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

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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

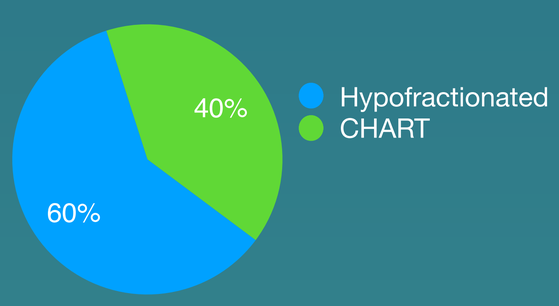
Case notes and radiotherapy records for all patients receiving radical radiotherapy were retrospectively reviewed. Basic patient demographics, tumour characteristics, radiotherapy and survival data were collected. Descriptive statistical analysis and Cox regression analysis was performed using SPSS.

RESULTS - Demographics

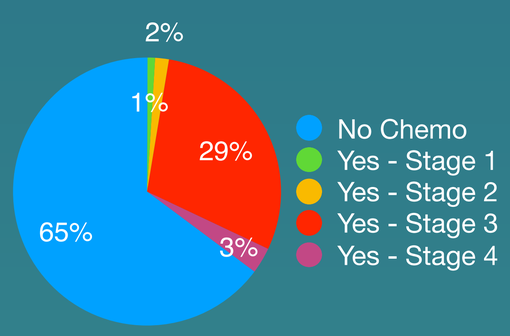
563 patients received radical radiotherapy between 2010-15.

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.

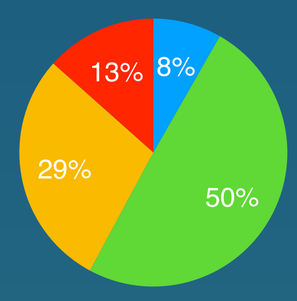
RESULTS - Outcome

Median disease-free survival was 19 months.

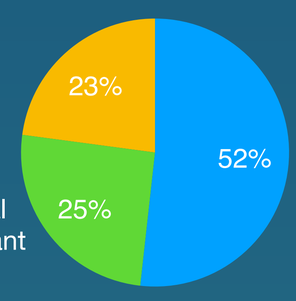
Median overall survival of 22.5 months, with a 6.5% 90-day mortality rate.

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

Response Rate



Site of recurrence

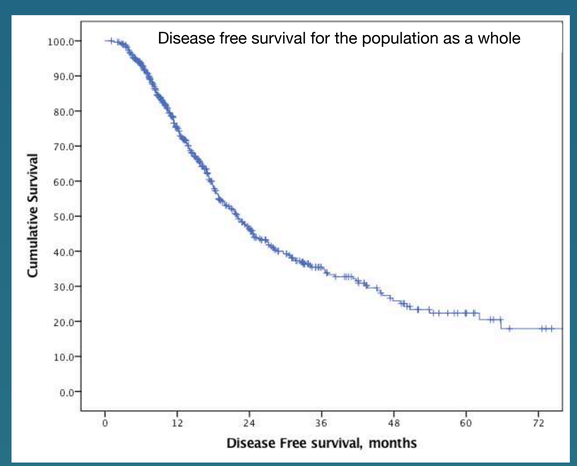


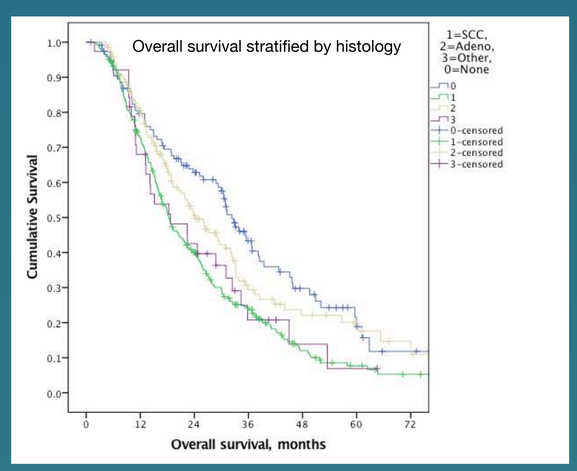
On Univariate Analysis
Histology: p=0.000
Stage: p=0.001
Response: p=0.000
Recurrence: p=0.022
Site of recurrence: p=0.000

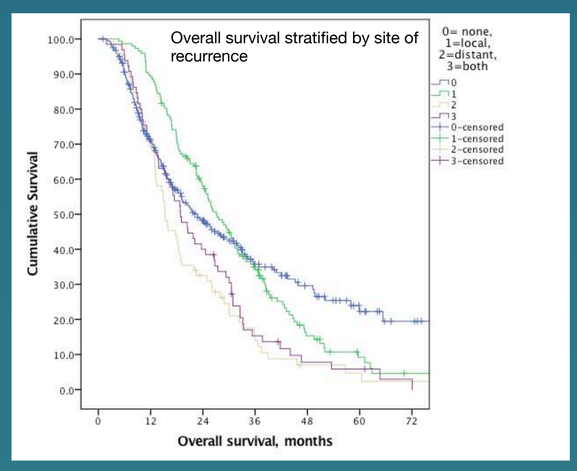
Gender: p=0.101
Performance status: p=0.512
Chemotherapy: p=0.762
Radiotherapy regimen: p=0.736

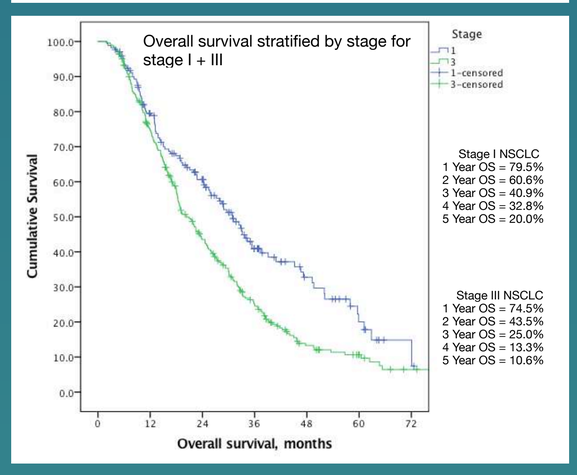
On Multivariate Analysis
Performance status: p=0.008
Histology: p=0.003
Stage: p=0.002
Chemotherapy: p=0.002
Response: p=0.000
Recurrence: p=0.000

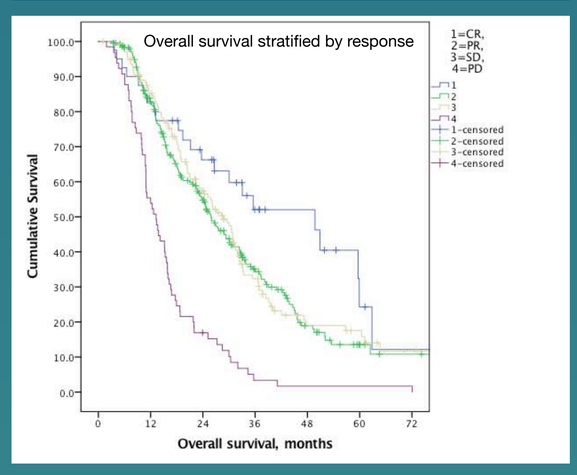
Gender: p=0.844
Age: p=0.304
Radiotherapy regimen: p=0.945











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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