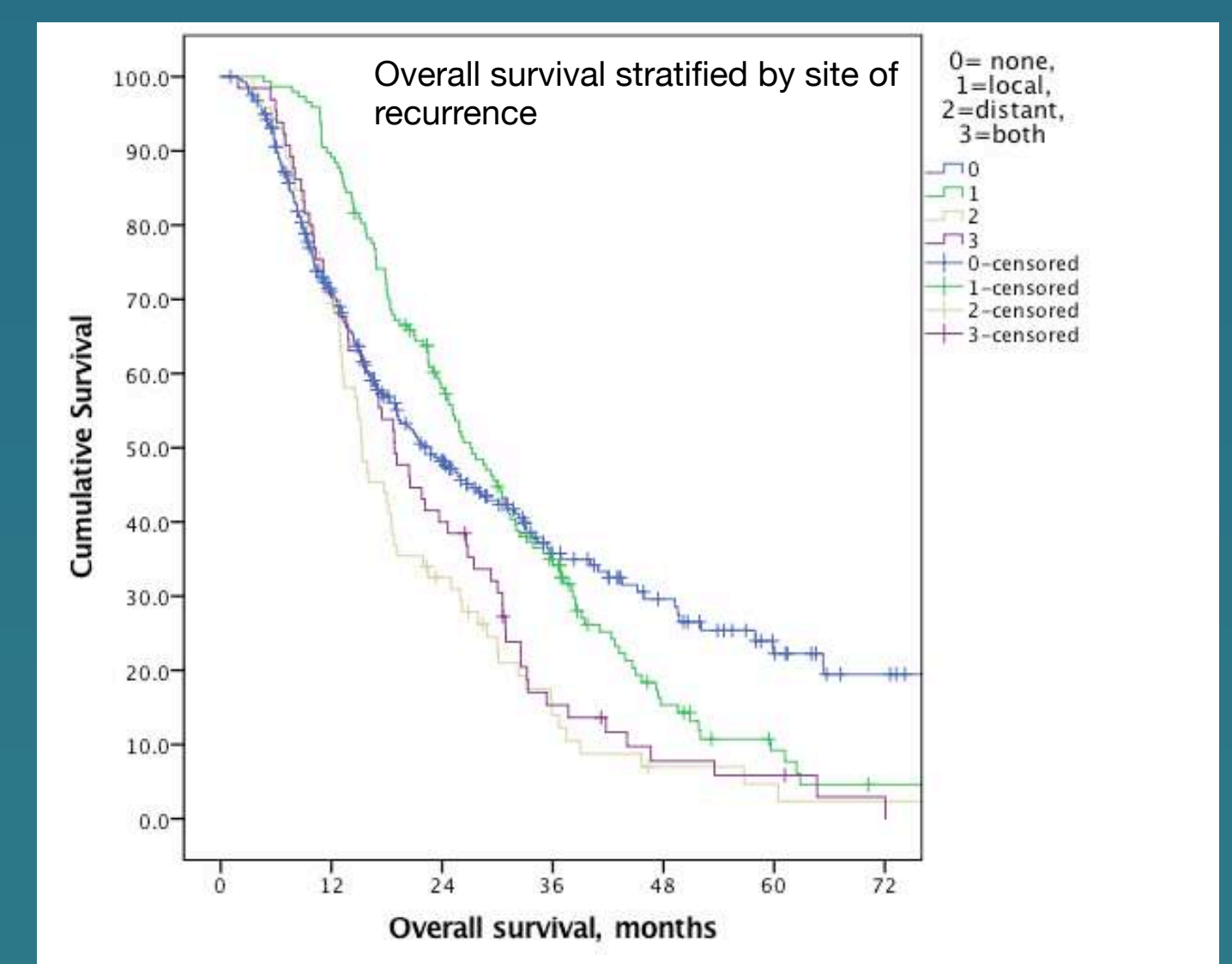
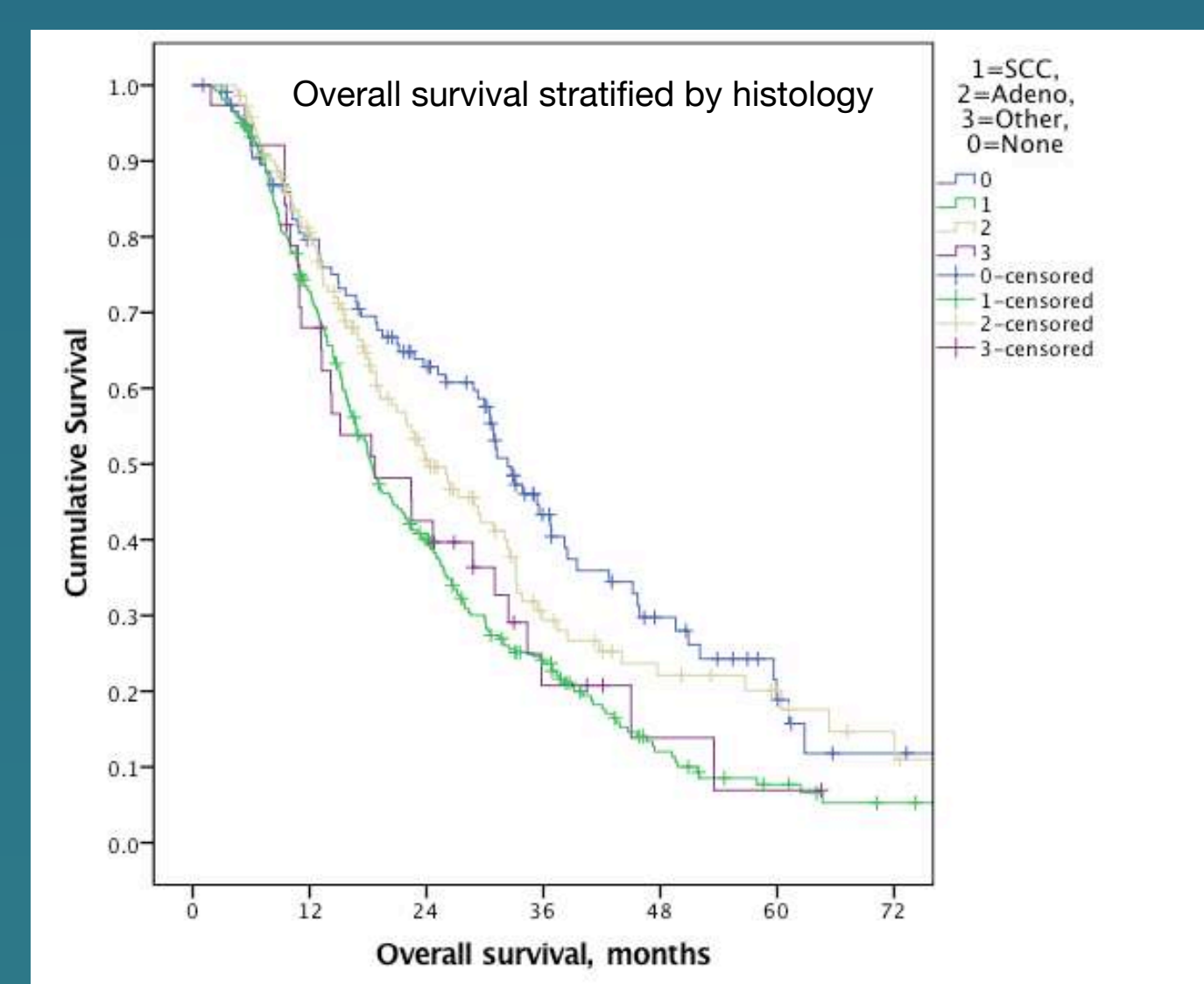
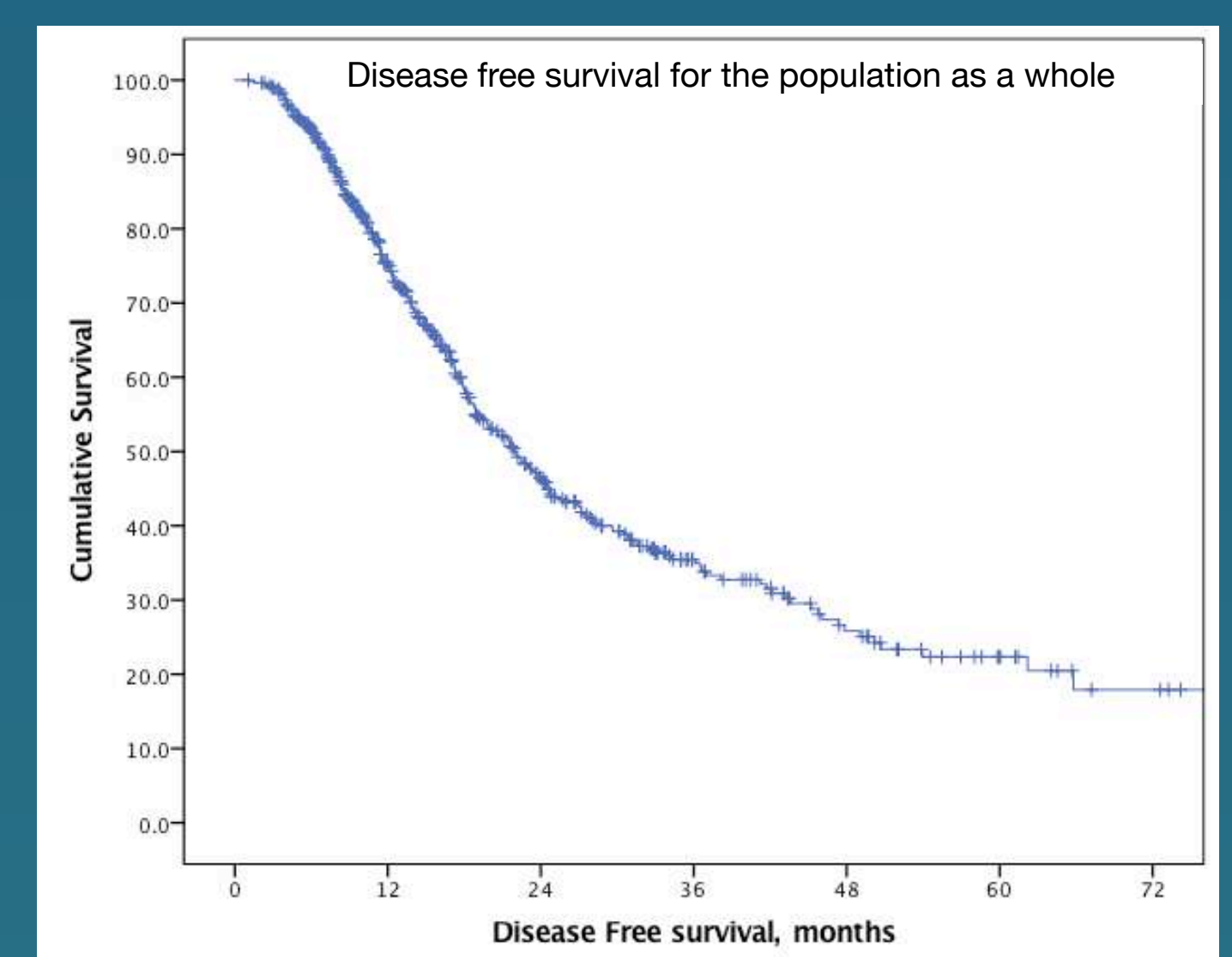
Median disease-free survival was 19 months.

Median overall survival of 22.5 months, with a 6.5% 90-day mortality rate.

Median OS was 31 and 20 months respectively for stage I and III NSCLC.



On Univariate Analysis
 Histology: p=0.000
 Stage: p=0.001
 Response: p=0.000
 Recurrence: p=0.022
 Site of recurrence: p=0.000
 Gender: p=0.101
 Performance status: p=0.512
 Chemotherapy: p=0.762
 Radiotherapy regimen: p=0.736
On Multivariate Analysis
 Performance status: p=0.008
 Histology: p=0.003
 Stage: p=0.002
 Chemotherapy: p=0.002
 Response: p=0.000
 Recurrence: p=0.000
 Gender: p=0.844
 Age: p=0.304
 Radiotherapy regimen: p=0.945



CONCLUSIONS

This represents a large unselected cohort of patients treated with radical radiotherapy for NSCLC. It demonstrates both schedules are deliverable and safe with no statistically significant difference in survival. Future dose escalation studies (eg ADSCAN [1]) are required to develop these techniques to match outcomes reported by recent concurrent chemo-radiation studies [2].

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